

ICES Annual Report

for

1997/1998

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 1997/1998
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 1998*, which outlines the Council's activities between 1 November 1997 and 31 October 1998, and incorporates the proceedings of the 1998 Annual Science Conference (86th Statutory Meeting) held in Cascais, Portugal.

Highlights of 1997/1998

1) The ICES Work Programme

The Council at the 1997 ICES Annual Science Conference (Baltimore, Maryland, USA) adopted the Work Programme for 1997/1998. The Programme, comprising both Core Science and the Advisory Function, was carried out between 1 November 1997 and 31 October 1998. It involved the participation of about 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 1997 to 31 October 1998*".

2) 1998 Annual Science Conference, Portugal

The 1998 ICES Annual Science Conference was held from 16-19 September 1998, by kind invitation of the Government of Portugal, at the Hotel Estoril Sol in Cascais. Over 1,000 participants—including scientists and other delegates, representatives of other international and intergovernmental organisations, senior government officials and dignitaries—attended the General Assembly, the Mini-Symposium and Scientific Sessions, the Closing of the Scientific Sessions, and the Business Sessions of the Council. The Conference, arranged against a backdrop of superb Portuguese hospitality with enticing surroundings and balmy weather, was one of the most successful held by ICES. These aspects are further reported on under the section of this Annual Report entitled "*Proceedings of the 1998 Annual Science Conference*".

3) Preparing for the ICES Centenary in 2002 and Facing the Challenges of the 21st Century

- a) New Science Committees: Having been established at the 1997 Annual Science Conference, the seven new interdisciplinary Science Committees (i.e., Oceanography, Marine Habitat, Living Resources, Resource Management, Fisheries Technology, Mariculture, and Baltic) carried out their tasks in 1997/1998 according to the remits approved by the Council. These Committees are *inter alia* addressing the Research and Develop-

ment (R & D) needs of the ICES Core Science Programme to better respond to the Agenda 21 'sustainability' issues arising from the 1994 UN Conference on the Environment and Development (UNCED). Sustainability issues figure centrally in developing the Precautionary Approach in scientific advice and management. Thus, the Science Committees will play an essential role in strengthening the capability of ICES to provide novel advice to its Partner Commissions. This is further reported on under the section of this Annual Report entitled "*Proceedings of the 1998 Annual Science Conference - Reports of Science Committees and Theme Sessions*".

- b) Enhancing the Advisory Function: The Coordinating Group on ICES Advice (CGADV) reported and submitted its proposals to the Council at the 1998 Annual Science Conference. The Council agreed *inter alia* that—for a one-year Pilot Project—the Advisory Committee on Fisheries Management (ACFM) would continue to deal with standard fisheries advisory tasks while the Advisory Committee on the Marine Environment (ACME) take the lead in dealing with all other advisory tasks. It was also agreed to establish a Pool of Experts from each Member Country to better handle the wide-ranging requests for scientific advice. CGADV was charged with overseeing the formulation of a draft ICES Quality Policy, initiating the development of Quality Management Procedures for the Advisory Functions, and considering feedback from the 11th ICES Dialogue Meeting on the Relationship Between Scientific Advice and Management (Nantes, France, 25-26 January 1999). These issues are further reported on under the section of this Annual Report entitled "*Proceedings of the 1998 Annual Science Conference - Report of Delegates Meeting*".
- c) Partnership Between ICES and the Cooperating International Regulatory Commissions: In 1997, ICES and the Commissions (i.e. European Commission - EC, Helsinki Commission - HELCOM, OSPAR Commission, International Baltic Sea Fishery Commission - IBSFC, North Atlantic Salmon Conservation Organization - NASCO and the North-East Atlantic Fisheries Commission - NEAFC) agreed to collaborate further on a common goal of scientifically based conservation and management of fisheries and the marine environment. From 16-17 June 1998, ICES and the Commissions met to review progress in developing Memoranda of Understanding/Agreements outlining the administrative and financial details

of the new advisory relationship. In September 1989 ICES and the IBSFC signed their Memorandum of Understanding, and it is anticipated that those Memoranda of Understandings/Agreements with NEAFC, the EC, HELCOM, and NASCO will be signed in November 1998, March 1999, March 1999, and June 1999, respectively. These actions will underline the role of ICES as the premier scientific adviser of riparian States and their Commissions in the northeast Atlantic, as well as the Barents Sea, the North Sea and the Baltic Sea.

To further underline the importance of the relationship between ICES and its partners—both Member Countries and Partner Commissions—substantial progress was made in planning for the 11th ICES Dialogue Meeting on the Relationship Between Scientific Advice and Management to be held in Nantes, France, in late January 1999. The topics addressed are the Precautionary Approach, the Form and Nature of the Advice, and Confidence Building. The meeting will provide a unique opportunity for senior scientists and high-level administrators from the Member Countries, as well as representatives of the Partner Commissions and other collaborating international organisations, to exchange forthright views on the steps necessary to face current and emerging challenges in this field. On the basis of the feedback from the stakeholders at this meeting, ICES will consider appropriate steps to revise the functioning of its advisory procedures.

- d) **Strategic Planning:** The Bureau Working Group on Strategic Planning submitted its report—drafting ICES Vision and Mission Statements with supporting Institutional Goals—to the Council at the 1998 Annual Science Conference. The Chair of the Group presented a synopsis of the report at the General Assembly. The report was commended by the Council, and will form the basis for future input from ICES Committees and Working Groups to prepare a Strategic Five-Year Plan designed to carry ICES into the 21st Century. ICES stakeholders, including a wide range of institutions, will be invited to review the draft Strategic Plan.
- e) **Preparing for the ICES Centenary:** The Centenary Annual Science Conferences (Statutory Meetings) of ICES to celebrate the important ICES-related meetings that were held in Stockholm in 1899, Christiania (now Oslo) in 1901, and Copenhagen in 1902, will commence with the Annual Science Conference in Sweden in September 1999, followed by similar meetings in Norway in 2001, and culminating in Denmark in 2002 with the Centenary of the Inaugural Meeting of ICES. In order to highlight the above-mentioned Centenaries, particular Cen-

tenary Days have been identified with special events being planned. However, the Centenaries in 1999, 2001, and 2002, are intended as forums for a wide range of events and activities extending beyond the actual Centenary Days themselves. ICES has established a Centenary Fund to cover some of the associated costs, including the preparation of a book marking the history of ICES. The preparations for the Centenary are overseen by the Bureau Working Group on Planning for the Centenary, as well as a Coordinating Group involving Senior Officials from Sweden, Norway, and Denmark, and the ICES Secretariat.

The forthcoming 1999 Annual Science Conference (87th Statutory Meeting) to be held from 29 September to 2 October 1999 in Stockholm, Sweden, will form a very memorable and enjoyable start to the ICES Centenary process.

Layout of the Annual Report for 1997/1998

The *Annual Report for 1997/1998* is arranged under the following main headings (c.f. Table of Contents):

1. *ICES and Activities in 1997/1998; including*
 - a) *Foreword by the General Secretary* – draws attention to specific highlights of the past year, and provides a summary overview of the layout of the Annual Report;
 - b) *The International Council for the Exploration of the Sea: An Introductory Note* – provides 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 1997 to 31 October 1998* – provides 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 1998 Annual Science Conference, including*
 - a) *Agenda for 1998 Annual Science Conference* – details the main items comprising the Statutory Meeting;
 - b) *General Assembly, with Welcome Addresses by Marcelo Vasconcelos (Portuguese Secretary of State for Fisheries) and Dr Scott Parsons (President of ICES),* – provides a review of the General Assembly, including key

- addresses by dignitaries, and the Open Lecture;
- c) *Closing of the Scientific Sessions* – review of elections and appointments by the Council, key addresses, and the closing of the Science Conference *sensu stricto*;
 - d) *Report of Delegates Meeting* – provides a summary report of the deliberations and endorsements of the Council of National Delegates with regard to policy, operations, and the work-programme for 1998/1999;
 - e) *Resolutions Adopted at the 1998 Annual Science Conference* – provides 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;
 - f) *Report of the Finance Committee* – comprises a review of the ICES Accounts, and various Budgets, prior to further consideration and approval by the Council;
 - g) *Audited Income and Expenditure Accounts for Financial Year 1996/1997* – shows the audited ICES Accounts for 1996/1997 as approved by the Finance Committee;
 - h) *Budget for Financial Year 1998/1999* – shows the ICES Budget for the forthcoming year as endorsed by the Council;
 - i) *Report of the Publications Committee* – reviews ICES publication activities during 1997/1998 as well as possible future needs, prior to further consideration and approval by the Council;
 - j) *Reports of Science Committees and Theme Sessions* – together with Supplements 1 and 2, provides the reports of the Consultative Committee, the seven Science Committees, and the reports of the Theme Sessions at the 1998 Annual Science Conference. A list of names and addresses of officially registered participants at the 1998 Annual Science Conference is given in Supplement 4.
3. *Overview of ICES Membership, Organisation and International Collaboration*; including
 - a) *Composition of the Council in 1998/1999* – provides 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 1998/1999* – provides an overview of the identity of Chairs, national representatives, *ex officio* members of the Advisory Committees on Fishery Management (ACFM) and the Marine Environment (ACME), and the seven Science Committees;
 - c) *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;
 - d) *Directory of ICES Committees and Subsidiary Groups* – provides 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;
 - e) *Chairs of ICES Committees and Subsidiary Groups* – identifies who chairs these;
 - f) *Names and Addresses of Council Officials and Chairmen of Committees and Groups* – provides fax, phone, and mail details;
 - g) *International Organisations having Observer Status and Cooperative Relations with ICES* – identifies 52 collaborating organisations.
 4. *Acronyms Appearing in ICES Annual Report 1998* – attempts to untangle the numerous abbreviations.

PART I

ICES AND ACTIVITIES IN 1997/1998

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 about 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 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 Organisations

More than 40 international organisations have observer status and cooperative relations with ICES. Of the United Nations agencies, ICES works actively with the Fisheries Department of the Food and Agriculture Organization (FAO), the Intergovernmental Oceanographic Commission of UNESCO, the International Maritime 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 1997 TO 31 OCTOBER 1998

1 THE COUNCIL AND ITS MEMBERS

1.1 Country Membership

On 17 September 1997, the Government of Lithuania submitted an application for membership in the Council with the Danish Ministry of Foreign Affairs as depositary of the ICES Convention. So far, 14 of the 19 (i.e. three-fourths majority) ICES Member Countries have endorsed the Lithuanian application.

1.2 Payment of National Contributions

As of 30 April, all national contributions—except from France—to the Budget for Financial Year 1997/1998 had been paid. Subsequently, on 1 September 1998 France paid its national contribution for 1997/1998 and 1998/1999.

1.3 National Delegates

The following national Delegates have been announced since the 1997 Annual Science Conference (85th Statutory Meeting):

- a) K. Bruce was appointed to replace Dr L.S. Parsons as Delegate of Canada;
- b) Dr J. Piuze was appointed to replace K. Bruce as Delegate of Canada;
- c) Drs G.J. van Balsefoort was appointed to replace Dr J.W.D.M. Henfling as Delegate of the Netherlands;
- d) Z. Gandra was appointed to replace M. Kucharski as Delegate of Poland;
- e) Dr B.N. Kotenev was appointed to replace Dr A.A. Elizarov and Dr V.N. Shleinik was appointed to replace Dr S.A. Studenetsky as Delegates of the Russian Federation;
- f) Dr J. Horwood was appointed to replace Prof. J.G. Pope as Delegate of the UK.

1.4 Appointments of Chairs of New Science Committees

With the adoption by the Council of the new Science Committee structure, the Council currently has the following seven Science Committees and Chairs:

- a) Fisheries Technology Committee: Dr P.A.M. Stewart, UK;
- b) Oceanography Committee: H. Loeng, Norway;
- c) Resource Management Committee: Dr R.L. Stephenson, Canada;
- d) Marine Habitat Committee: Dr A. Jarre-Teichmann, Denmark;
- e) Mariculture Committee: Dr M. Héral, France;
- f) Living Resources Committee: Dr R.C.A. Bannister, U.K.;

- g) Baltic Committee: E. Aro, Finland.

1.5 Members of the Advisory Committees

ACFM

The following changes have been made in the membership of ACFM since the 1997 Annual Science Conference (85th Statutory Meeting):

- a) E. Kirkegaard replaced P. Degnbol as member nominated by Denmark;
- b) S. Kuikka replaced R. Parmanne as the alternate member nominated by Finland;
- c) Dr T.K. Stokes replaced Dr J.W. Horwood as the member nominated by the United Kingdom;
- d) Dr R.C.A. Bannister as Chair of the Resource Management Committee has been appointed as *ex officio* member of ACFM, together with E. Aro and Dr R.L. Stephenson who have been *ex officio* members before.

ACME

The following changes have been made in the membership of ACME since the 1997 Annual Science Conference (85th Statutory Meeting):

Dr J.M. Leppänen replaced Dr K. Kononen as the member nominated by Finland;
Dr J.M. Davies replaced Dr P. Matthiessen as the member nominated by the United Kingdom;
Dr P. Matthiessen replaced Dr R. Stagg as the alternate member nominated by the United Kingdom;
Dr A. Jarre-Teichmann as Chair of the Marine Habitat Committee has been appointed as *ex officio* member of ACME, together with Dr M. Héral and H. Loeng who have been *ex officio* members before.

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 (NASCO, NEAFC, IBSFC, and the European Commission), and marine environmental protection/pollution (OSPAR and HELCOM).

As a follow-up to the March 1996 meeting on *Cooperation through Coordination* between ICES officials and high-level representatives of ICES partner Commissions, and discussions between the Council and the Commissions at the 1996 Annual Science Conference in Iceland, ICES and the Commissions agreed to establish a *Joint Working Group on Cooperative Procedures* to a) identify the costs that are incurred by ICES in re-

sponding to the Commissions requests for advice, b) determine an equitable sharing of costs of the core activities agreed annually by ICES on the one hand, and requests for advice by the Commissions on the other hand, c) determine a schedule of annual reimbursement of costs, moving towards full payment of those costs attributable to the Commissions, and d) identify the types of products required by the Commissions and propose procedures for determining agreed requests for advice. The Report of the Second Meeting of the Joint ICES/Commissions Working Group on Cooperative Procedures, held from 16-17 June 1998 at ICES Headquarters (Chair: D. de G. Griffith), was issued as Bureau Doc. C.M. 1998/Del:10.

Meetings during the period 1 November 1997 to 31 October 1998 of the above named and other organisations at which ICES was represented are included in **Annex 1**. Observers reports on some of these meetings were issued at the 1998 Annual Science Conference as Doc. C.M. 1998/Gen:1.

2.1 IOC and SCOR

SCOR has agreed to co-organise with ICES the Symposium on "The Ecosystem Effects of Fishing" scheduled to be held in Montpellier, France, in March 1999.

IOC has co-sponsored and was represented at:

- the ICES/IOC Working Group on Harmful Algal Bloom Dynamics held in Lisbon, Portugal, from 24-29 March 1998 (C.Res.1997/2:53).

This Working Group has plans to develop an ICES/IOC Harmful Algae Event Database (HAEDAT) which may be hosted on both the IOC and ICES web servers. Preliminary discussions have already been held between the Secretariat, IOC, and the Harmful Algal Bloom Communication Centre in Vigo, Spain, with a view to developing this initiative with some urgency.

The agreement between SCOR, IOC and IGBP on sponsorship of the GLOBEC programme recognises ICES and PICES as regional co-sponsors, whose interests should be considered in the governance of GLOBEC and who should be informed and consulted as necessary. The five-year plan of research which has been drawn up by the ICES Working Group on Cod and Climate Change will be included in the International Implementation Plan for GLOBEC which will be published later in 1999.

The ICES/GLOBEC North Atlantic Regional Coordination Group met on 9 May 1998 in Woods Hole, MA, USA (C.Res. 1997/2:8). The report (C.M. Doc. 1998/C:11) includes a recommendation for a Theme Session at the 1999 Annual Science Conference on "Plans for Major International Programmes in the North Atlantic over the Next Decade: Should ICES Be Involved?".

A consortium of Member Countries (Canada, Iceland, UK, and USA) has agreed to fund the ICES/GLOBEC for a further two-year period starting 1 August 1998. It is anticipated that additional countries may join the consortium.

2.2 OSPAR

The OSPAR Convention 1992 has now been ratified by all 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 Fourth Meeting of the Working Group on Concentrations, Trends, and Effects of Substances in the Marine Environment (SIME) held in Bonn, Germany, from 17-21 November 1997 (ICES Representative: ICES Environment Adviser);
- b) OSPAR Working Group on Inputs to the Marine Environment, Schwerin, Germany, from 9-13 February 1998. (ICES Representative: S. Uhlig);
- c) The Sixth Meeting of the Environmental Assessment and Monitoring Committee (ASMO) held in Spa, Belgium, from 20-24 April 1998 (ICES Representative: ICES Environment Adviser);
- d) The Fourth Meeting of the Working Group on Impacts on the Marine Environment (IMPACT) held in London, UK, from 22-25 September 1998 (ICES Representative: Dr J. Rice).

Sections of the 1997 Report of ACME containing information and advice to OSPAR were presented and considered at all of the above-mentioned meetings.

In addition, ICES hosted a meeting of the OSPAR *Ad Hoc* Working Group on Monitoring from 23-27 February 1998, at which OSPAR data on contaminants in biota were assessed for temporal trends.

At the request of the Fourth Meeting of ASMO, cost estimates were prepared under the direction of the Coordinating Group on ICES Advice (CGADV) for ICES to identify scientific peer reviewers for review of the Regional Quality Status Reports (QSRs) and for ICES to review the overall QSR 2000. The Fifth Meeting of ASMO reviewed these cost estimates and proposed that OSPAR should request ICES to conduct a peer review of the QSR 2000. The final decision on this request was made at the first meeting of the new OSPAR Commission, held in Lisbon, Portugal, in July 1998; ICES was requested to conduct the review of the QSR 2000 according to the proposal prepared by the CGADV.

The Sixth Meeting of ASMO also prepared a Draft ICES Work Programme for 1999. This Draft Work Programme emphasises the data handling activities that OSPAR will request ICES to carry out, as there will be very few funds available for scientific requests in 1999

owing to the costs associated with the review of the QSR 2000.

The final Work Programme was agreed at the meeting of the OSPAR Commission in July 1998. In contrast to the draft Work Programme proposed by ASMO, the final ICES Work Programme for 1999 is structured in the traditional manner, beginning with requests for scientific advice. In addition to the review of the OSPAR QSR 2000, which will need to be conducted at an extraordinary meeting of ACME in autumn 1999, there are three requests for scientific advice, as well as data handling requests.

The IMPACT meeting considered the ICES response to four requests on fisheries issues that were prepared during the past year, reviewed at the May 1998 ACFM meeting, and accepted at the 1998 ACME meeting.

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 between 2000 and 2002.

2.4 Helsinki Commission (HELCOM)

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

- a) the Third Meeting of the Working Group on Monitoring and Assessment (EC MON), held in Wdzydze, Poland, from 4–8 May 1998 (ICES Representative: ICES Environment Adviser);
- b) the Ninth Meeting of the Environment Committee, held in Vilm, Germany, from 28 September to 2 October 1998 (ICES Representative: ICES Environment Data Scientist).

Scientific information and advice in response to requests from HELCOM, prepared by ACME at its June 1997 meeting, were presented to the EC MON meeting in Poland in May 1998. Scientific information and advice in response to requests from HELCOM, prepared by ACME at its June 1998 meeting, were presented to the EC meeting in September 1998. Both these meetings also considered drafts of a Memorandum of Understanding between HELCOM and ICES.

The General Secretary and the ICES Environment Adviser represented the Council at the Nineteenth Meeting of the Helsinki Commission held in Helsinki, Finland, from 23–25 March 1998, with the General Secretary representing ICES at the Ministerial level meeting held on 26 March 1998. 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.

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 and requested its Executive Secretary to negotiate a contract with ICES to cover the period 1 July 1998 to 30 June 2001. Because of workloads in the Secretariat, and the delay in recruiting to the Environmental Data Scientist position, it has not been possible to finalise the terms of the contract prior to the above start date. It is hoped that final details can be agreed by the end of the year.

At the invitation of the Secretary of HELCOM, the General Secretary participated in a meeting in Helsinki on 27 March 1998 to discuss a possible Baltic Sea Global Environment Facility (GEF) involving *inter alia* Baltic Sea States, HELCOM, IBSFC, ICES, and the World Bank. This meeting was followed up by a Second Coordination Meeting on the Baltic Sea GEF Project which took place in the Secretariat on 24 June 1998. The First Vice-President chaired this meeting which was also attended by representatives of most Baltic States, by HELCOM, IBSFC, the World Bank, and UNDP. The latter two act as implementing Agencies for the GEF.

2.5 NEAFC

The General Secretary and the Chair of ACFM represented ICES at the Sixteenth Annual Meeting of the North-East Atlantic Fisheries Commission (NEAFC) held in London, UK, from 19–21 November 1997. ACFM's advice on the status and management of the principal fish stocks in the NEAFC area was presented. 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 1998 and catch forecasts for 1999. In addition, a number of more specific questions were addressed to ICES on redfish, Norwegian spring-spawning herring, blue whiting and mackerel, and these have been referred in additional terms of reference to the appropriate ICES Working Groups.

2.6 NASCO

Information and advice on the status and management of North Atlantic salmon and the compilation of tag releases in 1997 were prepared for NASCO. The ICES advice was prepared by ACFM at its May 1998 meeting based on the report of the meeting of the Working Group on North Atlantic Salmon (ICES Headquarters, 14–27 April 1998 (C.Res. 1997/ 2:11:12)).

The ICES advice on North Atlantic salmon was presented by the Chair of ACFM at the Fifteenth Annual Meeting of NASCO in Edinburgh, UK, from 8–12 June 1998.

At its meeting in June 1997, NASCO established a Working Group on the Precautionary Approach. ICES was represented by the Chair of ACFM as an Observer. The report of the Working Group has been sent to ICES, and ICES has responded to a request from NASCO to comment on the report.

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 1998 ACFM meeting. This advice was presented at the Twenty-fourth Session of IBSFC from 7-11 September 1998 in Warsaw, Poland.

ICES was represented by E. Kirkegaard (Chair of the Study Group on Management Strategies for Baltic Fish) at an IBSFC Extraordinary Session on 'Baltic 21 Sector Fisheries including Working Group on Cod Management Strategies' held in Warsaw, Poland, from 16-20 February 1998. Advice for this meeting was prepared by ACFM intersessionally after its meeting in October 1997.

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 from the European Commission's Directorate-General for Fisheries (DG XIV). An Observer from DG XIV attended the November 1997 and May 1998 ACFM meetings.

ICES was represented by Dr R.M. Cook (Chair of the Consultative Committee and former member of ACFM) at a meeting of the European Commission's Advisory Committee on Fisheries Working Group "Internal and External Resources" in Brussels, on 27 November 1997, where he gave a presentation of the ACFM advice.

The ICES Secretariat has continued to be responsible for the large database established by the EC's Scientific and Technical Committee for Fisheries (STCF) on disaggregated fleet-data from the North Sea fisheries.

Cooperation between the ICES Secretariat and the European Commission's MAST Secretariat has continued, primarily through the participation in contracts in support of MAST projects (specifically VEINS, ESOPS and TASC). The ICES Secretariat's Oceanography Data Centre is also included in a recently approved MAST proposal for development of data management plans and initiatives in the Mediterranean Sea and the Black Sea (MEDAR). The ICES Oceanographer participated in the MAST Data Committee Meeting which was held in Lisbon, Portugal, in April 1998.

This was the last meeting of the MAST Data Committee, its functionality being replaced by a newly approved MAST Project (EURONODIM) in which the ICES Secretariat is not participating.

The Marine and Coastal Topic Centre under the European Environment Agency (EEA) has established an Inter-Regional Forum (IRF) with membership including the major regional intergovernmental organisations working with environmental matters in the Northeast Atlantic, including the Mediterranean Sea and the Black Sea, and several other Topic Centres. The second meeting of the IRF was held in Rome, Italy, from 6-7 November 1997, and ICES was represented by the ICES Environment Adviser. Several initiatives were developed at this meeting, including coordination work among the organisations on the development of a GIS database on marine environmental conditions and the development of common statistical tools for designing monitoring programmes for contaminants and eutrophication parameters and assessing their results. Owing to its leading position in the field of statistical tools, ICES was requested to coordinate the work on this project. Some intersessional activities will be associated with these projects, but the next meeting of the IRF will not take place until early 1999.

2.9 AMAP

During 1998, 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 Council will be represented at the Twenty-third Session of the Committee of Fisheries (COFI) scheduled to be held at FAO Headquarters in Rome, Italy, from 15-19 February 1999. At the COFI Meeting, discussions will also be held with regard to further developing the cooperation between ICES and FAO.

2.11 CWP

The Coordinating Working Party on Fisheries Statistics (CWP) Inter-Sessional Meeting (ISM) met at FAO Headquarters in Rome, Italy, 25-27 February 1998. The CWP is responsible for coordinating global fishery statistics policy and ICES is a founder member. The aim of the ISM is to follow up on special issues between ordinary CWP meetings and contribute to the planning of ordinary CWP Meetings which take place every second year. ICES was represented at the CWP's ISM Meeting by the Interim Fisheries Adviser (Dr H. Sparholt).

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 in the autumn of 1998.

3. MEETINGS AND OTHER ACTIVITIES ORGANISED BY THE COUNCIL

3.1 Symposia

The Symposium on "Brackish Water Ecosystems" (Convener: Prof. P. Mälikki, Finland) was held in Helsinki, Finland, from 25–28 August 1998 (C.Res.1996/2:5). Co-sponsors included the Finnish Institute of Marine Research and the Finnish Game and Fisheries Research Institute. Selected papers will be published as a special supplement in the *ICES Journal of Marine Science*.

The Symposium on "Marine Benthos Dynamics: Environmental and Fisheries Impacts" (Co-Conveners: Prof. A. Eleftheriou, Greece, and Dr P. Kingston, UK) was held in Crete, Greece, from 5–7 October 1998 (C.Res.1995/2:5). Co-sponsors include the European Commission, the Institute of Marine Biology of Crete, and the General Secretariat for Research and Technology - Ministry of Development (Greece). Selected papers will be published in a special number in the *ICES Journal of Marine Science*.

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; and Prof. D. Butterworth, South Africa) will be held in Cape Town, South Africa, from 16–19 November 1998 (C.Res. 1995/2:2). A Scientific Steering Committee (including Dr J. McKoy, New Zealand; Prof. J. Harwood, UK; Dr S. Garcia, FAO; and Dr M. Ahmed, ICLARM) has been established to assist the Co-Conveners in planning the Symposium. The EC, FAO, and ICLARM are co-sponsors of the Symposium. Selected papers will be published in a special number in the *ICES Journal of Marine Science*. A flyer/prospectus has been prepared.

The ICES/SCOR Symposium on the "Ecosystem Effects of Fishing" (Co-Conveners: Prof. H. Gislason, Denmark and Dr M.M. Sinclair, Canada) will be held in Montpellier, France, from 16–19 March 1999 (C.Res.1996/2:2). A Scientific Steering Committee has been established (including Prof. B.J. Rothschild, USA; Dr P. Cury, South Africa; Dr G. Bianchi, Norway; Dr K. Sainsbury, Australia; Dr D. Pauly, Canada; Prof. J.G. Pope, UK; Prof. S.J. Hall, Australia; and J. Valdemarsen, FAO, Rome, Italy) to assist the Co-Conveners in planning the Symposium. Co-sponsors include ORSTOM, ICLARM, FAO, and IOC. Selected

papers will be published in a special number in the *ICES Journal of Marine Science*.

The retitled Symposium on the "Environmental Effects of Mariculture" (Co-Conveners: Dr. D. Wildish, Canada and Dr M. Héral, France) will be held in St. Andrews, N.B., Canada, from 13–16 September 1999 (C.Res.1996/2:3). A Scientific Steering Committee has been established (including Prof. H. Ackefors, Sweden; Dr I.M. Davies, UK; Dr A. Figueras, Spain; Prof. B.L. Bayne, Australia; A. Ervik, Norway; and Prof. H. Rosenthal, Germany) to assist the Co-Conveners in planning the Symposium. Co-sponsorship is being sought from appropriate international organisations. A flyer/prospectus has been prepared.

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, and Prof. C. Miller, USA) will be held in Tromsø, Norway, from 24–27 August 1999 (C.Res.1996/2:4). 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, the University of Tromsø, Norway, and the Norwegian College of Fishery Science, Tromsø, Norway. Selected papers will be published in a special number 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 (C.Res. 1996/2:1). 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; and Dr T.D. Smith, USA) has been established to assist the Convener in planning the Symposium. A flyer/prospectus has been prepared.

The Symposium on "Hydrobiological Variability in the ICES Area, 1990–1999" (Co-Conveners: Dr R.R. Dickson, UK and Prof. J. Meincke, Germany) will be held in Edinburgh, UK, from 8–10 August 2001 (C.Res 1997/2:2). 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" (Conveners: Dr F. Gerlotto and 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

A report on the Tenth Dialogue Meeting on "Fisheries and Environment in the Bay of Biscay and Iberian Region: Can the Living Resources be Better Utilized?" held in Vigo, Spain, from 19–20 October 1995 is in preparation for publication in the *ICES Cooperative Research Report* series.

The Steering Group on Planning for the Eleventh ICES Dialogue Meeting met at ICES Headquarters on 19 March 1998 to address the Terms of Reference set by the Council at the 1997 ICES Annual Science Conference. Its report is issued as C.M. 1998/Del:16.

3.3 Bureau

The Bureau (Chair: Dr L.S. Parsons, President of ICES) held its Initial Meeting from 29–30 January 1998 to review and approve the draft ICES Secretariat Workplan for 1997/1998, and to consider key ICES issues. All members, including the General Secretary as *ex officio* member, were present except the Chair of the Consultative Committee.

The Mid-Term Meeting of the Bureau was held at ICES Headquarters from 18–19 June 1998. All members were present, as were the General Secretary and the Chair of the Consultative Committee as *ex officio* members, and two members of the Secretariat's Finance and Office Administration Group.

The Bureau met from 14–15 September 1998 in Cascais, Portugal, immediately prior to the 1998 Annual Science Conference (86th Statutory Meeting).

The Bureau Working Group on Strategic Planning (Chair: Dr M.P. Sissenwine) met at ICES Headquarters from 16–18 March 1998 to address the Terms of Reference set by the Council at the 1997 ICES Annual Science Conference. Its report was issued as C.M. 1998/Del:15.

The Coordinating Group on ICES Advice (Chair: N.A. Nielsen) met at ICES Headquarters from 1–3 June 1998 to address the Terms of Reference set by the Council at the ICES Annual Science Conference. Its report was issued as C.M. 1998/Del:14.

The Bureau Working Group on Planning for the ICES Centenary continued its work by addressing Terms of Reference set by the Council at the ICES 1997 Annual

Science Conference. The Group reported to the Bureau and the Council at the ICES 1998 Annual Science Conference. Its report was issued as C.M. 1998/Del:13.

3.4 Advisory Committees

ACFM

ACFM has held two meetings, both at ICES Headquarters, since the 1997 ICES Annual Science Conference, the first from 22–31 October 1997 (C.Res. 1996/2:14) and the second from 13–22 May 1998 (C.Res.1997/2:11). 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. The May 1998 meeting was extended by one day because of additional requests from Partner Commissions.

All members or their alternates were present at the meeting in October 1997, 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 (Jacques Bastinck), 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, the European Commission, and NAMMCO.

All members or their alternates were present at the meeting in May 1998, as well as the ICES Interim 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, the European Commission, the Government of Norway, and the Government of the Russian Federation. Due to the sick leave of Dr R.S. Bailey (ICES Fisheries Adviser), J. Boje from the Greenland Nature Institute, M. Vinther from the Danish Institute of Fisheries Research, and Dr K. Brander (ICES/GLOBEC Coordinator) have assisted with tasks related to the ACFM work.

ACME

ACME (Chair: S. Carlberg) met at ICES Headquarters from 3–13 June 1998 (C.Res. 1997/2:12). All members or their alternates were present at the meeting, as well as the Environment Adviser, the ICES Oceanographer (part-time), the ICES/GLOBEC Coordinator (part-time), the Chair of the Consultative Committee (part-

time), the Chair of the Working Group on Statistical Aspects of Environmental Monitoring (M. Nicholson) (part-time), the Chair of the Working Group on Marine Mammal Habitats (Dr A. Bjørge) (part-time), and the Chair of the Working Group on Ecosystem Effects of Fishing Activities (Dr J. Rice) (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, concentrations and effects of chlorobiphenyls in marine mammals, and various ecosystem effects of fishing activities in the OSPAR area, including by-catches of non-target organisms and discards. 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 4–6 June 1998 in accordance with C.Res.1997/2:5 to prepare a draft programme of sessions for the 1998 Annual Science Conference (Cascais, Portugal) and to address other Terms of Reference set by the Council at the 1997 Annual Science Conference. The report of the meeting was presented to the June 1998 Mid-Term Meeting of the Bureau, and was issued as C.M. 1998/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 pollution and marine environmental protection matters were reviewed by ACME at its meeting from 8–13 June 1998 (C.Res.1997/2:12).

A 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 ten posts at the Professional level, and 24 posts at the General Service level.

Dr Roger S. Bailey (ICES Fisheries Adviser, P.5) was on sick-leave from 11 November 1997 until he tendered his resignation on medical grounds on 1 June 1998. A Vacancy Announcement was issued for a new Fisheries Adviser, and Hans Lassen, Denmark, was selected. He took over this post on 1 November 1998.

Arne Facius (Danish citizen) has continued in temporary, part-time employment (P.1), under the supervision of the ICES Fisheries Adviser and the ICES Oceanographer, to provide computer programming assistance with the International Bottom Trawl Survey (IBTS) database and two EC-projects ('Old' IBTS Data, and BITS: Baltic Survey Database).

Lena Larsen (Danish citizen) has been employed since 1 April 1998 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.

Peter Rasch (Danish Citizen) has continued being 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.

Dr Henrik Sparholt (ICES Fishery Assessment Scientist, P.3) has functioned as Interim Fisheries Adviser during the absence of Dr R.S. Bailey.

Edgar Thomasson (Library and Information Officer, C.5) retired on 31 December 1997 on medical grounds.

Jan René Larsen resigned from his position as Environmental Data Scientist with effect from 30 April 1998. Jørgen Nørrevang Jensen (Danish citizen) took up this post on 1 September 1998.

4.3 Improved Facilities and Equipment

Owing to a need to make savings in expenditure to try to balance the budget in 1997/1998, no further progress in making improvements to the Headquarters' facilities has occurred in the past year.

5 PUBLICATIONS

Activities with respect to publications since the 1997 Annual Science Conference (85th Statutory Meeting) are reviewed below.

5.1 ICES Journal of Marine Science (Journal du Conseil)

Volume 54(5), pages 741–961, was off press in October and distributed in November 1997. At 221 pages this issue has 93 more than the usual allocation in order to reduce the waiting time for standard articles that might otherwise have had to be postponed owing to the issuance of numbers containing ICES Symposium proceedings.

Volume 54(6), pages 963–1227, was published in December 1997 and distributed in January 1998. It carries the proceedings of the ICES/NASCO Symposium on “Interactions between Salmon Culture and Wild Stocks of Atlantic Salmon: The Scientific and Management Issues”, which was held in Bath, England, UK, from 18–22 April 1997. It is the fifth number in the series to carry the proceedings of a Symposium held under the aegis of ICES; and like other such issues it also retains a place in the consecutive numbering system of the series *ICES Marine Science Symposia*, as Volume 205. With this number, Professor J.H.S. Blaxter, Editor (UK), and S.J. Smith, Assistant Editor (Canada), respectively concluded six years of invaluable service to the *ICES Journal*.

The subscription rates for Volume 54 in 1997 were set at GBP 299 for institutional subscriptions and GBP 100 for personal subscriptions.

Volume 55(1), pages 1–149, was issued in February and distributed in March 1998. It is the first number produced under the direction of the new Editor-in-Chief, Dr Niels Daan (Netherlands), and the first with three Editors to assist him: Dr E. Michael P. Chadwick (Canada), Dr J.R.G. Hislop (UK), and J.W. Ramster (UK).

Volume 55(2), pages 151–328, was published in April and distributed in May 1998. In addition to standard articles it also contains six papers presented at the ICES Workshop on the Interactions between Salmon Lice and Salmonids, held in Edinburgh, Scotland, UK, in November 1996.

Volume 55(3), pages 329–555, was off press and distributed in July 1998. It includes papers presented at the Mini-Symposium on “Ecosystem Effects of Fisheries” held during the 1996 Annual Science Conference in Reykjavik, Iceland.

Volume 55(4), approximately 270 pages was off press in late September 1998. It includes the proceedings of the ICES Symposium on “The Temporal Variability of Plankton and Their Physico-Chemical Environment”, which was held in Kiel, Germany, from 19–21 March 1997. It is the sixth of the Symposium numbers to be published in this series, and it is also registered as Vol. 206 in the series *ICES Marine Science Symposia*.

Volume 55(5), a standard number, is expected to be off press during its cover month, October 1998.

Volume 55(6) for December 1998 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, from 22–24 September 1997. This issue will instead be a standard number, and it is expected that the proceedings will be published in 1999.

The page budget for 1998 has been increased by about 140 pages to reduce the backlog of articles waiting for publication.

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

The subscription rates for Volume 56 in 1999 will be set at GBP 336 for institutional subscriptions and again at GBP 105 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, and Academic Press has continued to take other initiatives to increase awareness of its contents, but it is still too early to evaluate results and implications.

5.2 ICES Marine Science Symposia (Actes du Symposium)

Volume 201, issued in November 1995, is expected, until further notice, to be the last set of ICES Symposium proceedings to be published solely under this series title. Volume no. 200 and others 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 under the *ICES Journal of Marine Science* as, respectively, Volumes 52(3/4), 53(2), 53(6), 54(4), 54(6) and 55(4).

5.3 ICES Cooperative Research Reports (Rapport des Recherches Collectives)

The following *ICES Cooperative Research Reports* have been published since the last report on publications was presented to the 1998 Annual Science Conference (86th Statutory Meeting):

- No. 222 Report of the ICES Advisory Committee on the Marine Environment, dated December 1997.
- No. 223 Report of the ICES Advisory Committee on Fishery Management, dated September 1998.

Although other numbers are in the pipeline, the production of this series has been hindered by inadequate resources. It is hoped, however, that this can be remedied in the near future and that publication will be resumed as resources permit.

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. Subsequent volumes were delayed by the absence of data from Spain and inadequate area allocations in the data from France. Spanish data have now been provided for 1989–1994 and checking of the French data is in progress. Further volumes are to be published as resources permit.

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 Plancton)

Nos. 178, 179, and 180, issued in July 1992, are the last to be published in this series.

The Secretariat has received five manuscripts on 1) *Procerentrum*, 2) *Acartia*, *Paracartia*, 3) *Euchaeta*, 4) *Pseudo-nitzschia*, and 5) *Phyllodocidae*, which will be published as a set. The printers who have taken care of this series for many years can no longer do so, and arrangements have been made to transfer the production of this series from Denmark to England to a printer who can handle the demanding format, including numerous photographs (compared with the former reliance on simple line drawings in this series) at a reasonable price. Progress on this series has continued to be delayed by a severe shortage of capacity in the Secretariat.

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)

Nos. 41–50, dated 1991 and issued in January 1992, are the last set published in this series.

Since then, the Secretariat has received six manuscripts on 1) *Stephanostomum tenue*, 2) *Gaffkemia*, 3) *Diplos-*

tomosis, 4) *Pasteurellosis*, 5) *Flexibacteriosis*, and 6) *Streptococcosis* of marine fish. The leaflets will be issued in smaller sets than the former group of ten to avoid further delays. As in the case of the preceding series, technical production has been transferred to England. Progress on this series has also been delayed by a severe shortage of capacity in the ICES Secretariat.

5.8 ICES Techniques in Marine Environmental Sciences

Four new issues were published in September 1998. 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 CYPIA-dependent monooxygenase activity in dab by fluorimetric measurement of (EROD) activity.

Several other numbers will be published when resources are available.

5.9 ICES Annual Report (Procès-Verbal de la Réunion)

The *ICES Annual Report for 1996/1997* was issued in January 1998. The former layout has been modified to facilitate a more logical presentation of material.

5.10 ICES/CIEM Information

John Ramster has become the Editor of this newsletter. Number 30 was issued in September 1997. Numbers 31 and 32 were combined in a double number that was distributed in early September 1998. The former layout and method of printing have undergone extensive changes. Numbers 30–32 were also distributed on the ICES Web site.

ANNEX 1

MEETINGS AT WHICH ICES WAS REPRESENTED BY OBSERVERS

1. Second Meeting of the EEA ETC/MTC Inter-Regional Forum, Rome, Italy, 6–7 November 1997. ICES Representative: Environment Adviser.
2. OSPAR Working Group on Concentrations, Trends and Effects of Substances in the Marine Environment (SIME), Bonn, Germany, 17–21 November 1997. ICES Representative: Environment Adviser.
3. EC meeting of the Advisory Committee on Fisheries, Brussels, Belgium, 20 November 1997. ICES Representative: Dr R.M. Cook.
4. ACOPS/GLOBE Conference Towards Enhanced Ocean Security into the Third Millennium, Swedish Parliament, Stockholm, 31 January–2 February 1998. ICES Representatives: President and General Secretary.
5. Meeting of the OSPAR Working Group on Inputs to the Marine Environment (INPUT), Schwerin, Germany, 10 February 1998. ICES Representative: S. Uhlig.
6. IBSFC “Baltic 21” Sector Fisheries including Working Group on Cod Management Strategies, Warsaw, Poland, 16–20 February 1998. ICES Representative: E. Kirkegaard.
7. *Ad Hoc* CWP Intersessional Meeting, Rome, Italy, 25–27 February 1998. ICES Representative: Interim Fisheries Adviser.
8. IOC Consultative Meeting on Large Marine Ecosystems (LME), Paris, France, 15–16 March 1998. ICES Representative: Dr M. Sinclair.
9. NAFO Scientific Council Workshop on Precautionary Approach to Fisheries Management, Dartmouth, Canada, 17–27 March 1998. ICES Representative: Dr R.M. Cook.
10. Living Marine Resource Panel of the Global Ocean Observing System (LMR-GOOS), Paris, France, 20–23 March 1998. ICES Representative: Dr M. Sinclair.
11. 19th Meeting of the Helsinki Commission, Helsinki, 23–27 March 1998. ICES Representatives: General Secretary and Environment Adviser.
12. HELCOM Meeting on a Baltic Sea Global Environment Facility involving *inter alia* Baltic Sea States, HELCOM, IBSFC, ICES and the World Bank, held in Helsinki, 27 March 1998. ICES Representative: General Secretary.
13. OSPAR Environmental Assessment and Monitoring Committee (ASMO), Spa, Belgium, 20–24 April 1998. ICES Representative: Environment Adviser.
14. ASCOBANS 5th Advisory Committee, Hel, Poland, 22–24 April 1998. ICES Representative: Dr Mark Tasker.
15. FAO Technical Working Group on Conservation and Management of Sharks, Tokyo, Japan, 23–27 April 1998. ICES Representative: Dr P. Walker.
16. Seminar on Implications of Stocking Reared Salmon and Sea Trout in the Baltic Region: Biological, Genetic and Management Issues, Älvkarleby, Sweden, 4–5 May 1998. ICES Representative: J. Browne.
17. HELCOM Working Group on Monitoring and Assessment (EC MON), Wdzydze, Poland, 4–8 May 1998. ICES Representative: Environment Adviser.
18. Eighth Meeting of the HELCOM Working Group on Nature Conservation and Biodiversity (EC NATURE), Neringa, Lithuania, 25–28 May 1998. ICES Representative: Dr E. Andrulewicz.

19. 15th Annual Meeting of NASCO, Edinburgh, UK, 8–12 June 1998. ICES Representative: Chair of ACFM.
20. Fifth International Conference on the Protection of the North Sea - Workshop on the Ecosystem Approach, Oslo, Norway, 15–17 June 1998. ICES Representative: Dr J. Rice.
21. 20th Session of the European Inland Fisheries Advisory Commission (EIFAC), Praia do Carvoeiro, Portugal, 23 June–1 July 1998. ICES Representative: Prof. H. Ackefors.
22. NAFO Annual Meeting, Lisbon, Portugal, 6–18 September 1998. ICES Representative: H.-P. Cornus.
23. Fourth Meeting of the OSPAR Working Group on Impacts on the Marine Environment (IMPACT), London, UK, 22–25 September 1998. ICES Representative: Dr J. Rice.
24. 24th Session of the International Baltic Sea Fisheries Commission (IBSFC), Warsaw, 7–11 September 1998. ICES Representative: Chair of ACFM.
25. Ninth Meeting of the Environment Committee (EC), Vilm, Germany, 28 September–2 October 1998. ICES Representative: Environmental Data Scientist.

ANNEX 2

ICES WORKING/STUDY/STEERING GROUP MEETINGS AND WORKSHOPS IN 1997/1998

Advisory Committee on Fishery Management

1. Study Group on the Precautionary Approach to Fisheries Management
(C.Res. 1997/2:11:20)
Chair: J.-J. Maguire
Held in Copenhagen, 3-6 February 1998
Countries represented: Canada (1), Denmark (2), Finland (1), Germany (1), Iceland (2), Ireland (1), Netherlands (2), Norway (1), Poland (1), Portugal (2), Russia (5), Spain (2), Sweden (1), United Kingdom (3), USA (3)
Report available as C.M. Doc. 1998/ACFM:10.
2. Study Group on Management Strategies for Baltic Fish Stocks
(C.Res. 1997/2:11:16)
Chair: E. Kirkegaard
Held in Charlottenlund, Denmark, 9-12 February 1998
Countries represented: Denmark (5), (Finland (2), Germany (1), Latvia (2), Poland (1), Sweden (1)
Report available as C.M. Doc. 1998/ACFM:11.
3. Study Group on the Biology and Assessment of Deep-Sea Fisheries Resources
(C.Res. 1997/2:11:17)
Chair: Dr J.D.M. Gordon
Held in Copenhagen, 12-18 February 1998
Countries represented: Canada (1), Denmark (2), France (1), Germany (1), Ireland (1), Norway (1), Portugal (1), Russia (1), Spain (2), United Kingdom (3)
Report available as C.M. Doc. 1998/ACFM:12.
4. Workshop on Setting Conservation Limits for Salmon in the Northeast Atlantic
(C.Res. 1997/2:11:21)
Chair: Dr N. O'Maoileidigh
Held in Dublin, Ireland, 3-5 March 1998
Countries represented: Ireland (1), Norway (2), Russia (3), Sweden (1), United Kingdom (3)
Report available as C.M. Doc. 1998/ACFM:13.
5. Herring Assessment Working Group for the Area South of 62°N
(C.Res. 1997/2:11:5)
Chair: E.J. Simmonds
Held in Copenhagen, 9-18 March 1998
Countries represented: Denmark (4), France (1), Germany (3), Ireland (1), Netherlands (1), Norway (4), Sweden (1), United Kingdom (5)
Report available as C.M. Doc. 1998/ACFM:14.
6. Working Group on North Atlantic Salmon
(C.Res. 1997/2:11:12)
Chair: Dr L. Marshall
Held in Copenhagen, 14-23 April 1998
Countries represented: Canada (6), Denmark (2), Finland (1), France (1), Iceland (1), Ireland (1), Norway (2), Russia (1), Sweden (1), United Kingdom (1), USA (3)
Report available as C.M. Doc. 1998/ACFM:15.

7. Baltic Fisheries Assessment Working Group
(C.Res. 1997/2:11:7)
Chair: Dr T. Raid
Held in Copenhagen, 15–24 April 1998
Countries represented: Denmark (6), Finland (3), Germany (3), Latvia (4), Russia (2), Sweden (3)
Report available as C.M. Doc. 1998/ACFM:16
8. Baltic Salmon and Trout Assessment Working Group
(C.Res. 1997/2:11:4)
Chair: Dr L. Karlsson
Held in Helsinki, Finland, 16-24 April 1998
Countries represented: Canada (1), Denmark (2), Estonia (1), Finland (6), Latvia (1), Poland (1), Sweden (3)
Report available as C.M. Doc. 1998/ACFM:17.
9. Northern Pelagic and Blue Whiting Fisheries Working Group
(C.Res. 1997/2:11:3)
Chair: Dr J. Carscadden
Held in Copenhagen, 28 April–6 May 1998
Countries represented: Canada (2), Denmark (4), Iceland (2), Norway (8), Portugal (1), Russia (2), Spain (1), United Kingdom (1)
Report available as C.M. Doc. 1998/ACFM:18.
10. North-Western Working Group
(C.Res. 1997/2:11:6)
Chair: J. Reinert
Held in Copenhagen, 29 April–7 May 1998
Countries represented: Denmark (7), Germany (1), Iceland (4), Norway (2), Russia (1), Spain (1)
Report available as C.M. Doc. 1998/ACFM:19.
11. Working Group on the Assessment of Northern Shelf Demersal Stocks
(C.Res. 1997/2:11:10)
Chair: R. Reeves
Held in Copenhagen, 15–24 June 1998
Countries represented: Belgium (1), France (1), Ireland (1), United Kingdom (6)
Report available as C.M. Doc. 1999/ACFM:1.
12. Study Group on the Assessment of Other Fish and Shellfish Species
(C.Res. 1997/2:11:18)
Chair: Dr R. Mohn
Held in Copenhagen, 17-21 August 1998
Countries represented: Canada (2), France (1), United Kingdom (6), USA (1)
Report available as C.M. Doc. 1999/ACFM:2.
13. Arctic Fisheries Working Group
(C.Res. 1997/2:11:2)
Chair: Dr R. Bowering
Held in Copenhagen, 19–27 August 1998
Countries represented: Canada (1), Germany (1), Norway (8), Russia (3)
Report available as C.M. Doc. 1999/ACFM:3.

14. Working Group on the Assessment of Southern Shelf Demersal Stocks

(C.Res. 1997/2:11:11)

Chair: M. Pawson

Held in Copenhagen, 31 August - 9 September 1998

Countries represented: Belgium (1), France (5), Ireland (1), Portugal (3), Sweden (4), United Kingdom (3)

Report available as C.M. Doc. 1999/ACFM:4.

15. Pandalus Assessment Working Group

(C.Res. 1997/2:11:15)

Chair: Dr S. Tveite

Held in Copenhagen, 1-4 September 1998

Countries represented: Denmark (1), Norway (1), Sweden (1)

Report available as C.M. Doc. 1999/ACFM:5.

16. Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine and Anchovy

(C.Res. 1997/2:14:9)

Chair: Dr K. Patterson

Held in Copenhagen, 28 September - 7 October 1998

Countries represented: Denmark (2), France (1), Germany (1), Ireland (1), Netherlands (1), Norway (1), Portugal (4), Russia (2), Spain (5), United Kingdom (4)

Report available as C.M. Doc. 1999/ACFM:6.

17. ICES/NAFO Working Group on Harp and Hooded Seals

(C.Res. 1997/2:11:15)

Chair: Dr G. Stenson

Held in Tromsø, Norway, 29 September - 2 October 1998

Countries represented: Canada (2), Norway (4), Russia (3), USA (1)

Report available as C.M. Doc. 1999/ACFM:7.

18. Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak

(C.Res. 1997/2:11:8)

Chair: F. van Beek

Held in Copenhagen, 5-14 October 1998

Countries represented: Belgium (1), Denmark (4), France (2), Germany (2), Netherlands (3), Norway (2), United Kingdom (5)

Report available as C.M. Doc. 1999/ACFM 8.

Advisory Committee on the Marine Environment

19. ICES/HELCOM Benthos Taxonomic Workshop

(C.Res. 1996/3:4)

Chair: J. Nørrevang Jensen

Held in Roskilde, Denmark, 4-7 November 1997

Countries represented: Denmark (8), Finland (2), Germany (7), Poland (1), Sweden (3)

Report available as C.M. Doc. 1998/ACME:8.

20. Study Group on Monitoring Programmes for Contaminants in Sediments

(C.Res. 1997/2:12:9)

Chair: Dr S. Rowlatt

Meeting cancelled; no report available.

21. ICES/HELCOM Steering Group on Quality Assurance of Biological Measurements in the Baltic Sea
(C.Res. 1997/2:12:13)
Chair: Dr L. Hernroth
Held in Copenhagen, 16-18 February 1998
Countries represented: Denmark (1), Estonia (1), Finland (1), Germany (2), Latvia (1), Lithuania (1), Sweden (1)
Report available as C.M. Doc. 1998/ACME:1.
22. ICES/HELCOM Steering Group on Quality Assurance of Chemical Measurements in the Baltic Sea
(C.Res. 1997/2:12:12)
Chair: Dr M. Krysell
Held in Warnemünde, Germany, 16-19 February 1998
Countries represented: Estonia (1), Finland (1), Germany (9), Latvia (1), Lithuania (1), Poland (1), Sweden (1)
Report available as C.M. Doc. 1998/ACME:2.
23. ICES/OSPAR Steering Group on Quality Assurance of Biological Measurements Related to Eutrophication Parameters
(C.Res. 1997/2:12:11)
Chair: Dr H. Rees
Held in Copenhagen, 17-20 February 1998
Countries represented: Denmark (2), Germany (2), Norway (2), Spain (1), United Kingdom (1)
Report available as C.M. Doc. 1998/ACME:3.
24. ICES/IOC/IMO Study Group on Ballast Water and Sediments
(C.Res. 1997/2:12:10)
Chair: Prof. J.T. Carlton
Held in The Hague, Netherlands, 23-24 March 1998
Countries represented: Australia (4), Bermuda (1), Canada (3), France (1), Germany (4), Ireland (1), Israel (2), Italy (1), Lithuania (1), Netherlands (2), New Zealand (2), Norway (3), Sweden (2), United Kingdom (7), USA (7)
Report available as C.M. Doc. 1998/ACME:5.
25. Working Group on Introductions and Transfers of Marine Organisms
(C.Res.1997/2:12:8)
Chair: Prof. J.T. Carlton
Held in The Hague, Netherlands, 25-27 March 1998
Countries represented: Australia (4), Canada (3), Germany (2), Ireland (2), Israel (1), Italy (1), Lithuania (1), Netherlands (1), New Zealand (2), Norway (3), Sweden (2), United Kingdom (7), USA (5)
Report available as C.M. Doc. 1998/ACME:4.
26. ICES/HELCOM Workshop/Training Course on Phytoplankton
(C.Res. 1997/2:12:14)
Chair: Dr A. Andersson-Nordström
Held in Klaipeda, Lithuania, 24-28 August 1998
Countries represented: Estonia (1), Finland (4), Germany (1), Latvia (1), Lithuania (1), Poland (3), Sweden (3)
Report available as C.M. Doc. 1998/ACME:9.

ACFM/ACME

27. Working Group on Ecosystem Effects of Fishing Activities
(C.Res. 1997/2:12:1)
Chair: Dr J. Rice
Held in Copenhagen, 24 November-2 December 1997
Countries represented: Canada (1), Denmark (2), Estonia (1), France (1), Germany (1), Iceland (2), Netherlands (3), Norway (2), Portugal (1), Sweden (1), United Kingdom (4)
Report available as C.M. Doc. 1998/ACFM/ACME:1.

Oceanography Committee

28. Working Group on Shelf Seas Oceanography

(C.Res.1997/2:19)

Chair: Dr E. Svendsen

Held in Gothenburg, Sweden, 16-18 March 1998

Countries represented: Canada (1), Finland (1), Germany (2), Norway (4), Sweden (2), United Kingdom (1)

Report available as C.M. Doc. 1998/C:2.

29. Working Group on Phytoplankton Ecology

(C.Res.1997/2:51)

Chair: Prof. F. Colijn

Held in Lisbon, Portugal, 19-24 March 1998

Countries represented: Canada (1), Finland (1), Germany (2), Iceland (1), Norway (1), Portugal (7), Sweden (2), United Kingdom (1), USA (1)

Report available as C.M. Doc. 1998/C:3.

30. ICES/GLOBEC Workshop on Applications of Environmental Data in Stock Assessment

(C.Res. 1997/2:11)

Chair: O. Nakken

Held in Bergen, Norway, 23-25 March 1998

Countries represented: Canada (2), Norway (12), Spain (1), United Kingdom (1)

Report available as C.M. Doc. 1998/C:1.

31. Working Group on Harmful Algal Bloom Dynamics

(C.Res.1997/2:53)

Chair: Dr P. Gentien

Held in Lisbon, Portugal, 24-28 March 1998

Countries represented: Canada (1), Denmark (2), Finland (1), France (3), Germany (3), Iceland (1), Ireland (1), Norway (1), Portugal (6), Spain (2), Sweden (4), USA (3)

Report available as C.M. Doc. 1998/C:4.

32. Working Group on Seabird Ecology

(C.Res.1997/2:49)

Chair: Dr R. Furness

Held in Copenhagen, 30 March - 1 April 1998

Countries represented: Canada (1), Germany (1), Netherlands (2), Norway (2), United Kingdom (4)

Report available as C.M. Doc. 1998/C:5.

33. Working Group on Marine Data Management

(C.Res. 1997/2:21)

Chair: Dr L.J. Rickards

Held in Brest, France, 20-23 April 1998

Countries represented: Canada (2), Finland (1), France (4), Germany (1), Ireland (1), Netherlands (1), Norway (2), Portugal (1), Spain (1), Sweden (1), United Kingdom (2), USA (1)

Report available as C.M. Doc. 1998/C:7.

34. Working Group on Oceanic Hydrography

(C.Res. 1997/2:20)

Chair: Dr S. Narayanan

Held in Santander, Spain, 27-29 April 1998

Countries represented: Canada (2), Denmark (2), Germany (2), Iceland (1), Netherlands (1), Norway (3), Poland (2), Portugal (1), Spain (1), United Kingdom (2), USA (1)

Report available as C.M. Doc. 1998/C:8.

35. Third ICES/GLOBEC Backward-Facing Workshop

(C.Res. 1997/2:6)

Co-Chairs: Dr F. Werner and Dr S. Murawski

Held in Woods Hole, USA, 4-6 May 1998

Countries represented: Canada (4), Denmark (2), Germany (1), Norway (2), USA (2)

Report available as C.M. Doc. 1998/C:9.

36. Working Group on Zooplankton Ecology

(C.Res. 1997/2:50)

Chair: Dr R. Harris

Held in Santander, Spain, 6-8 May 1998

Countries represented: Canada (2), Germany (3), Japan (1), Norway (2), Spain (3), United Kingdom (2), USA (2)

Report available as C.M. Doc. 1998/C:6.

37. ICES/GLOBEC Working Group on Cod and Climate Change

(C.Res. 1997/2:7)

Chair: Dr K. Drinkwater

Held in Woods Hole, USA, 7-8 May 1998

Countries represented: Canada (2), Germany (3), Japan (1), Norway (2), Spain (3), United Kingdom (2), USA (2)

Report available as C.M. Doc. 1998/C:10.

38. ICES/GLOBEC North Atlantic Regional Coordination Group

(C.Res. 1997/2:8)

Chair: Dr M. Reeve

Held in Woods Hole, USA, on 9 May 1998

Countries represented: ICES Representative (1), ICES/GLOBEC Coordinator (1), Chair of ACME (1), EC, DG XI (1), France (1), Germany (1), Iceland (1), Norway (1), Portugal (1), United Kingdom (1), USA (3)

Report available as C.M. Doc. 1998/C:11.

39. Working Group on Recruitment Processes

(C.Res. 1997/2:54)

Chair: Dr P. Pepin

Held in Texel, Netherlands, 7-9 October 1998.

The Report will be available in 1999.

Fisheries Technology Committee

40. Study Group on Echo Trace Classification

(C.Res. 1997/2:15)

Chair: Dr D.G. Reid

Held in La Coruña, Spain, 18-20 April 1998

Countries represented: Australia (1), Canada (2), France (2), Ireland (1), United Kingdom (3), USA (3)

Report available as C.M. Doc. 1998/B:1.

41. Study Group on Grid (Grate) Sorting Systems in Trawls, Beam Trawls and Seine Nets

(C.Res. 1997/2:17)

Chair: B. Isaksen

Held in La Coruña, Spain, 18-19 April 1998

Countries represented: Belgium (1), Canada (1), Denmark (2), France (1), Germany (1), Netherlands (1), Norway (3), Spain (1), Sweden (1), United Kingdom (3), USA (2)

Report available as C.M. Doc. 1998/B:2.

42. Working Group on Fishing Technology and Fish Behaviour

(C.Res. 1997/2:14)

Chair: Dr A. Engås

Held in La Coruña, Spain, 20-23 April 1998

Countries represented: Belgium (2), Canada (2), Denmark (3), Italy (1), Netherlands (1), Norway (5), South Africa (1), Spain (2), Sweden (3), United Kingdom (7), USA (5)

Report available as C.M. Doc. 1998/B:3.

43. Working Group on Fisheries Acoustics Science and Technology

(C.Res. 1997/2:13)

Chair: Dr F. Gerlotto

Held in La Coruña, Spain, 21-23 April 1998

Countries represented: Australia (1), Denmark (4), France (7), Norway (4), Portugal (1), South Africa (1), Spain (2), Sweden (2), United Kingdom (7), USA (3)

Report available as C.M. Doc. 1998/B:4.

44. Joint Session of the Working Group on Fisheries Acoustics and Technology and the Working Group on Fishing Technology and Fish Behaviour

(C.Res. 1997/2:18)

Chair: J. Massé

Held in La Coruña, Spain, on 24 April 1998

Countries represented: Australia (1), Belgium (1), Canada (2), France (5), Germany (1), Norway (3), Portugal (1), South Africa (2), Spain (2), Sweden (3), United Kingdom (5), USA (1)

Report available as C.M. Doc. 1998/B:5.

45. Study Group on the Use of Selectivity and Effort Measurements in Stock Assessment

(C.Res. 1997/2:16)

Co-Chairs: Dr R.M. Cook and Dr D.A. Somerton

Held in Copenhagen, 9-13 September 1998

Countries represented: Canada (1), Denmark (1), Netherlands (2), United Kingdom (4), USA (1)

Report available as C.M. Doc. 1998/B:6.

Resource Management Committee

46. Study Group on the Stock Structure of Baltic Spring-Spawning Herring

(C.Res. 1997/2:34)

Held in Lysekil, Sweden, 12-16 January 1998

Chair: J. Dalskov

Countries represented: Denmark (2), Germany (2), Latvia (1), Sweden (3)

Report available as C.M. Doc. 1998/D:1.

47. Study Group on Stock-Recruitment Relationships for North Sea Autumn-Spawning Herring

(C.Res. 1997/2:35)

Chair: D. Skagen

Held in Lowestoft, United Kingdom, 26-28 May 1998

Countries represented: Denmark (1), Norway (1), United Kingdom (8)

Report available as C.M. Doc. 1998/D:2.

48. Study Group on the Evaluation of the Quarterly IBTS Surveys

(C.Res. 1997/2:36)

Chair: P. Kunzlik

Held in Copenhagen, 13-18 August 1998

Countries represented: Denmark (1), Germany (2), Netherlands (2), Norway (2), United Kingdom (2)

Report available as C.M. Doc. 1998/D:4.

49. Planning Group on Surveys on Pelagic Fish in the Norwegian Sea

(C.Res. 1997/2:33)

Chair: Dr J.C. Holst

Held in Lysekil, Sweden, 23–25 August 1998

Countries represented: Denmark (1), Germany (1), Iceland (1), Norway (3), Russia (1), Sweden (2)

Report available as C.M. Doc. 1998/D:3.

Marine Habitat Committee

50. Marine Chemistry Working Group

(C.Res. 1997/2:12:12)

Chair: Dr B. Pedersen

Held in Stockholm, Sweden, 2–6 March 1998

Countries represented: Australia (1), Belgium (2), Canada (1), Denmark (5), Finland (1), (France (2), Germany (4),

Iceland (2), Ireland (2), Netherlands (2), Norway (2), Poland (1), Portugal (1), Spain (1), Sweden (4),

United Kingdom (2)

Report available as C.M. Doc. 1998/E:2.

51. Working Group on Marine Sediments in Relation to Pollution

(C.Res. 1997/2:12:4)

Chair: Dr M. Kersten

Held in Koblenz, Germany, 16–20 March 1998

Countries represented: Canada (1), Germany (3), Iceland (1), Netherlands (2), Norway (1), Portugal (1), Sweden (1), United Kingdom (1)

Report available as C.M. Doc. 1998/E:7.

52. Working Group on Marine Mammal Habitats

(C.Res. 1997/2:60)

Chair: Dr A. Bjørge

Held in Copenhagen, 18–20 March 1998

Countries represented: Denmark (1), Germany (1), Iceland (1), Japan (1), Norway (2), Sweden (1), United Kingdom (1), USA (1)

Report available as C.M. Doc. 1998/E:6.

53. Working Group on Environmental Assessment and Monitoring Strategies

(C.Res. 1997/2:12:3)

Chair: Dr I. Davies

Held in Copenhagen, 23–27 March 1998

Countries represented: Denmark (2), Germany (1), Norway (1), Poland (1), Sweden (1), United Kingdom (2)

Report available as C.M. Doc. 1998/E:4.

54. Joint Working Group on Biological Effects of Contaminants and Working Group on Statistical Aspects of Environmental Monitoring

(C.Res. 1997/2:12:7)

Chair: Dr R. Fryer

Held in Mont-Joli, QUE, Canada, 27–28 March 1998

Countries represented: Canada (3), France (2), Germany (3), Netherlands (1), Norway (2), Sweden (2), United Kingdom (3)

Report available as C.M. Doc. 1998/E:9.

55. Working Group on Biological Effects of Contaminants

(C.Res. 1997/2:12:6)

Chair: Dr P. Matthiessen

Held in Mont-Joli, QUE, Canada, 30 March – 3 April 1998

Countries represented: Canada (12), France (1), Germany (2), Netherlands (1), Norway (1), United Kingdom (3)

Report available as C.M. Doc. 1998/E:3.

56. Working Group on Statistical Aspects on Environmental Monitoring

(C.Res. 1997/2:12:5)

Chair: M. Nicholson

Held in Mont-Joli, QUE, Canada, 30 March – 3 April 1998

Countries represented: Denmark (2), France (1), Germany (2), Netherlands (1), Norway (1), Sweden (1), United Kingdom (3)

Report available as C.M. Doc. 1998/E:8.

57. Working Group on the Effects of Extraction of Marine Sediments on the Marine Ecosystem

(C.Res. 1997/2:22)

Chair: Dr S.J. de Groot

Held in Haarlem, Netherlands, 21–24 April 1998

Countries represented: Belgium (1), Canada (1), Denmark (2), France (2), Germany (4), Netherlands (6), Norway (1), Poland (2), Sweden (1), United Kingdom (7)

Report available as C.M. Doc. 1998/E:5.

58. Benthos Ecology Working Group

(C.Res. 1997/2:52)

Chair: Dr K. Essink

Held in Heraklion, Greece, 23–25 April 1998

Countries represented: Belgium (1), Denmark (1), Germany (4), Greece (3), Iceland (1), Netherlands (3), Sweden (1), United Kingdom (5), USA (1)

Report available as C.M. Doc. 1998/E:1.

Mariculture Committee

59. Working Group on Environmental Interactions of Mariculture

(C.Res. 1997/2:26)

Chair: Prof. H. Rosenthal

Held in Esbjerg, Denmark, 7–11 March 1998

Countries represented: Canada (3), Denmark (1), France (1), Germany (3), Ireland (1), Norway (1), United Kingdom (3), USA (1)

Report available as C.M. Doc. 1998/F:2.

60. Working Group on Pathology and Diseases of Marine Organisms

(C.Res. 1997/2:24)

Chair: Dr S. Møllergaard

Held in Gdynia, Poland, 7–11 March 1998

Countries represented: Belgium (1), Canada (2), Denmark (1), Finland (1), France (1), Germany (3), Netherlands (1), Poland (7), Russia (2), Spain (1), United Kingdom (1), USA (1)

Report available as C.M. Doc. 1998/F:4.

61. Working Group on the Application of Genetics in Fisheries and Mariculture
(C.Res. 1997/2:23)
Chair: Prof. J. Mork
Held in Cork, Ireland, 30 March – 2 April 1998
Countries represented: Ireland (1), Norway (2), Poland (2), Sweden (2), United Kingdom (2)
Report available as C.M. Doc. 1998/F:1.

Living Resources Committee

62. Planning Group for Herring Surveys
(C.Res. 1997/2:32)
Co-Chairs: E. Torstensen and K.J. Stæhr
Held in Bergen, Norway, 12–16 January 1998
Countries represented: Denmark (2), Germany (4), Netherlands (1), Norway (3), Sweden (1), United Kingdom (3)
Report available as C.M. Doc. 1998/G:4.
63. Study Group on Redfish Stocks
(C.Res. 1997/2:62)
Chair: T. Sigurdsson
Held in Hamburg, Germany, 28–30 January 1998
Countries represented: Denmark (2), Germany (4), Iceland (3), Norway (1), Russia (2), Spain (2)
Report available as C.M. Doc. 1998/G:3.
64. Horse Mackerel Otolith Workshop
(C.Res. 1997/2:37)
Chair: Dr A. Eltink
Workshop cancelled; no report available.
65. Working Group on Marine Mammal Population Dynamics and Trophic Interactions
(C.Res. 1997/2:59)
Chair: Dr G.T. Waring
Held in Copenhagen, 16–18 March 1998
Countries represented: Denmark (1), Iceland (1), Norway (4), Sweden (1), United Kingdom (1), USA (1)
Report available as C.M. Doc. 1998/G:6.
66. Working Group on Cephalopod Fisheries and Life History
(C.Res. 1997/2:45)
Chair: Dr U. Piatkowski
Held in Kiel, Germany, 20–22 April 1998
Countries represented: Germany (1), Portugal (4), Spain (2), United Kingdom (1)
Report available as C.M. Doc. 1998/G:7.
67. Study Group on the Biology and Life History of Crabs
(C.Res. 1997/2:48)
Chair: Dr R. Dufour
Held in Brest, France, 4–7 May 1998
Countries represented: Canada (4), France (1), Ireland (3), Spain (2), Sweden (1), United Kingdom (2)
Report available as C.M. Doc. 1998/G:10.

68. Study Group on Life Histories of *Nephrops*

(C.Res. 1997/2:47)

Chair: Dr N. Bailey

Held in La Coruña, Spain, 5–8 May 1998

Countries represented: Belgium (1), Denmark (1), Ireland (2), Norway (1), Portugal (1), Spain (2), Sweden (1), United Kingdom (6)

Report available as C.M. Doc. 1998/G:9.

69. Working Group on Crangon Fisheries and Life History

(C.Res. 1997/2:46)

Chair: Dr T. Neudecker

Held in Port-en-Bessin, France, 12–14 May 1998

Countries represented: Belgium (1), Denmark (1), France (3), Germany (3), United Kingdom (5)

Report available as C.M. Doc. 1998/G:8.

70. Workshop on Otolith-Ageing of North Sea Whiting

(C.Res. 1997/2:29)

Chair: A. Newton

Held in Esbjerg, Denmark, 23–28 October 1998.

The Report will be available in 1999.

Baltic Committee

71. Workshop on Standard Trawls for Baltic International Fish Surveys

(C.Res. 1997/2:44)

Chair: U.J. Hansen

Held in Gdynia, Poland, 20–21 January 1998

Countries represented: Denmark (2), Latvia (1), Lithuania (1), Poland (6), Sweden (1)

Report available as C.M. Doc. 1998/H:1.

72. Baltic Herring Age-Reading Study Group

(C.Res. 1997/2:41)

Chair: G. Kornilovs

Held in Riga, Latvia, 23–27 February 1998

Countries represented: Denmark (2), Estonia (3), Germany (3), Latvia (2), Poland (1), Russia (1), Sweden (1)

Report available as C.M. Doc. 1998/H:2.

73. Baltic International Fish Survey Working Group

(C.Res. 1997/2:38)

Chair: J. Modin

Held in Karlskrona, Sweden, 8–12 June 1998

Countries represented: Denmark (4), Estonia (2), Germany (3), Latvia (1), Poland (1), Sweden (5)

Report available as C.M. Doc. 1998/H:4.

PART II

PROCEEDINGS OF THE 1998 ICES ANNUAL SCIENCE CONFERENCE
(86th Statutory Meeting)

Cascais, Portugal - 16–19 September 1998

AGENDA FOR COUNCIL: 1998 ICES ANNUAL SCIENCE CONFERENCE
(86TH STATUTORY MEETING)

GENERAL ASSEMBLY

- 1 General Secretary's Announcements
- 2 President's Address, including:
 - 2.1 Reports on ICES Symposia
 - 2.2 Observers' Reports from Meetings of Cooperating Organisations
 - 2.3 Deceases
- 3 Consultative Committee Chair's Preview of Annual Science Conference, and Presentation of Development of the ICES Five-Year Plan
- 4 Address by Marcelo Vasconcelos (Secretary of State for Fisheries), on behalf of Professor Fernando Gomes da Silva, the Portuguese Minister of Agriculture, Rural Development and Fisheries
- 5 Open Lecture by Odd Nakken on "Acoustic Methods in Studies of Fish Ecology"

DELEGATES MEETING

- 1 Preliminary Report on Administration
- 2 Elections and Appointments at 1998 Annual Science Conference
- 3 Appointment of One Member of Finance Committee
- 4 Arrangements for 1999 (87th Statutory Meeting; Sweden), 2000 (88th Statutory Meeting; Belgium), and Subsequent Annual Science Conferences
- 5 Cooperation with Other International Organisations: Working and Financial Arrangements
- 6 Lithuanian Application to Accede to ICES Convention
- 7 Report on Second Meeting of ICES/Commissions Working Group on Cooperative Procedures (16-17 June 1998), and Next Steps
- 8 Developing Memoranda of Understanding
- 9 Continuation of Advisory Honoraria to Chairmen of ACFM and ACME Beyond 1998/1999
- 10 Progress on Planning and Funding for the ICES Centenary
- 11 Report of Coordinating Group on ICES Advice
- 12 Report of Bureau Working Group on Strategic Planning
- 13 Report of Steering Group on Planning for Eleventh ICES Dialogue Meeting
- 14 Report on Planning for ICES Young Scientists Conference
- 15 Status of ICES/GLOBEC Project Office
- 16 Report of Finance Committee
 - 16.1 Audited Accounts for Financial Year 1996/1997
 - 16.2 Estimated Accounts for Financial Year 1997/1998
 - 16.3 Budget for Financial Year 1998/1999
 - 16.4 Forecast Budget for Financial Year 1999/2000
 - 16.5 Appointment of Auditors for 1998/1999
- 17 Report of Publications Committee
- 18 Reports and Recommendations of Consultative Committee
- 19 ACFM and ACME Matters
- 20 GEF Block B Proposal for Baltic Sea Regional Project
- 21 Criteria for Sustainable Fisheries - Certification and Eco-Labeling in Marine Fisheries - the Potential Role of ICES
- 22 Any Other Business

GENERAL ASSEMBLY

Hotel Estoril Sol, Cascais, Portugal
16 September 1998

The **General Secretary, Professor Christopher C. E. Hopkins**, called the General Assembly of the 1998 ICES Annual Science Conference (86th Statutory Meeting) to order at 09.30 hrs. On behalf of the Council and the ICES Secretariat, he extended a warm welcome to the Assembly, wishing all participants an enjoyable and productive Annual Science Conference (ASC) in Portugal. It was anticipated that a new record for participation at an ICES ASC would be set this year, with over 650 persons expected to register during the Conference. The 'ASC Handbook' contains an overview of the various scientific Contributions with Abstracts of papers and posters, Agendas, Orders of the Day and specific timetables, allowing participants to plan at which sessions they wished to follow. Attention was drawn to the Blue Card and various administrative and social arrangements, including the General Reception by the Portuguese hosts the same evening and the Grand Conference Dinner on the evening of Saturday 19 September. Note was also taken of the situation of rooms for the scientific sessions. Elections for two Chairs of the Science Committees would take place on Friday 18 September from 16.00-16.30 hrs in the case of the Fisheries Technology Committee, and on Saturday 19 September from 16.00-16.30 hrs in the case of the Baltic Committee. ICES Delegates would appoint a new member of the Finance Committee at this meeting

Prizes and Diplomas would be bestowed for the Best Paper Presentation, the Best Poster presentation, and the Young Scientist award by the Chair of the Consultative Committee on Saturday 19 September at the Closing of the Scientific Sessions.

It was a pleasure to introduce Comdr Carlos Contreiras, who on behalf of the President of Cascais Town Council would welcome participants to this delightful area.

Comdr Carlos Contreiras apologised on behalf of the Mayor of Cascais, who for reasons beyond his control could not be present to welcome the Assembly to the town. However, the Mayor had requested that he draw attention to the history of Cascais as a municipality of fishers who were often the beneficiaries of a significant part of the marine research. The presence of such a high number of eminent scientists gathered here by ICES was a matter of pride for the town. In Cascais, in the last century, the King of Portugal started the oceanographic research in this country. He had even established in the town citadel in 1896 an aquarium to support his research activities. As the United Nations had proclaimed 1998 as the International Year of the Oceans, holding the ICES Annual Science Conference in Cascais was highly appropriate and particularly welcome.

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

Thank you, Comdr Contreiras, for the welcome to your beautiful town.

Good morning Colleagues, Ladies and Gentlemen, Distinguished Guests. It was with great pleasure that ICES received the invitation from the Government of Portugal to hold the 1998 ICES Annual Scientific Conference here in Cascais.

On behalf of all of us, the participants in this Annual Science Conference, I would like to express our appreciation to the Government of Portugal for inviting us this year. Particularly since this is the International Year of the Oceans. This is a special occasion as Portugal is this year the site of the last world exposition of the 20th Century, Expo 98. The theme of this exposition, as most of you are aware, is The Oceans: A Heritage for Our Future. The fact that we have an International Year of the Oceans can be credited to our Portuguese colleagues, who made a proposal at the Intergovernmental Oceanographic Commission, that 1998 be identified for this purpose. In that respect allow me to note the presence of our distinguished guest of honour, the Portuguese Secretary of State for Fisheries, Marcelo de Vasconcelos. He will be speaking to us a little later on in the programme, and I will give you some information at that time on his background and accomplishments. Besides Marcelo de Vasconcelos, we have on the podium:

- *Dr Graça Pestana, Vice-President of ICES, from the Portuguese Institute for Fisheries and Sea Research, Lisbon;*
- *Professor Pentti Mätkki, First Vice-President of ICES, and Director of the Finnish Marine Research Institute;*
- *Roald Vaage, Vice-President of ICES, and Administrative Director of the Norwegian Institute of Marine Research;*
- *Professor Ewald Ojaveer, Vice-President of ICES, from the Estonian Marine Institute;*
- *Dr Alfred Post, Vice-President of ICES and Chair of the Finance Committee, from the German Federal Institute of Fisheries;*
- *Niels Axel Nielsen, Vice-President, and Director of the Danish Institute of Fishery Research in Charlottenlund, Denmark;*
- *Dr Robin Cook, Chair of the Consultative Committee, from the SOAEFD Marine Laboratory in Aberdeen, UK;*
- *Professor Chris Hopkins, General Secretary of ICES.*

In terms of the structure of ICES, these Vice-Presidents and myself constitute the Bureau—the Executive Board of the Council—along with the General Secretary and the Chair of the Consultative Committee who are ex officio members. The Bureau supervises the business of ICES during the year, implementing the decisions taken by the Council of Delegates, which meets at the end of the Annual Science Conference. The Council consists of two representatives, i.e. Delegates, from each Member Country.

Many of you here are of course quite familiar with ICES. But for those who do not know us so well, I would like to say that ICES has several major functions. It brings to the attention of the scientific community through the Annual Science Conference the results and progress of work conducted in many fields of marine research, through its Working Groups and meetings like this, the analysis of the state of the knowledge. One identifies the gaps in knowledge and makes proposals to advance knowledge through the coordination of relevant and well-reflected programmes. ICES also provides scientific advice to Member Countries and Client Commissions both on fisheries management and on the protection of the marine environment.

Besides this important Annual Science Conference, the work of ICES continues throughout the year, in the form of a Work Programme that is adopted here at this meeting. During the year, about 100 Study/Working Groups, and Steering and Planning Groups, hold meetings, involving experts from the Member Countries, and produce reports on their findings. Some of these reports go to the Advisory Committees and are passed on as scientific information and advice to the Member Countries and Client Commissions that have requested particular advice. Other reports are passed on to the system of Science Committees, including the Consultative Committee, which are charged with overseeing the Core Science Programme of the Council.

It is very fitting that Expo 98, which recognises and celebrates the importance of the oceans to our survival on this planet, should be occurring here in Portugal. As you know, Portugal has a long and illustrious linkage to the oceans. Portuguese explorers and navigators in the 15th and 16th Centuries played a major role in charting the far reaches of the oceans. Individuals such as Prince Henry, Vasco da Gama, Gaspar Corte Real, and many others, set forth on explorations into what was at that time the unknown. The courage, daring, and imagination of those intrepid Portuguese explorers helped advance humanity's understanding of the boundaries of the world as it was then known. In many respects, that tradition continues today, as can be seen in the magnificent Portuguese exhibitions at Expo 98 that illustrate vividly the mysteries of the oceans and their importance to us all. I encourage you, when the opportunity occurs, to visit these exhibitions.

Many international organisations have come to Portugal this year to hold meetings. I think it is particularly appropriate that ICES has chosen to meet here on this occasion because it is the International Council for the Exploration of the Sea. Founded in Copenhagen, Denmark, in 1902, ICES is now almost a century old. During that period, ICES has contributed in a major way to advancing our knowledge of the oceans and the living resources of the oceans.

Our host country, Portugal, has been a long-standing member of ICES, having joined in the early 1920s. ICES had the privilege of meeting in Portugal once previously, 25 years ago in 1973. Portugal has played an active role in the work of ICES, and Dr Graça Pestana—one of the two Portuguese Delegates to ICES—was elected last fall as one of the Vice-Presidents of the Bureau, and in fact is the first female Vice-President of ICES.

Over the last couple of years in ICES we have been having a substantial discussion about the celebration of the impending Centenary in 2002. We are now poised to begin the beat-up to that celebration, starting at our Annual Science Conference in Stockholm, Sweden, next year. We have much to celebrate, but at the same time ICES is engaged in a process of renewal and building to address the challenges of the next century. We have restructured our Statutory Meeting into this Annual Science Conference, and reorganised our Science Committees to take a more interdisciplinary and multispecies approach that is required to tackle the scientific challenges we now face. These new Science Committees will really begin to function fully for the first time at this Annual Science Conference. We expect this new approach will contribute to the revitalisation and renewal of the science component of ICES.

From its original role concerned with the development, coordination and promotion of marine science in the North Atlantic, ICES has evolved substantially over recent decades. Advisory functions assumed increasing prominence in the 1970s, 1980s and early 1990s. Efforts are now underway to clarify the nature or the form of the scientific advice that is required of ICES by our clients, both in the fisheries and environmental fields. There are also emerging pressures for integrated advice on certain issues. I think it is fair to say that we are still struggling with how to provide integrated interdisciplinary advice, which encompasses both fisheries and environmental aspects. Early in 1999, we will be holding an ICES Dialogue Meeting with our fisheries clients, both representatives of Member Countries and the partner Commissions. The meeting will consider how we may improve on the development and communication of scientific advice to managers, how we may portray better the uncertainties and the risks that are inherently associated with alternative management actions, but at the same time seeking to avoid the use of scientific uncertainty as an excuse for inaction. For too long and in too many parts of the world, there has been a

tendency to delay or dither in the face of scientific uncertainty.

It is customary at the General Assembly to note which Symposia, organised by ICES alone or jointly with other organisations, have been held since the last ASC or will be held soon:

1. The Symposium on "Brackish Water Ecosystems" (Convener: Prof. P. Mätkki, Finland) was held in Helsinki, Finland, from 25–28 August 1998. Co-sponsors included the Finnish Institute of Marine Research and the Finnish Game and Fisheries Research Institute. Selected papers will be published as a special supplement in the ICES Journal of Marine Science;
2. The Symposium on "Marine Benthos Dynamics: Environmental and Fisheries Impacts" (Co-Conveners: Prof. A. Eleftheriou, Greece, and Dr P. Kingston, UK) was held in Crete, Greece, from 5–7 October 1998. Co-sponsors include the European Commission, the Institute of Marine Biology of Crete, and the General Secretariat for Research and Technology - Ministry of Development (Greece);
3. 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; and Prof. D. Butterworth, South Africa) will be held in Cape Town, South Africa, from 16–19 November 1998. The EC, FAO, and ICLARM are co-sponsors of the Symposium.

I draw to your notice Document C.M. 1998/Gen:I containing the Observers' Reports from persons who have represented ICES at some of the key meetings of cooperating international organisations. This is an important aspect of the activities of ICES as collaboration and cooperation with other organisations is mutually beneficial.

As we meet here this week to celebrate accomplishments, review the developments in science and plan for the future, regrettably we are missing some former colleagues, and I have the sad duty to announce the passing in the last year of several colleagues previously active in the work of ICES:

- Lars Midttun, Norway, died in 1998. He was a graduate of the University of Oslo, a member of the Norwegian Antarctic Expedition, and in particular he worked on sound propagation in the sea, leading to a long involvement with the field of physical oceanography and acoustics. He was a regular attendant at ICES meetings for many years, and was a Delegate of Norway during the mid-1970s. He had also served as a prominent member of the Fish Capture Committee;

- Gudni Thorsteinsson, Iceland, also died in the past year. He was a fishing gear expert at the Marine Research Institute in Reykjavik, and also a member of the Fish Capture Committee for many years. He chaired the Committee during the period 1983–1986;

- Dr Jim Traynor, USA, died in May 1998 in Moscow, Russia, on his way home from a scientific meeting. He was also a member of the Fish Capture Committee for many years and did important pioneering work on hydroacoustics.

So all three of these colleagues who have departed from us in the past year, had at various times been active in the Fish Capture Committee. Thus, in particular, the fisheries technology community has had a major loss.

We offer our condolences to their families, and our sincere thanks for their contributions to the ICES community. So I would now like to ask you to rise and join me in paying our respects through a minute's silence.

As I mentioned earlier, ICES has an illustrious past, but the continuing vitality of the organisation will depend on its future evolution. Over the next couple of years we will be devoting a great deal of time and attention to planning for the future of ICES. The Council, at last year's meeting in Baltimore, USA, decided to establish a Working Group on Strategic Planning, whose task was to discuss and lay the foundation for the development of a strategic plan to take ICES into the next century. That group submitted its report to the Bureau in June 1998, and this report has been made available as a General document for all participants at this Annual Science Conference. While the document has not yet been discussed or endorsed by the Council, it will serve to stimulate debate and discussions at this year's meeting on the future strategic directions for ICES. Development of an appropriate Strategic Plan will take a great effort by all the components of the organisation. The intent is to help guide ICES in shaping its future development to meet the challenges that we see over the horizon at the beginning of the next century. But all of this planning will not pay full dividends unless we also confront and address certain difficulties and problems that we face at the current time. One of the issues of the Council will be discussing at this meeting concerns responding to significant financial challenges that we face. I believe the Council must act now at this meeting to put ICES on a sound financial basis, so that we can have a vibrant future.

While ICES must continue to discharge its Advisory Function in an exemplary manner, it must also—through its Science Committees by way of Workshops, special Theme Sessions, and international Symposia—foster the development of the scientific knowledge base without which any advice on the implication of management options will undoubtedly prove inadequate. In doing so,

we must keep in mind that sound science and advances in science are in fact the 'raison d'être' for the existence of ICES.

I am confident that ICES will rise to the occasion and will meet the challenges of the next century as successfully as it has those of the now nearly passed century. Over the next several years let us celebrate the centenary, let us celebrate ICES accomplishments so far, but at the same time, let us work together to build on the strength of ICES to position it well for the future challenges.

Thank you.

The **President** then introduced Dr Robin Cook (Chair of the Consultative Committee), and Dr Michael P. Sissenwine (Chair of the Bureau Working Group on Strategic Planning), both of whom were called upon to make their presentations.

Dr Cook drew attention to the Blue Card Programme for the 1998 Annual Science Conference (Annex 1), including the following components:

- The Scientific Presentations at the various Theme Sessions and Mini-Symposium;
- The special Poster Session, which also would have a social dimension via a 'cash-bar' facility;
- The Science Committee Business Sessions which, although members were formally appointed, were open to a wider attendance by those attending the ASC. This year, a major focus by these Committees would include preliminary work on preparing the ICES Strategic Plan;
- The awards to be presented—on the basis of proposals made by the various Conveners—for best Paper and Poster Presentation, and to the Young Scientist.

Dr Sissenwine noted the report of the Bureau Working Group on Strategic Planning (BWGSTRAT, Doc. C.M. 1998/Gen:4/Del:15) which was available in the room to all participants. With the help of overhead transparencies he highlighted:

- The membership of, and Terms of Reference for, BWGSTRAT;
- The Report of BWGSTRAT is a preliminary framework proposal for producing the Strategic Plan, rather than being the Plan itself. The Plan will emerge later;
- Article 1 of the ICES Convention sets the stage for developing the Plan, defining the focus of the organisation in the North Atlantic;
- Besides being aware of ICES itself, one should be cognisant of the broader background in which the work of ICES is set, including the implications of the UN and other international Conferences, Agreements, and Codes, which also outlined the

precautionary approach to the conservation of living marine resources;

- The vision of BWGSTRAT is for an international scientific enterprise that is relevant, responsive, respected and right; The scientific enterprise is, in its entirety, larger than ICES itself;
- It recognises the importance of marine ecosystems, not just fisheries, as well as the evolving societal needs. Thus the provision of credible scientific information and advice for a wide range of stakeholders is of great importance;
- The need for equality in all aspects of human diversity is evident, with gender and cultural equality being important elements of this;
- The ICES Mission is to mobilise scientific assets to advance the capacity to understand and advise on the impacts of human activities on marine ecosystems and the implications of natural variability;
- There are a number of sub-elements of the Mission, including the importance of interdisciplinary research. This is necessary to ensure an evolving scientific capacity to provide sound advice for management purposes;
- From the Mission follows the need to identify Goals; the actual strategies by which one moves forward. Seven Goals form preliminary statements to serve as an 'umbrella' for the Committees and other bodies of ICES to work in terms of development specific plans:
 1. Make ICES the most appealing and credible scientific organisation it can be;
 2. Match ICES budget to needs and expectations for scientific knowledge and advice;
 3. Develop a challenging core science programme to fulfil the ICES mission;
 4. Provide sound, credible, and timely advice that is relevant to today's and future societal needs;
 5. Establish and maintain partnerships which are mutually beneficial in fulfilling ICES vision;
 6. Maintain and further develop a modern and effective infrastructure to support the ICES mission;
 7. Raise public understanding of marine ecosystems and their relevance to society.
- The proposed timetable for carrying out the Plan, and holding appropriate consultations with stakeholders, was also presented;
- BWGSTRAT looked forward to receiving feedback to its report and its proposals.

The **President** thanked Drs Cook and Sissenwine for their input. He then introduced the Guest of Honour, the Portuguese Secretary of State for Fisheries, Marcelo de Sousa Vasconcelos, drawing attention to his many professional accomplishments during a wide-reaching career.

Marcello de Vasconcelos then addressed the Assembly:

Mr President, Vice-Presidents, General Secretary, distinguished National Delegates, Ladies and

Gentlemen. Thank you, all of you for your warm welcome.

First of all, on behalf of the Minister of Agriculture and Fisheries of Portugal, allow me to welcome you to our country on the occasion of the International Year of the Oceans, just before we start a new millennium. I would like to add that as a biologist involved with the fisheries research for so many years, I would like to express my great satisfaction to see such an eminent scientist as Dr Parsons to preside over this Annual Science Conference.

For the first time in human history, mankind is confronted with situations that are in fact causing great concern on a world-wide scale. At the continental scale, these include deforestation, misuse of chemicals in agriculture, and increasing paucity of fresh water resources. In coastal areas, their quality has been continuously questioned by high pollution levels and by other environmental impacts of various industries. The quality of a significant part of the main living marine resources has been strongly damaged by the abuses of industrial fisheries and by the general degradation of our coastal waters. I think this is a paradox, or maybe it is not, that in this era when science opens new and somewhat unexpected horizons at a time when technology is also undergoing a remarkable development, the industry that is based upon the exploitation of the fishery resources is undergoing a marked decline.

All our former knowledge and experience about catastrophic events—of natural or human origin—should have been enough to avoid the worst. However, within a bit more than 20 years there has been ruin, unemployment and instability occurring in many coastal areas.

Sometimes—not as urgently as one might expect—we have adopted measures to contain fishing activity so as to avoid the worst situations. We have tried to displace some industries, including the constitution of joint ventures; these would be in fact the remedies that should lead to recovery. However, in many cases the system itself—and above all the exploitation of resources—did not undergo any substantial changes for the better.

What can be the deep-rooted causes of such behaviour? They can be considered irrational in many cases. Whether you like it or not, there is an ideological and cultural aspect of human societies that influence us, irrespective of whether these are associated with productivity, profitability or free-trade. As a consequence, a trend towards cultivating individuality or egoism has been developed in the final part of this century. This trend is expressed in a system that is based on behaviour that turns its back on elementary ethical principles. Thus, it is not surprising that a very significant part of fisheries economics, that has developed in our time in many coastal countries, views production increase as a major goal.

The notion of production increase was at the basis of an over-exploitation and wastage, leading to over-capacity and over-investment. We have apparently created a developmental model that is the source of a social organisation based on the perversion of food chains. An example of this can be seen in the recent evolution of food production, for instance in the case of mad cow disease that has affected Europe during the last few years. In 1972 the famous report of the Club of Rome and the Stockholm Environment Conference represented a first alert to the limitations facing the world, and even in 1987 the Brundtland Report and in 1992 the Rio Conference (UNCED) have underlined the need to build new development policies which moderate economic progress with environmental conservation in a 'sustainability' concept. So today, it is more than ever crucial for us to integrate fisheries and environmental issues.

It is crucial for us to review the concept of development that is not necessarily simply a synonym of growth, and also to analyse its implications for the future of fisheries and exploration of the oceans. We have to ponder over the importance of ethical values within applied research and within the regimes of exploitation, linking them closely to the notion of progress.

We also have to re-evaluate the educational system including technical education. We need to better understand how to integrate the different types of knowledge that are developing in time, as well as defining on a more solid basis, not simply the concept of responsibility—on an individual or collective basis—but also the sense of solidarity which must engage everyone.

For many years we have been influenced by a deterministic vision of the evolution of events and evolution of the world. So we have been gradually basing scientific beliefs and political decisions on a notion of certainty, ignoring—with some honourable exceptions—the error margins derived from a knowledge which is still too fragile.

Some time ago we began to realise that the action that was followed was, in several cases, either too simplistic or did not take sufficiently into account the complexity of the parameters that influence the evolution of fisheries. In that sense, the FAO Code of Conduct for Responsible Fisheries, and the results of the United Nations Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks, have opened up a new perspective for the future of fisheries.

We can face, Ladies and Gentlemen, a different future for fisheries, providing that we approach regional and international cooperation on a serious and transparent basis. Building such a future will have to be based on exploitation regimes which are compatible with two very simple assumptions: first of all the margin of error and on the other hand the uncertainty. These will also have

to be compatible with two key objectives: the need to recover and the need for stability. Finally all this needs to be compatible with two elementary principles: a requirement for solidarity and the sense of responsibility.

Within this context, the International Council for the Exploration of the Sea plays a key role as a privileged forum of reflection on fisheries and its future. However, it is not simply that, for it has to think about the relations that should be customary at all levels; between scientific research, administration, and political powers.

ICES has a brilliant past, including an increasingly interdisciplinary work during the last years. But it must proceed further, as it must expand its concerns beyond the biological facts of ecology and environment; it must also better cover and expand the knowledge based on social economics. The history of fisheries and the future of fisheries—I am focusing on this theme because this is my area of enterprise—is also the history of mankind and of a longstanding and difficult relationship with the immense world full of secrets that is the ocean.

ICES contribution is as an organisation which integrates knowledge, and which stimulates debate. This is crucial in order to open up new perspectives, where the needs of mankind—as opposed to what is happening nowadays—will be compatible and harmonious with the exploitable potential of the oceans. Thus we might ensure an apportionment which is equitable between the fishing communities in the coastal areas, those which are more vulnerable, and the perennial character of capture fisheries and aquaculture, while not damaging the biological and ecological balance, and without undermining the sustainability of the resources of the world.

Thank you.

The **President** thanked the Secretary of State for Fisheries for a very thought provoking presentation, which raised for ICES a number of challenges in terms of shifting paradigms, where exploitation must be compatible with the error margins of our knowledge. Then he welcomed Odd Nakken (Norway) who would present the Open Lecture. Odd Nakken grew up in a fishing community—gaining some practical fishing experience—in western Norway, before studying physical oceanography at the University of Bergen. Since the mid-1960s he worked in science, and science administration, becoming the Managing Director of the Institute of Marine Research in Bergen from 1986 to 1992. His main scientific interest has been in fisheries acoustics, and the link between climate variability and the distribution and production of Barents Sea cod. In ICES he has been, at various times, Chair of the Arctic Fisheries Working Group, a member of the Fish Capture Committee, member of the Advisory Committee on Fishery Management, Delegate of Norway in the Council, and Chair of the Finance Committee.

Odd Nakken presented a 40-minute lecture entitled “Acoustic Methods in the Study of Fish Ecology”, illustrated by slides. The Open Lecture *inter alia* focused on:

- The systematic use of echo sounders in fisheries and fisheries science, that commenced in the 1930s and developed rapidly after World War II;
- During the 1950s and 1960s large scale echo surveys were carried out in many regions as a service to fishing fleets and resulting in a substantial increase in knowledge of distribution and migration for many species and stocks. From 1958-1968, Russian scientists provided estimates of abundance of Norwegian spring-spawning herring, based on acoustic surveying and underwater photography;
- How acoustics can be used in the estimation of densities and abundance of fish. Acoustic instruments in use in fisheries and plankton research span a frequency range from about 1 KHz to several MHz. At one KHz typical ranges and sampling volumes are tens of kilometres and thousands of cubic meters, while the corresponding figures at several MHz are ranges of a few meters and sampling volumes of less than a cubic centimetre. The echo-reflective ability of fish and plankton varies considerably between species and/or groups of species as well as between acoustic frequencies depending on the material properties and shape and size of targets, and particularly on whether the organisms contain gas (e.g. swim-bladders). Integration of echo energy is the most widely used acoustic method for estimating densities and abundance of fish. The basis for the method is the linearity principle, i.e. that the accumulated echo energy per unit volume or area from an aggregation is proportional to actual fish density; the factor of proportionality being the average echo ability (scattering cross section) of the individual fishes. Echo-integration was introduced in the early 1960s, and the linearity principle was verified by measurements of live fish in the early 1980s;
- In conclusion, attention was drawn to the use of acoustic instruments in studies of fish behaviour. Such studies have increased in recent years, both because of the need to evaluate the reliability in acoustic and swept area estimates of abundance as well as to validate behavioural theory and to increase the knowledge of fish behaviour in general.

A full illustrated text of Odd Nakken's lecture is available on the ICES web site at:
<<http://www.ices.dk/asc/1998/openlect/open98.pdf>>.

The **President** thanked Odd Nakken for a highly informative and engaging Open Lecture. He again expressed his thanks to the Secretariat of State for Fisheries for Portugal, Marcelo de Vasconcelos, for his presence at the General Assembly, and requested that he convey to his colleagues in the Portuguese Government the Council's sincere thanks for the invitation to hold the

1998 ICES Annual Science Conference in Portugal. The President concluded: "So I wish you all an enjoyable and productive Conference over the next few days. I now declare the General Assembly closed".

The General Assembly was adjourned at 11.00 hrs.

Documents

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| Gen:1 | Observers' Reports from Cooperating Organisations |
| Gen:2 | ICES Activities in 1997/1998 |
| Gen:3 | Elections and Appointments of Council Officials at the 1998 Annual Science Conference (86th Statutory Meeting) (E+F) |
| Gen:4 | Report of the Bureau Working Group on Strategic Planning |
| Gen:5 | Report on ICES Symposia |
| Gen:6 | 1997/1998 Overview of ICES Committees and Subsidiary Groups and their Shadowing by Secretariat Staff, and Schedule of ICES Meetings and List of CM Codes |

PROGRAMME OF SCIENTIFIC SESSIONS

Wednesday 16 September 1998			
09.00-10.30	11.00-13.00	14.00-16.00	16.30-18.00
General Assembly and Open Lecture "Acoustic Methods in Studies of Fish Ecology" by Dr O. Nakken Casino in Estoril Participants are requested to register first at the Reception Desk at Hotel Estoril Sol. Bus transportation to the Casino in Estoril and back will be provided.	Science Committees Fisheries Technology Cascals	Theme Session J "Variation in the Pattern of Fish Aggregation: Measurement and Analysis at Different Spatial and Temporal Scales and Implications" Cascals	
	Oceanography Estoril Resource Management Palmela Norte	Theme Session O "Deepwater Fish and Fisheries" Estoril	
	Marine Habitat Palmela Sul Mariculture Sintra-Monserrate-Roca	Theme Session M "Impact of Cephalopods in the Food Chain and Their Interaction with the Environment" Palmela Norte	
	Living Resources Sintra-Seteais Baltic Belém	Theme Session K "The Use of Genetics in Aquaculture" Palmela Sul	

Thursday 17 September 1998			
08.30-10.30	11.00-12.30	13.30-15.30	16.00-18.00
Theme Session J "Variation in the Pattern of Fish Aggregation: Measurement and Analysis..." Cascals		Theme Session CC "Population Biology" Cascals	
Theme Session O "Deepwater Fish and Fisheries" Estoril		Theme Session M "Impact of Cephalopods in the Food Chain and Their Interaction with the Environment" Estoril	
Theme Session L "Farming Marine Fish beyond the Year 2000: Technological Solutions for Biological Challenges" Palmela Norte		Theme Session S "Visualisation of Spatial (including Survey) Data (posters, software demonstrations)" Palmela Norte	
Theme Session U "Evaluation of Marine Protected Areas as Management Tools" Palmela Sul		Theme Session R "Mesoscale Physical Phenomena and Biological Production: Implications for GLOBEC" Palmela Sul	

PROGRAMME OF SCIENTIFIC SESSIONS

Friday 18 September 1998			
08.30-10.30	11.00-12.30	13.30-15.30	16.00-18.00
Theme Session O "Deepwater Fish and Fisheries" Cascals			Science Committees Fisheries Technology Cascals Oceanography Estoril Resource Management Palmela Norte
Theme Session R "Mescoscale Physical Phenomena..." Estoril	Theme Session M "Impact of Cephalopods in the Food Chain ..Environment" Estoril	Theme Session CC "Population Biology" Estoril	
Theme Session T "Management under a Precautionary Approach: Ecological, Social, and Economic Consequences" Palmela Norte			Marine Habitat Palmela Sul Mariculture Sintra-Monserrate
Theme Session V "Recovery and Protection of Marine Habitats and Ecosystems from Natural and Anthropogenic Impacts" Palmela Sul			Living Resources Sintra-Roca Baltic Belém
POSTER SESSION 18.00-20.00, Mafra Room			

Saturday 19 September 1998				
08.30– 10.30	11.00– 12.30	13.30– 15.30	16.00– 17.30	17.30– 18.00
Theme Session L "Farming Marine Fish beyond the Year 2000...." Cascals	Mini-Symposium "Coastal Eutrophication, System Productivity, and (Harmful) Algal Blooms..." Cascals		Committees Fish. Tech. Cascals Ocean. Estoril Res. Man Sintra- Seteais Marine Habitat Guincho Mariculture Sintra- Mon- serrate Living Res. Sintra- Roca Baltic Belém	Closing Session
Theme Session N "Ecology of Diadromous Fishes during the Early Marine Phase" Estoril				
Theme Session P "Development of Toxicity and Quality Stan- dards for Con- taminants..." Palmela Norte	Theme Session DD "Spawning and Recruit- ment" Palmela N	Theme Session AA "Stock Com- ponents in Management" Palmela N		
Theme Session BB "Fisheries Assessment Methods" Palmela Sul		Theme Session Q " Skill Assesess" Palmela Sul		Palmela Norte+Sul

PROGRAMME OF BUSINESS/OTHER SESSIONS

OTHER SESSIONS (attended by members only)	
Monday 14 September 09.00-17.30	Bureau (Sintra-Seteais)
Tuesday 15 September 09.00-18.00 08.30-18.00 08.30-18.00 12.30-14.00	Bureau (Sintra-Seteais) ACME (Palmela Sul) ACFM (Sintra-Monserrate-Roca) Consultative Committee (Belém)
Wednesday 16 September 16.00-18.00 18.00-	Delegates Meeting (Sintra-Monserrate-Roca) Consultative Committee (Belém)
Thursday 17 September 08.30-12.30 13.30-17.30 18.00-	Finance Committee (Sintra-Seteais) Delegates Meeting (Sintra-Monserrate-Roca) Consultative Committee (Belém)
Friday 18 September 08.30-12.30 13.30-19.30 18.00-	Delegates Meeting (Sintra-Monserrate-Roca) Publications Committee (Room 415) Consultative Committee (Sintra-Seteais)
Monday 21 September 08.30-17.30 08.30-17.30	Consultative Committee (Sintra-Seteais) Delegates Meeting (Sintra-Monserrate-Roca)
Tuesday 22 September 08.30-17.30	Delegates Meeting (Sintra-Monserrate-Roca)

SOCIAL EVENTS	
Wednesday 16 September	General Reception at Palácio do Correio-Mor at Loures
Saturday 19 September	Grand Conference Dinner at Estufa Fria in Lisbon
Sunday 20 September	Excursion Day

CLOSING OF THE SCIENTIFIC SESSIONS

Hotel Estoril Sol, Cascais, Portugal
Saturday, 19 September 1998

The **General Secretary, Professor Chris Hopkins**, opened the Closing of the Scientific Sessions at 17.30 hrs and announced:

- Two new Chairs had been elected for the Science Committees. **Dr Ole Misund** (Norway) for the Fisheries Technology Committee succeeding Dr Peter Stewart (United Kingdom), and **Professor Tom Osborn** (United States) for the Baltic Committee succeeding Eero Aro (Finland);
- 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 the 1998 Annual Science Conference had been close to 1,000 and set a new record for the Annual Science Conference. It was encouraging to note that about half of those attending came from the Iberian region.

On behalf of all of those who had participated in the 1998 Annual Science Conference, he warmly thanked the Delegates of Portugal (Dr Graça Pestana and Dr Carmen Lima), the Portuguese Government, and the Mayor and the Town of Cascais, for their hospitality throughout the meeting. Appreciation was also expressed of the help provided behind the scenes by the many helpers from Portugal. Finally, he expressed sincere thanks to his staff in the ICES Secretariat for their dedicated work before and throughout the Conference.

The **Chair of the Consultative Committee, Dr Robin Cook**, announced the prize winners for Poster, Paper, and Newcomer awards, and he and the President presented certificates and gifts:

- Best Paper Presentation Award** to **K. Lee, K.-L. Tay, and C. Belanger** (Canada) for Doc. C.M. 1998/P:3 "Development of a microscale biotest based on microbial exoenzyme activity in sediments".
- Best Poster Presentation Award** to **R.P. Sánchez and D.R. Brown** (Argentina) for Doc. C.M. 1998/R:28 "Larval and early juvenile growth of two Patagonian clupeoids: *Engraulis anchoita* and *Sprattus fuegensis*".
- Newcomer Award** to **J. Dalsgaard** (Canada), **A. Jarre-Teichmann**, **C. Walters** and **D. Pauly** for Doc.

C.M. 1998/V:10 "An approach to the modelling of persistent pollutants in marine ecosystems".

Dr Cook thanked the Conveners of the various Scientific Sessions for their professional handling of these, and for the support provided by the ICES Secretariat. Finally, he expressed his gratitude to the outgoing Science Committee Chairs, Dr Peter Stewart and Eero Aro for their hard work during the past period. He looked forward to working closely with the two incoming Chairs.

The **President, Dr Scott Parsons**, emphasised that the 1998 Annual Science Conference had been very successful, due to a combination of factors: including the substance and topicality of the various sessions, the large turn-out of participants, and the sun and surroundings. He paid special thanks to the Portuguese Government for its invitation to host the Conference in Cascais. The success of the meeting was also due to the enthusiasm, dedication and hard work that had been exhibited by Dr Graça Pestana and Dr Carmen Lima, the Portuguese Delegates.

The hospitality shown by the Portuguese hosts had been exceptional both in quality and in quantity, ranging from the larger General Reception on the opening evening to smaller arrangements for Delegates and ICES Officials at other times. It was a pleasure to express the appreciation of the ICES community for such generosity.

The Scientific Sessions of the Conference apparently had been well received on the basis of the relevance of the topics and the professionalism of the paper and poster presentations. Suggestions on how the Conference could be further improved were most welcome, and should be submitted to the Chair of the Consultative Committee and the ICES Secretariat.

The 1998 Annual Science Conference had been made rather compressed in terms of the number of different events being packed into the available time. Comments would be appreciated as to how the ASC had worked, and what needed to be redressed. On the basis of this, there may be a need for some changes and fine-tuning.

Participants at the Conference highly valued the opportunity to attend the Scientific Sessions, and to see the presentations to discuss and debate their merits. An equally important aspect was to become re-acquainted socially with old friends and to make new friends and acquaintances from all over the world.

At the General Assembly, it was emphasised that there is a need to build for the future of ICES at the same time as

we get into the celebration of the ICES Centenary over the next several years. The Report of the Bureau Working Group on Strategic Planning (BWGSTRAT) had been circulated earlier at the Conference with a view to defining a proposed framework for developing ICES to meet the challenges of the new century. The Council of Delegates had reviewed the Report of BWGSTRAT earlier in the week and generally endorsed the framework as the basis for development of a strategic plan for ICES. The Council has decided to maintain BWGSTRAT for another year in order to orchestrate the input from the Science Committees. Feedback on the Report of BWGSTRAT, from the whole of ICES as well as its stakeholders, was to be encouraged.

He extended warm thanks to the ICES Secretariat whose dedication, enthusiasm, and hard work is well known

within the ICES community. Without the long hours of work that they put in at repeated meetings, not only at the Annual Science Conference, but in support of the Working Groups and numerous Committees throughout the year, it would be very difficult for ICES to function.

The Annual Science Conference had reached its end, but the business of the Council of Delegates would continue for several days. As a result of the input from the Annual Science Conference and other ICES meetings held during the past year, Council Resolutions—largely emanating from the Working Groups and Committees—would be passed to establish the ICES Workplan for the coming year. He looked forward to enjoying the Grand Conference Dinner that night together with countless other participants, wished everyone a safe journey home afterwards, and adjourned the meeting at 18.00 hrs.

REPORT OF DELEGATES MEETING

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

Wednesday 16 September	16.00–18.30 hrs
Thursday 17 September	13.30–17.30 hrs
Friday 18 September	08.30–12.30 hrs
Monday 21 September	08.30–12.30 hrs
	13.30–17.30 hrs
Tuesday 22 September	08.30–14.30 hrs

All Member Countries were represented at all sessions, 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 particularly welcomed a number of new Delegates (Dr J. Piuze, Canada; Drs G.J. van Balsfoort, Netherlands; and Dr J. Horwood, UK). He also welcomed several Acting Delegates (Dr R. Aps serving instead of Dr A. Järvik for specific Agenda Items; Dr V. Borisov serving instead of Dr B. Kotenev, Russia; Prof. P. Suuronen serving temporarily instead of Prof. P. Tuunainen, Finland, for specific Agenda Items; Prof. G. Hubold, serving instead of Prof. W. Nellen, Germany; J. Doyle serving instead of D. de G. Griffith and J. Browne, Ireland, for some sessions).

A revised Draft Agenda was submitted and adopted, including some additional items, and a schedule was proposed for the order in which the Agenda items would be taken at various sessions.

A roll-call of Member Countries was taken for each session by the General Secretary.

Agenda Item 1 PRELIMINARY REPORT ON ADMINISTRATION

The **General Secretary** presented Doc. C.M. 1998/Del:2, and noted that three quarters (i.e. 15) of the Contracting Parties have now ratified the membership application by Lithuania. The official accession of Lithuania to the ICES Convention would come into force as soon as the Lithuanian Instrument of Accession was received by the Danish Ministry of Foreign Affairs acting as depository of the ICES Convention.

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

Agenda Item 2 ELECTION AND APPOINTMENTS AT 1998 ANNUAL SCIENCE CONFERENCE

The **General Secretary** drew attention to Doc. C.M. 1998/Del:7 concerning the elections for new Chairs of the Baltic Fish Committee (replacing E.Aro, Finland) and the Fisheries Technology Committee (replacing Dr P.A.M. Stewart, United Kingdom). The times and venues for these elections were noted. A new member of the Finance Committee would be appointed to replace Dr R. De Clerck (Belgium).

Agenda Item 3 APPOINTMENT OF NEW MEMBER OF FINANCE COMMITTEE

The **President** referred to Doc. C.M. 1998/Del:7, noting that the Council was obliged to appoint a new member of the Finance Committee for the three-year period commencing 1 November 1998. He requested that Delegates give their approval to the Bureau's proposal that:

- Professor Jan Thulin (Sweden) should be appointed as the new member to replace Dr R. De Clerck (Belgium) for the forthcoming period.

The **Council approved** the Bureau's proposal, and expressed its gratitude to Dr De Clerck for his service as member.

Agenda Item 4 ARRANGEMENTS FOR 1999 (87TH STATUTORY MEETING; SWEDEN), 2000 (88TH STATUTORY MEETING; BELGIUM) AND SUBSEQUENT ANNUAL SCIENCE CONFERENCES

The **General Secretary** briefly summarised Doc. C.M. 1998/Del:8 concerning progress in planning for the Annual Science Conferences in Sweden (1999), Belgium (2000), Norway (2001), Denmark (2002), and Estonia (2003). It was noted that, although Sweden will cover the participation of Dr A. Svansson for the lecture on Otto Petersson, currently no financing has been found for the other Centenary Day lecturers in 1999. Because of the precarious Budget situation, it was hoped that the Member Countries would be able to cover the travel and *per diem* costs of their nationals acting as Centenary Day lecturers.

With regard to the 88th Statutory Meeting in Belgium, the **Delegate of Belgium** confirmed that the 2000 ASC will be held in the city of Bruges, nominated as the Cultural Capital of Europe for the year 2002.

The **President** expressed his thanks to Belgium for the clarification provided with regard to the venue for the 2000 ASC.

Agenda Item 5 COOPERATION WITH OTHER INTERNATIONAL ORGANISATIONS: WORKING AND FINANCIAL ARRANGEMENTS

The **General Secretary** briefly reviewed Doc. C.M. 1998/Del:3.

The **President** noted that the collaboration with PICES would be further enhanced through the Draft MoU as presented in Doc. C.M. 1998/Del:11. He hoped that Delegates would later approve his signing of the MoU on behalf of ICES. Countersigning by PICES would occur at its Annual Meeting in October 1998. The MoU between ICES and PICES was subsequently agreed, and signed by the President in November 1998 (**Addendum 1**).

Agenda Item 6 APPLICATION TO ACCEDE TO ICES CONVENTION

The **General Secretary** drew attention to Doc. C.M. 1998/Del:9 outlining the formal process of Lithuania's application to become the 20th ICES Member Country. However, as currently the Instrument of Accession had not yet been deposited, it was not possible to have official Lithuanian Delegates present at the Council Meeting.

The **President** proposed, and the **Council agreed**, that a representative of Lithuania be invited to participate in the Delegates Meeting as observer. In accordance with this decision, Dr S. Toliuss joined the subsequent sessions of the Delegates Meeting in an observer capacity.

Agenda Item 7 REPORT ON SECOND MEETING OF ICES/COMMISSIONS WORKING GROUP ON CO-OPERATIVE PROCEDURES, AND NEXT-STEPS

D. de G. Griffith (Chair of the ICES/Commissions Working Group on Cooperative Procedures (WGCOOP), summarised the main points contained in Doc. C.M. 1998/Del:10 and the Addendum to Doc. C.M. 1998/Del:10. These documents described the significant progress that had been made in reaching an agreement with the Commissions. The negotiations undertaken so far had been arduous and sensitive, but accord had been reached to arrive at a base level for Funding of the Advisory Function by the Fisheries Commissions. This base level of preparing recurring advice would be taken to represent 100% cost recovery, adjusted for inflation to the ICES fiscal year 1996/1997, as detailed in the Report of the 1998 WGCOOP Meeting. The Commissions could not accept the revised increased prices for 1996/1997 that had been presented at the 1998 WGCOOP Meeting.

The Commissions agreed that 100% cost recovery should be achieved within a period not exceeding three years. It was also agreed that the 1996/1997 base figure would be increased annually by taking account of the accumulated inflation rate in Denmark for each preceding year. It was pointed out that the agreed figures represent only the minimum amount to be paid by each of the Fisheries Commissions in making steps to reach 100% cost recovery levels. The 100% cost recovery levels covered only a basic package of recurrent advice (i.e. fish stock assessments) which did not include recent developmental work in ICES, e.g. the Precautionary Approach, and Environmental or Ecosystem Interactions. Other non-recurring advice would be negotiated separately. Also excluded from the basic package were the Advisory *Honoraria* since the Fisheries and Environmental Commissions were not prepared to commit any additional funding to cover this.

In respect of issues common to all Commissions, it was expected that the MoUs will enter into force on 1 January following their signature in the cases of IBSFC and NEAFC, but in the case of the EC and NASCO these were intended to apply from the date of signature by the Parties concerned. The MoUs will continue for three years thereafter, and would be reviewed and extended as necessary.

The MoUs will be amended to include two distinct issues to be discussed in February of Year 2, i.e. consultation, and review of the costing-spreadsheets for Year 1. The consultations were established to negotiate the terms of any non-standard requests from the Commissions, while the continued review of the costing-spreadsheets had been included because the Commissions had been concerned about the variability in costs between years. Consequently, both Parties viewed the procedures as an essential confidence building exercise. The relevant Annex to the MoUs will **include** two distinct issues to be discussed in February of Year 2, i.e. consultation to agree the sums to be paid for advice in Year 2, and review of the costing spreadsheets for Year 1.

In the ensuing discussion, several Delegates asked for clarification on various points, and this was provided.

The **Delegate of Iceland** noted that there had been substantial distrust within the Commissions about the figures ICES was providing, so WGCOOP had achieved great progress in what had been very protracted negotiations. He commended WGCOOP on its achievement, and this was seconded by the other delegations.

The **President proposed**, and the **Council agreed**, to endorse the Report of WGCOOP and its recommendations.

Agenda Item 8 DEVELOPING MEMORANDA OF UNDERSTANDING

The **President** drew the Council's attention to Doc. C.M. 1998/Del:11 which included copies of the various MoUs which ICES was working to develop and conclude with the EC, HELCOM, IBSFC, NASCO, NEAFC and PICES. Special attention was given to the recently revised draft of the ICES/IBSFC MoU that had just been submitted to the Annual Meeting of IBSFC and signed by its Chair. The form of words now agreed allays IBSFC's concerns with regard to the need to move forward in incorporating the Precautionary Approach into advice provided by ICES.

The **Council endorsed** the revisions and **agreed** that the MoU with IBSFC should be signed forthwith by the President.

Dr W. Ranke (Secretary of IBSFC) joined the Council for the countersigning by the President of the MoU between ICES and IBSFC (**Addendum 2**). After signing, the **President** gratefully acknowledged the roles of all those who had contributed to this process throughout the work of WGCOOP, especially Marc Vanbrabant (Chair of IBSFC). The continuation of the positive cooperation between ICES and IBSFC would be further enhanced in the new partnership as elaborated in the MoU. **Dr Ranke** reciprocated this view, and noted the importance of the partnership in cementing science, advice, and the management of fisheries in the Baltic Sea.

After the departure of Dr Ranke, **D. de G. Griffith** (Chair of WGCOOP) and the **General Secretary** reviewed the progress being made in finalising the MoUs with the other Fisheries Commissions. The MoU with NASCO was significantly delayed, although some discussions with the Secretary of NASCO during the course of this meeting were expected to advance the process. Agreements with NEAFC and the EC's DG XIV would have to await the finalising of discussions between these two bodies, in particular with regard to the compilation of a complete list of stocks for which these two Commissions require ICES advice. Subject to successful negotiations, it was expected that the MoUs of these organisations would be ready for signing by October or November 1998.

The **Delegate of the UK** drew attention to potential problems arising from possible overlap in stocks for which DG XIV and NEAFC require advice. The potential problems were noted by **Griffith** who will take them into account in the future negotiations with these bodies.

The **Council authorised** the Chair of WGCOOP and the General Secretary to conclude the development of the various MoU texts in negotiations with the Commissions, as well as the President to sign the MoUs subject to their reflecting the procedures and parameters described in the 1998 Report of WGCOOP.

The MoU between ICES and NEAFC was subsequently agreed, and signed in December 1998 (**Addendum 3**).

Agenda Item 9 CONTINUATION OF ADVISORY HONORARIA TO CHAIRS OF ACFM AND ACME BEYOND 1997/1998

The **President** drew attention to Doc. C.M. 1998/Del:12, recalling that, after much debate and mixed views, the Council agreed at the 1996 ASC in Reykjavik to pay *honoraria* of DKK 200,000 each to the Chairs of ACFM and ACME for no longer than the following two years. The period ended on 31 October 1998, although the term of office of both Chairs extended for a further year. The Chair of ACFM would not be in a position to continue for another year without payment of the *honoraria* for the 1998/1999 fiscal year. If it were decided that the *honoraria* would not be continued, there would need to be an election for a new Chair of ACFM at the 1998 ASC. The topic has been debated in the Bureau, which generally felt that a pragmatic approach should be taken for the coming year.

In the discussion, it was pointed out that for some Delegates there were still the same objections to the principle of providing *honoraria* for Advisory Committee Chairs as well as concerns about fiscal responsibility in the current budgetary climate. Nonetheless, it was felt that a pragmatic approach should be taken in the case of the Chair of ACFM, and that the *honorarium* should be provided for that Chair for the ICES Year 1998/1999. As apparently the Chair of ACME did not have the same problem in terms of cessation of the *honorarium*, it would not be provided for him for the coming year.

In supporting the proposal that the *honorarium* for the ACFM Chair should be continued for one more year, it was also pointed out that it would be a very inappropriate time to change the Chair of ACFM considering the long-term illness and resignation of the Fisheries Adviser, which had caused considerable difficulties.

There was some discussion of whether the *honoraria* would be continued for the next Chair of ACFM, to be elected at the 1999 ASC. Views were expressed that this issue should be considered this year in order that the next Chair would know the conditions under which he/she will serve.

The financial consequences to ICES of retaining the *honorarium* for the ACFM Chair were noted in general, but could not be handled in detail without additional relevant financial information being available, e.g. agreement on future budgets. It was further pointed out that the workload of the Chair of ACFM would probably not decrease in the future, and it appeared inconceivable to several Delegates that a new Chair could be found without offering some financial compensation.

The Council discussed whether the Chair of ACME should also be granted an *honorarium* for the ICES Year 1998/1999. Several Delegations (**France, Sweden, Netherlands, Norway**) considered that the Chairs of both Advisory Committees should be considered together. It was noted, however, that the financial implications to ICES of paying *honoraria* for both Chairs were significant, given the precarious condition of the budget.

The proposal before the Council, as made by the **Delegate of the United States**, was that a pragmatic decision be made to cover an *honorarium* for the Chair of ACFM for the ICES Year 1998/1999 only, without prejudice to the merit of the Chair of ACME, who would not receive an *honorarium* for that year. This proposal was amended by the **Delegate of Norway** to state that the *honorarium* should be paid to both the Chair of ACME and ACFM for the year 1998/1999. In response to a question, the **Delegate of Sweden** stated that Sweden would be willing to forego the *honorarium* for the Chair of ACME if the Council were to vote in favour of the principle of granting an *honorarium* for both Advisory Committees.

The **Delegate of the USA** pointed out the distinction that the Chair of ACME is an employee of a Swedish government institution, whereas the Chair of ACFM is a self-employed consultant. This was the basis for his original proposal that the *honorarium* be paid to the Chair of ACFM as a pragmatic solution to the problem that would be caused by his resignation on the non-payment of the *honorarium*.

The **President proposed**, and the **Council agreed**, that the financial aspects of this issue be covered later with respect to budgetary issues.

The **Council** first voted on the Norwegian motion that ICES should pay an *honorarium* of DKK 200,000 each to the Chair of ACFM and the Chair of ACME. All Delegations were present, and eleven voted in favour of the Norwegian amendment.

The **Council** then voted on the specific proposal that an *honorarium* be paid to both Chairs for 1998/1999. Eleven delegations voted in favour of this proposal with five delegations voting against it. Thus, the motion was carried that the Council agrees to pay an *honorarium* to each of the Chairs for the ICES Year 1998/1999. The financial aspects of this vote were considered later with the budget. The **Delegate of the United States** interpreted the positive vote to amend the US proposal, from one additional year of an *honorarium* for the Chair of ACFM only to also include one additional year of an *honorarium* for the Chair of ACME, as evidence that the Council supports, in principle, the payment of *honoraria*. He reiterated his disagreement with the principle owing both to fiscal concerns and because the payment of an *honorarium* was an inadequate solution to the problem facing ACFM. Therefore, the US delegation had voted against the amended motion.

The **President** then emphasised that it would be counter-productive to have to deal with this matter on an annual basis in the future, and wished to have an understanding in the Council to that effect.

After some discussion, the **Council agreed** that continuation of the payment of the Advisory *Honoraria* beyond 31 October 1999 would not ensure that high-quality Chairs were willing to be appointed as Chairs of ACFM and ACME. For Advisory Committees, but particularly ACFM, steps should be taken to make the most efficient use of resources within the Committees and in the Secretariat, as well as to constrain and eventually reduce the workload falling on the Chairs. It was further agreed that Terms of Reference to address these matters should be incorporated in the tasks of the Coordinating Group on ICES Advice (CGADV) for the coming year.

The **President emphasised** that there could be no return to 'raiding the Budget' to solve the problems of the Advisory Committees. Future potential candidates for the Chairs of ACFM and ACME would need to be made aware that the Advisory *Honoraria* would terminate at the end of 1998/1999. He believed that it would be necessary to reconsider the roles of the ICES Professional Advisers in the Secretariat, and possibly reorganise the Advisory Committee and Working Group system to reduce the load on the Advisory Committee Chairs and their Committees.

Agenda Item 10 PROGRESS ON PLANNING FOR THE ICES CENTENARY

The **General Secretary** briefly drew attention to Doc. C.M. 1998/Del:13.

Dr M.M. Sinclair (Co-Chair of the Bureau Working Group on Planning for the ICES Centenary, BWG100) drew attention to the Addendum to Doc. C.M. 1998/Del:13, the Report of the Bureau Working Group on Planning for the ICES Centenary which met at the 1998 ASC on 16 September 1998. He reported *inter alia* on the outcome of discussions on progress in the book on the history of ICES, for which two chapters have been commissioned for autumn 1999. For the 1999 ASC in Stockholm, it has been proposed that the history dinner be eliminated but that history be woven into the Conference as a whole, including the Conference Dinner. The preparation of a video on ICES for 2002 has also been proposed, but the cost of a professional production will be approximately DKK 500,000. The proposed budgets for 1998/1999 and 1999/2000 were noted; these budgets represent a shortfall in funding in terms of the activities presently planned.

After some discussion and clarification of the costings involved in the Centenary Budget, the **Council resolved** with regard to the continued work of BWG100 in 1998/1999 that:

The **Bureau Working Group on the Planning of the ICES Centenary** (BWG100) co-chaired by Dr M.M. Sinclair, Canada, and M. Schou, Denmark (representing the national planning group for the 2002 Annual Science Conference in Denmark), and including Prof. J. Thulin, Sweden (representing the national planning group for the 1999 Annual Science Conference in Sweden), R. Vaage, Norway (representing the national planning group for the 2001 Annual Science Conference in Norway), J. Ramster, UK (Assistant Editor of the *ICES Journal of Marine Science*), and the President and General Secretary as *ex officio* members will:

1. plan and coordinate the inter-related celebrations of the Centenary of the 1899, 1901 and 1902 founding Conferences of ICES;
2. ensure wide-spread communication of Centenary celebrations within the ICES community;
3. oversee the preparatory research and publication of a history of ICES to be written by Dr Helen Rozwadowski, and published in 2002. A progress report will be prepared by correspondence—overseen by a Steering Group comprising Dr S.J. de Groot, Prof. E. Mills, Dr T. Smith, R. Vaage and Dr M.M. Sinclair—by the end of December 1998 to be submitted to the January 1999 Bureau Meeting;
4. review progress on the Symposium on 100 Years of Science under ICES to be held in 2000 and published by 2002;
5. collect photographs and memorabilia of ICES events from Member Countries for presentation at the Centenary celebrations;
6. oversee the preparation and publication of a new edition of "Study of the Sea", Editor E. Thomasson. A progress report will be prepared by correspondence—overseen by Dr P. Petitgas and Dr M.M. Sinclair—by the end of December 1998 for the January 1999 Bureau Meeting;
7. report to the Bureau at its Mid-Term and Annual Science Conference Meetings.

The next meeting of BWG100 will be held during the 1999 Annual Science Conference in Sweden.

The pledges from Member Countries to the Centenary Fund were reviewed. The **General Secretary** reported that on 2 July, the total was about DKK 850,000. Since then, a contribution has come in from Sweden, raising the total to about DKK 900,000. However, this was only half of the projected amount of DKK two million and would only cover the History Project.

The **Delegate of the United States** proposed that the work on development of the Centenary activities continue as planned, despite the difficulties with the budget. The US pledge was DKK 50,000 for each of four years, and is thus DKK 100,000 higher than stated in Doc. C.M. 1998/Del:13. The **Delegate of France** stated that funds have been requested but have not yet been forthcoming. The **Delegate of Estonia** stated that funds will definitely be provided, but the amount has not been clarified. The **Delegate of Spain** stated that funds will be requested in the near future. Given that the **Netherlands** had promised to provide funding if ten other Member

Countries commit themselves to fund the project, it was noted that there are now over ten countries that have made pledges.

The **President** encouraged Delegates to seek further sources of funds for this important project, especially given the present financial situation of ICES.

Agenda Item 11 REPORT OF THE COORDINATING GROUP ON ICES ADVICE

Niels Axel Nielsen, Chair of the Coordinating Group on ICES Advice (CGADV), drew attention to Doc. C.M. 1998/Del:14 and referred to a handout he had prepared providing a Summary of the Main Points. He emphasised the five steps to be focused upon:

1. *Clear definition and scope of the request*
A checklist was given in the left-hand column of page 5 of the CGADV report.
2. *Best forum for the advice*
CGADV's objective was increased flexibility, with the maintenance of national representation and national nomination of membership of both ACFM and ACME. The changes proposed were:
 - each Member Country nominates a pool of five potential advisers;
 - the actual member which participates in a particular meeting is selected by the member Country;
 - members may alternate, but only one national member should participate at any time during one meeting, with costs only covered at Council expense for one person;
 - ACFM continues to deal with standard fisheries advisory tasks;
 - ACME deals with all other tasks (e.g. ecosystem effects of fishing), but ACFM would consider the advice before it being sent to clients;
 - proactive approach to encourage wider participation in order to improve the basis for ecosystem advice. This would be supported by the new Science Committees.
3. *Workload of the Secretariat, Committees, and Working Groups*
Initiate methods to determine the total cost of these operations (c.f. proposals by BWGSTRAT).
4. *Form of the advice:*
 - The advice should be seen as ICES, and not specifically ACFM or ACME advice.
 - Dialogue should be initiated with clients concerning needs (e.g. form, frequency).
5. *Quality assurance:*
 - Good advice requires

- * good scientific knowledge of the ecosystem, the fisheries, and sufficient high-quality data;
- * good and adequate procedures in the Secretariat, database operations etc.

CGADV recognised the potential for improvements and recommended that an expert with certification expertise should be consulted to indicate how ICES might consider proceeding towards certification.

During the ensuing discussion in the Council, the following points were noted:

- a) the report was commended as a practical attempt to provide solutions to current difficulties;
- b) in establishing a pool of national experts, a consultation would probably be necessary between Delegates and the Professional Secretaries to help ensure selection according to the specific agenda to be addressed at the particular Advisory Committee meeting;
- c) quality assurance and certification were not synonymous, and consideration of ways to improve quality assurance were needed before addressing the specific issue of certification;
- d) ICES was facing a serious problem of responding to the quantity of requests while also maintaining quality. Sharply rising costs of the Advisory Function needed to be constrained;
- e) not all Delegates were convinced that five was a rational number of experts to be nominated nationally. It should be left to Delegates to decide how many they wished to nominate up to the maximum (i.e. five);
- f) some Delegates favoured nomination of experts nationally, with the choice of experts being selected by ICES centrally for the particular task. On the other hand, some other Delegates favoured selection being made at the national level as the attributes of the experts were believed to be best known at home. Concerns were also raised about how the practical reporting responsibility could be maintained nationally for ACFM or ACME, in the proposed new system, by a designated expert who traditionally reported to the relevant Government Ministry;
- g) more effort needed to be given to having the advice drafted in preliminary form by the Working Group established for the task in hand;
- h) some Delegates believed that the recommendations made by the external Consultants (Addendum to Doc. C.M. 1998/Del:14) should be followed-up, while others favoured identifying and prioritising relevant rectification of the main quality assurance weaknesses before considering certification;
- i) numerous Delegates highlighted the need to establish an objective peer-review process regarding quality assurance, but in order to do this ICES should first develop a Quality Policy document. The majority of Delegates did not support moving towards ISO certification at this stage.

The **Council endorsed** the general thrust of the recommendations given by CGADV concerning establishment of checklist procedures to clarify the definition and scope of the advice, and recommendations concerning the forum to produce the advice. It was agreed that CGADV should prepare the implementation of its recommendations, taking into account the comments and suggestions made by the Council. Further, the Council endorsed the recommendations and approach taken by CGADV concerning the implementation of Quality Management Procedures (QMP) for ICES advisory functions. In its work CGADV may consider taking advantage of views expressed during the 11th Dialogue Meeting planned for January 1999.

An **Ad Hoc Working Group**, selected from among Delegates and members of CGADV, was established by the Council to discuss intersessionally at the meeting how to advance issues relating to the quality of ICES advice. The Working Group (Chair: Dr J. Horwood, United Kingdom; Drs G. van Balsfoort, Netherlands; J. Browne, Ireland; O. Cendrero, Spain; A. Forest, France; N.A. Nielsen, Chair of CGADV; Dr R. Cook, Chair of the Consultative Committee; J.-J. Maguire, Chair of ACFM; Dr H. Sparholt, Interim Fisheries Adviser) reported that:

1. Following presentation of the report of the CGADV (Doc. C.M. 1998/Del:14), the report of the consultants (Addendum to Doc. C.M. 1998/Del:14), and discussions amongst Delegates and within the Bureau, this Working Group was charged with advising on how to progress issues relating to quality for ICES advice.
2. The Working Group agreed that a first step was to develop an ICES Quality Policy. Other activities to enhance and secure quality would come within the Policy.
3. The Working Group agreed that issues of quality were important, and some were particularly pressing and needed prompt action. The Secretariat and Chairs of the Advisory Committees are aware of the specific tasks.
4. The issue of certification was discussed. Different views were expressed on the necessity for a certification process, but the weight of opinion was that ICES did not need/or is not in the position to embark upon certification at this time. It was noted that if ICES was successful in developing Quality Management Procedures then certification could follow fairly easily if this was wanted.
5. Irrespective of agreeing on certification or not, the Working Group advised that ICES needed to develop its own Quality Management Procedures (QMP).
6. The Working Group advised that CGADV should manage the development of the ICES Quality Policy and the QMP.

7. The Working Group advised that ICES and the CGADV adopt a "top-down" approach. In particular the Working Group, mindful of the need to make progress but also of the resource implications, considered that a suitable first step would be for the CGADV to charge the Advisory Committees and the Secretariat with developing their own QMP starting at a high level of organisation and at those more detailed elements already known to be most vulnerable to error.
8. The Working Group wished to draw to the attention of Council that, if the certification route was not adopted, some external support would still be needed to assist in identification and documentation of the processes.
9. The Working Group was aware of the need for the data of appropriate quality to be supplied to ICES. The interaction with national laboratories and governments is complex. The Working Group advised that the CGADV consider how to approach national institutes so as to encourage the adoption of QMPs Standard Operating Procedures (SOP) in the supply of data to ICES, and the development and spread of Best Practice amongst national institutes. The Working Group should consider the introduction of such ideas into the ICES Quality Policy in items 2 and 6 above. It was also noted that some formal initiation/training for first-time recruits to ICES Working Groups should be considered.

The **Council noted** the above-mentioned report of the *Ad Hoc* Working Group, and expected that—in developing the first steps of QMP—CGADV take heed of the advice given above, in particular as a suitable first step to charge the Advisory Committees and the Secretariat with developing their own draft QMP starting at a high level of organisation as well as at the elements already known to be most vulnerable to error. It is expected that the development of QMPs for the Advisory Committees specifically addresses the mode of operation of ACFM and its associated Working Groups. Therefore, ACFM will be asked to review its present structure and mode of operation.

After some further discussion, the **Council resolved** 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 Balsefoort (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:

1. formulate a draft ICES Quality Policy for the Advisory Functions;
2. initiate the development of the Quality Management Procedures for ICES Advisory Functions;

3. prepare the implementation of the proposals by CGADV (c.f. Doc. C.M. 1998/Del:14 pp 5-6), which include scoping of advice, increased flexibility of membership and tasking of Advisory Committees.

The above should be addressed in a manner which increases the efficiency of providing advice, redresses the workload on the Chairs of Advisory Committees, facilitates matching demands for advice and resources and finances, and increases the opportunity for Chairs of Advisory Committees to be found from national institutions.

The ICES Secretariat will provide assistance with any necessary external expertise, as may be requested by CGADV.

CGADV will work by all convenient methods of communication (including e-mail, telephone conference-calls, and the option of holding a two-day meeting in conjunction with the June 1999 Mid-Term Meeting of the Consultative Committee) and report to the 1999 Mid-Term Meeting of the Bureau, and to the Council at the 1999 Annual Science Conference.

Agenda Item 12 REPORT OF THE BUREAU WORKING GROUP ON STRATEGIC PLANNING

Dr M.P. Sissenwine, Chair of the Bureau Working Group on Strategic Planning (BWGSTRA) drew attention to Doc. C.M. 1998/Del:15, noting that he had already presented a synopsis of the report at the General Assembly of the 1998 ASC, and proposed that the Council now give guidance for how this work could go forward.

The **Council commended** BWGSTRA on its excellent work. It was felt that this document would be very helpful in setting a framework for future input from the various ICES Committees and Working Groups. It was noted, however, that there are many 'motherhood' statements contained in the document and the real value of this document would be seen in its implementation. The role of ICES in coordinating research at sea and in initiating cooperative projects should be emphasised to a greater extent in this document. It was felt that this coordinating role should be increased to ensure long-term treatment of basic scientific issues. One problem in ICES is the weak link between the stakeholders and the organisation; this is noted in this document but should be stressed to a greater extent. National research institutes should be highlighted as an important link between the stakeholders and ICES. New forums for promoting discussions between stakeholders and ICES should also be considered. Much ICES work is rather fragmented: important issues are discussed in Working Groups and their work is reviewed on an annual basis; clearer procedures should be developed to steer this process and ensure proper handling. It was felt that the year 2000 is quite late to consult with the stakeholders concerning this process; it could be important to start this process earlier. The importance of receiving feedback from stakeholders was also noted.

Concerning scientific goals, it was proposed that developing an ecosystem approach to environmental management should be considered as a challenging Core Science Programme for the next five years.

Comments on the ICES vision statement

Dr Sissenwine stated that the ICES vision statement highlights the marine ecosystems rather than specifically mentioning fisheries; this is not intended to underplay the importance of fisheries in the work of ICES.

In comments from the **Delegate of Denmark** on this statement, it was pointed out that the vision statement should clearly show the focus of ICES, otherwise the statement may not convey the message of where ICES has its expertise; thus, it may be valuable to mention exploitation of living resources. This comment was supported by the **Delegate of Norway**. The **Delegate of Latvia** also felt that it is important to mention fisheries in the vision statement, as this is an important aspect motivating the membership of some countries in ICES, especially those with limited financial resources. The ecosystem perspective was also supported by the **Delegate of Canada**; a focus on marine ecosystems does not negate the exploitation of living resources, but rather provides a forward-looking approach to issues that are becoming increasingly important. Statements contrary to this were also made. It was proposed that in the further evolution of the narrative concerning the ICES vision, statements should be included on the prominence of the role that fisheries has played in the development of understanding on marine ecosystems.

The use of the word 'enterprise' was questioned; it was felt that the word 'organisation' would be more appropriate for ICES. **Dr Sissenwine** stated that the intent of using this word was to imply a broader scope than simply that of ICES; however, if this word can be misinterpreted by persons with other native languages, this should be avoided. He requested that other words that could be easily misinterpreted be pointed out to him. The use of the word 'right' was also questioned, as it may seem to be presumptuous to persons outside of ICES.

In the overall consideration of these comments, the **President** noted that the comments concerning the words 'enterprise' and 'right', as well as those concerning whether fisheries should be mentioned specifically in relation to marine ecosystems, should be considered carefully and a balance should be obtained in the text to be ultimately agreed. He requested that Delegates consult with each other to determine whether any changes should be made to account for the concerns expressed.

Comments on the ICES Mission statement

The lack of a mention of understanding oceanography or ocean sciences was noted, and it was stated that mention should be made of basic sciences in the mission statement. Some concern was also expressed at the mention

of social sciences and the potential that social and economic implications may need to be considered; it was felt that this would bring ICES too far from its central work. The use of the word 'impact' in the mission statement was questioned, as this can give the impression of only looking at negative aspects; there are positive aspects of human uses of marine ecosystems. It was proposed that Article 1(b) of the ICES Convention be inserted at an appropriate place in this document, possibly in association with the mission statement.

Comments on the institutional goals

Goal 6.2: The **Delegate of Denmark** stated that one of the most important achievements of ICES is the coordination of activities, such as surveys, that provide basic information on marine fisheries and ecosystems; this role should be emphasised in a stronger way. **Dr Sissenwine** stated that this was intended to be reflected to a certain extent in the text on shared infrastructure. The **Delegate of Finland** noted that discussions in one Science Committee had indicated that these goals may be stated so broadly that Member Countries might not see their relevance to national goals in this area. In reply, **Dr Sissenwine** further stated that BWGSTRAT had considered at length whether the goals should be framed in a very general way, thus permitting a broader range of possibilities. This wording may, however, change when the objectives of the Science Committees have been formulated and accepted.

Goal 4: The **Delegate of Latvia** asked for clarification of the term 'societal needs'. It was pointed out that this term would include the economic benefits of utilisation of the marine ecosystem, as well as other benefits, such as social benefits. It was agreed that this term should be reviewed in the further development of this document.

Goal 5: It was questioned whether the use of the word 'mission' would be better than 'vision'. **Dr Sissenwine** stated that the word 'vision' was used here because the aim was to look beyond ICES. It was decided that the word 'vision' should be changed to 'mission'.

Goal 6: The use of the word 'infrastructure' was questioned, as this can mean different things in different countries; a different word should preferably be found. It was commented that mention should be made of the aspect of human resources, e.g. Working Group members. It was proposed that the function and productivity of the Council should be mentioned here.

Goal 7: The **Delegate of Iceland** suggested that this statement be changed to 'raise public understanding of sustainable use of marine ecosystems and their relevance to society'. It was felt that in so doing this would significantly change the meaning of this statement, but that the statement should be reconsidered to take this concern into account. Another comment was that 'marine ecosystems' was not sufficiently broad, and the term 'oceans' or similar should be considered. It was agreed

that this text should be reviewed with these comments in mind.

It was proposed that this document be a living document that will evolve through discussions in other parts of ICES as well as in dialogue with the stakeholders. This document should not be seen as immobile, thus stifling further discussion and dialogue.

The timetable for further development of the strategic plan was then considered. The **President** stated that he and the Bureau hoped that the timetable will be followed closely so that they will be able to review the Strategic Plan by the time of the 1999 ASC in Stockholm (Sweden). This implies that the BWGSTRAT should remain active to ensure that the work will be steered adequately during the coming year. The Chair of BWGSTRAT was requested to review the timetable carefully in terms of its implementation. The **Delegate of Finland** pointed out that the Delegates were requested to conduct work at specific times on this schedule. The **Delegate of Denmark** endorsed the continuation of the BWGSTRAT for the next year, and pointed out that the Science Committees were at different stages in terms of developing the objectives for their work and may need BWGSTRAT to play a role in stimulating Committee members to contribute to the work of their Committees. In terms of the review with external stakeholders, changes in the wording of this text were suggested to provide for a clearer dialogue with them.

It was noted that an important decision to be made is when this plan should be ultimately finalised, and whether it should have any relation between the conclusion of this plan and ICES Centenary activities. The initial schedule was that it should be issued in association with the Centenary in 2002. Preference was indicated for an earlier endorsement of the Strategic Plan, possibly being linked with the turn of the century, rather than linking it with the 2002 Centenary and risking losing momentum on the process of developing this plan. It was recognised, however, that the Strategic Plan should figure in the 2002 Centenary agenda, possibly through some ceremony with the Contracting Parties.

It was proposed that text concerning the review and change of ICES structures should be factored into the Strategic Plan. This was agreed to be included in a further iteration of this document.

The **Council agreed** that the Chair of the Bureau Working Group would consider the comments made on the report of his group. The **President requested** that a paper be prepared reflecting the Council's discussion on the ICES vision and mission.

In response to the review of the BWGSTRAT Report that had occurred, **Dr Sissenwine** distributed a document entitled 'Preliminary Changes to ICES Strategic Plan Framework: Response to Guidance from the 1998

Meeting of the Council (Addendum to Doc. C.M. 1998/Del:15).

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

The **Bureau Working Group on Strategic Planning (BWGSTRAT)**, chaired by Dr M.P. Sissenwine (USA) with membership of Prof. P. Mälikki (First Vice-President), Dr R.M. Cook (Chair of the Consultative Committee), two Chairs of Science Committees (Dr R.L. Stephenson and Dr A. Jarre-Teichmann of the Resource Management Committee and Marine Habitat Committee, respectively), one Chair of an Advisory Committee (S. Carlberg of ACME), and with the General Secretary as *ex-officio* member, will work by correspondence and by meeting at Council expense jointly with the Consultative Committee at the June 1999 Mid-Term Meeting of the Consultative Committee to:

1. Revise the ICES Strategic Planning Framework (Doc. C.M. 1998/Del:15/Gen:4) based on guidance provided by the Council at the 1998 Annual Science Conference;
2. In collaboration with the Consultative Committee, prepare additional elements of the Strategic Plan that were identified in the Framework (Doc. C.M. 1998/Del:15/Gen:4);
3. Prepare a draft Strategic Plan in a format that is suitable for review by stakeholders.

BWGSTRAT will report to the 1999 Mid-Term Meeting of the Bureau.

Agenda Item 13 REPORT OF STEERING GROUP ON PLANNING FOR 11TH ICES DIALOGUE MEETING

The **President** summarised Doc. C.M. 1998/Del:16, emphasising that the focus of the 11th Dialogue Meeting will be on Relationship Between Scientific Advice and Fisheries Management. The meeting will be held in Nantes (France) on 26–27 January 1999.

Following the production of Doc. C.M. 1998/Del:16, it had been decided that only three topics (the proposal to include a fourth topic entitled 'The Future - Evolution in Science, Management, and Public Perception' had been dropped) would be considered through talks presented by specially invited Background Speakers and follow-up discussions and conclusions addressed by Working Groups. The topics would be:

1. The Precautionary Approach;
2. Confidence Building;
3. The Form and Nature of the Advice.

The three Working Groups would report back to the Plenary.

Three official representatives will be invited from each Member Country: two high-level managers and one sci-

entist. Nominations should be made by ICES Delegates to the General Secretary by 9 October 1998.

The **President proposed**, and the **Council agreed**, that Alain Maucorps (France, former President of ICES) be the Convener of the 11th Dialogue Meeting. A. Maucorps provided information about the venue for the meeting, accommodation, and various social arrangements. He emphasised that there were some further details to be finalised regarding one of the Background Speakers (a manager on Confidence Building to complement the other talk to be given by Dr M.P. Sissenwine, USA), and Chairs and Rapporteurs for the three Working Groups.

In answer to a query as to the apparent omission of inviting representatives from the fishing industry to the meeting, the **President** noted that the forum was specially aimed at improving ICES dialogue with fisheries managers and enhancing confidence building between scientific advice and the Commissions.

The **Council approved** the plans for the 11th Dialogue Meeting as outlined.

Agenda Item 14 REPORT ON PLANNING FOR ICES YOUNG SCIENTISTS CONFERENCE

The **General Secretary** summarised Doc. C.M. 1998/Del:17, noting that the budget for the Conference had been revised at DKK 700,000 of which ca. DKK 100,000 was outstanding and is required to cover the expenses of the ICES Secretariat. Attention was given to the Addendum to Doc. C.M. 1998/Del:17, comprising a) a letter from Dr L. d'Ozouville, the Secretary of EMaPS (European Marine and Polar Sciences Committee) of the European Science Foundation (ESF)), raising the prospect of cooperation with ICES on sustainable fisheries, and b) a letter from Professor K. Richardson (Convener of the Young Scientists Conference) indicating that EMaPS might be interested in collaborating with ICES on the Young Scientists Conference.

The **Council agreed** that providing the funding of DKK 50,000 or more is forthcoming, the remaining DKK 50,000 could be covered by ICES so that the Conference can be held. The General Secretary should notify the Convener of the Conference (Professor K. Richardson, Denmark) of this decision, and request that she raises the issue of relevant funding with the EMaPS/ESF. If necessary, dates for holding the Conference might be delayed to aid further planning.

Agenda Item 15 STATUS OF ICES/GLOBEC PROJECT OFFICE

The **President** summarised Doc. C.M. 1998/Del:18, noting that the future of the ICES/GLOBEC Project Office had been secured—through discussions involving himself, the General Secretary, and various Delegates—for a further two years from August 1998, thanks to the

or a further two years from August 1998, thanks to the establishment of a new funding consortium of Member Countries (Canada, Iceland, UK, and USA). However, funding was still short of the intended full funding of ca. DKK 1.2 million, and he hoped that Norway as one of the original funders would join the consortium.

The **Delegates of the United States, United Kingdom, and Iceland** emphasised the importance of ICES being involved in GLOBEC through the Cod and Climate Change initiative. This had made ICES better known to a wider group of marine scientists active in International Geosphere-Biosphere Programme (IGBP) circles. Although recognising this, the Delegate of Norway noted that obtaining further funding in his country for an Office had been hard.

The **President** wished to have a significant discussion on the question of funding for initiatives such as GLOBEC within ICES at the 1999 Council Meeting.

Agenda Item 16 REPORT OF FINANCE COM- MITTEE

As a preamble to the various financial issues to be considered by the Finance Committee and the Council, the **President** emphasised early in the meeting that ICES was facing a serious question of credibility concerning its ability to carry out its mission owing to substantial budgetary constraints. He drew attention to:

- concerns expressed by the Council at the 1997 ASC about the depletion of the Capital Reserve Fund;
- establishment of the Advisory *Honoraria* without the Income to cover this having been realised;
- cutting the funding of Publications and making substantial reductions in Office Expenses in several consecutive years in order to balance the Budget;
- expectations of improved funding from the Client Commissions had not materialised;
- the Periodic Assistance post in the Budget for 1998/99 had been reduced to zero, *inter alia* resulting in no extra help being available for data support to Working Groups;
- there was an urgent need to purchase modern equipment to improve the working conditions for both the Secretariat staff and for Working Groups at ICES Headquarters.

The Bureau recognised the stress that these Budget limitations imposed on the capacity of the ICES Secretariat to carry out its duties when the workload had been increasing rather than falling. Substantial improvement had to be achieved in order to put the funding on a stable base as pressures on the Budget were increasing rather than diminishing.

The Bureau proposed a significant increase in National Contributions to attempt to remedy the above-mentioned problems. The Bureau proposal would be carefully considered when the Finance Committee reported to the Council on Monday 21 September.

The **First Vice-President** emphasised that Office Expenses and the Capital Reserve Fund were at a bare minimum, and Secretariat staff costs had also been restrained.

On Monday 21 September, **Prof. 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 1998*), the main features of which are highlighted in Items 16.1–16.5.

16.1 Audited Accounts for Financial Year 1996/1997

The Committee had reviewed the Audited Accounts and Balance Sheet for 1996/1997, contained in Doc. C.M. 1998/Del:1, and considered the Long-Form Audit Report. The Council's attention was drawn to the recommendations made in Annex 1 of the Committee's report. The Committee had raised a number of questions to be addressed by the Secretariat with regard to monitoring and constraining costs (e.g. Postage and Telephones). Note was taken of the concern about the low level of the Capital Reserve Fund, which was below those previously agreed.

Having noted that the Committee had signed the Accounts and Balance Sheet as well for receipt of the Long-Form Audit Report, the **Council unanimously approved** the Audited Accounts for 1996/1997 and the Committee's recommendations.

16.2 Estimated Accounts for Financial Year 1997/1998

The Committee had reviewed the Estimated Accounts for Financial Year 1997/1998 presented in Doc. C.M. 1998/Del:4, and commended the Secretariat for maintaining a positive budgetary balance under extremely trying circumstances. The Chair underlined the particular points emphasised in the Committee's report, and noted that the Committee had approved the Estimated Accounts for 1997/1998 and recommended their acceptance by the Council.

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

16.3 Budget for Financial Year 1998/1999

The Committee had reviewed the draft Budget for Financial Year 1998/1999 presented in Doc. C.M. 1998/Del:5, and emphasised that the Budget was very precarious. The Chair underlined the particular points and grave concerns emphasised in the Committee's report. He noted that the Committee had, subject to these concerns, accepted the draft Budget for 1998/1999 and recommended its approval by the Council.

The Committee had subsequently reconvened in an extraordinary session to advise as to how the funds for reinstating the Advisory *Honoraria* in the Draft Budget for 1998/1999 could be found. Given the concerns about the

precarious nature of the Budget already noted, the Committee could only recommend taking the DKK 400,000 to cover the two *Honoraria* from the Capital Reserve Fund. However, this would further reduce the CRF to 6.1% of Total Income, significantly below the recommended level of 10% that had been agreed at the 1997 Council Meeting.

The **Delegates of Sweden** informed the Council that Sweden would waive receipt of the *Honorarium* payment to S. Carlberg, Chair of ACME, for 1998/1999. This would result in only DKK 200,000 having to be found in the Budget.

On behalf of the Council, the **President thanked** Sweden for this benefaction.

Delegates noted that:

- a) there was some uncertainty as to whether externally financed projects (e.g. GLOBEC, EC funded) should be included in the Budget together with the National Contributions and the Commissions' funding of the Advisory Function. It was proposed that the Bureau should further review the pros and cons of including these projects in the main body of the Budget, or whether they should be kept visible but autonomous of the main Budget;
- b) there had not been any funds earmarked for Quality Assurance of the Advisory Function or related matters.

The **President** stated that the issue of budgetary protocols for the externally financed projects would be addressed at the January 1999 Bureau Meeting.

The **Council unanimously approved**, by a roll-call vote, the Budget for 1998/1999.

16.4 Forecast Budget for Financial Year 1999/2000

The Committee had reviewed the draft Forecast Budget for Financial Year 1999/2000 presented in Doc. C.M. 1998/Del:6. Attention was further drawn to the Addendum to Doc. C.M. 1998/Del:6, which had provided a *Summary of the 1997/1998 Workplan* showing the associated resources required to implement it via the 13 constituent Projects. The Chair underlined particular points and concerns emphasised in the Committee's report. The Finance Committee urged the Council to approve the proposal made in Annex 2 of the Committee's report that the Bureau should prepare the Draft Forecast Budget at its annual January Meeting in order to submit it to the Member Countries immediately thereafter. Despite the elevated levels of National Contributions compared with the Budget for 1998/1999, there were still several important requirements for funding that had not been met. It was noted that, given the apprehensions about the remaining funding omissions, the Committee accepted the draft Forecast Budget for 1999/2000 and recommended its approval by the Council, especially as it was not associated with any medium-term financial planning.

The **Delegate of the United States** emphasised that the current draft Forecast Budget proposal was a start to a solution, but a longer term plan to build ICES financial foundation was necessary. It was unacceptable to take on new commitments regarding expenditure without similar commitments to underpin the required income.

The **Delegate of Latvia** indicated that he could not agree to the proposed increase in National Contributions, but recognised the justifications being put forward for safeguarding ICES credibility. ICES should consider writing a letter defending the proposed Budget to the Contracting Parties, thereby facilitating the task of the Delegates in their countries.

The **President** appreciated the concern of the Delegate of Latvia but was hesitant about the implications this would have on protocol.

The **Delegate of Germany** noted that his country was unable to approve Budget increases above the inflation rate.

The **Delegate of Norway** indicated that he could support the Budget proposal as the work of ICES was vital for his country's interests.

The **Delegate of Sweden** stated that, having noted the justification for the proposed Budget, he could accept the indicated increase in National Contributions.

The **Delegate of the Netherlands** strongly supported the Budget proposals.

The **Delegate of Denmark** viewed the increase in contributions as necessary and supported the Budget proposals.

The **Delegate of France** emphasised the importance of having a longer term vision of up to five years for supporting ICES activities, with clear justifications for income to match the proposed expenditure. The proposal for the Bureau to prepare the Budget and submit it to the Contracting Parties in January was advantageous. France was prepared to support the Budget as proposed for 1999/2000.

The **Delegate of the United Kingdom** understood the justifications being put forward by the Bureau, but the proportionate increase would not be supported by his country.

The **Delegate of Estonia** indicated that he was able to support the proposed Budget.

The **Delegate of Iceland** viewed the increases as fully justified and supported the Bureau's Budget proposals.

The **Council approved** by the necessary 2/3 majority, by a roll-call vote indicating 13 in favour and six against, the Forecast Budget for 1999/2000.

After voting, the **Delegate of Sweden** indicated that Sweden wished to raise the matter on modifying the current, evidently obsolete, scheme of national contributions towards a more modern scheme.

The **President** referred to the Convention where it is stated that the scheme may be modified by the Council by agreement of all Contracting Parties. In view of the fact that the required two-month's prior notice had not been given by Sweden of its intention to raise this very substantial matter, he viewed it as incorrect to take the matter further at the current Council Meeting. It was Sweden's prerogative to raise the matter in writing by addressing its concerns, with supporting arguments, to the General Secretary. The matter would then be further considered by the Bureau, in the first instance.

16.5 Appointment of Auditors for 1998/1999

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 1998/1999.

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 17 REPORT OF PUBLICATIONS COMMITTEE

The **Chair of the Publications Committee** presented his report. With regard to:

1. ICES Journal of Marine Science

It was noted that changes in the style, scope and mode of publication, introduced in recent years appeared to be working well. The Editors reported 105 regular manuscripts submitted in the year, continuing the trend towards increased submissions. The target of no more than 12 months' time lapse between submission and publication has been generally attainable with the exception of a backlog of manuscripts still with their authors for revisions. The inclusion of two Symposium issues for 1997, significantly expanding the size and scope of the Journal, has been achieved with the excellent support of Guest Editors and has met the target of appearing no later than 12 months after the meetings took place. Some problems in achieving this target are expected for symposia in 1998, and 1999 when four symposium issues are scheduled. The increasing workload on the Editors was noted and an increasing case for editorial support foreseen. A strategy document, prepared by the Editor-in-Chief, proposing a number of progressive changes to the scientific scope and content of the Journal, was well-received by

the Committee and gave rise to several of the changes incorporated in the conclusions below.

Relationships between the ICES Editors and the publishers Academic Press have remained excellent. The increase in price of the *JMS* introduced last year, justified by the greatly expanded size and scope of the *Journal* due to inclusion of the symposium series, has resulted in a significant increase in revenues without apparent loss of subscribers. A net profit of GBP 20,979 is reported by the publishers, reducing by that amount the previous cumulative loss shown by the ICES/Academic Press joint account. Profitability of the same order is predicted for 1998 although efforts are being made to increase the number of full subscriptions by about 40. The *JMS* is available now in conventional full-price paper format, and by two electronic routes: IDEAL – allowing free Internet access to contents lists and abstracts; and AP-PEAL – a site-licence system enabling users to read and download full-text articles and subscribe to print copies at a reduced price. Revenue from the site-licence system is accrued to the ICES/Academic Press joint account.

Conclusions and recommendations

- Amendments to the *JMS* 'scope and aims' statement, proposed by the Editor and agreed with the Publications Committee, to be introduced;
- The introduction of sections for 'short communications' and 'new developments' to be evaluated by the Editors;
- Editors to set appropriate time limits for the return of manuscripts in revision;
- Options for the electronic submission of manuscripts to be introduced into the 'instructions for authors';
- The *JMS* will not normally accept contributed obituaries but, exceptionally, may invite an obituary for publication on advice from the General Secretary.

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

The Editor's reports for each of these publication series revealed problems common to all of them. Since these publications are all handled through the ICES Secretariat they may be considered as a group.

In every case the Editors report lack of activity or serious delays due to difficulties of capacity or funding within the Secretariat. Even ICES Fisheries Statistics provides data in paper form only up to 1988.

In addition to these delays it was noted that all publications issued from the Secretariat are reporting progressively declining sales; none of this material is available to users in any electronic format, and there is no internationally acceptable method of purchasing the paper copies of those that are available.

These problems are not new but have progressively worsened over several years. It is the view of the Publications Committee that this situation represented a crisis of confidence in the ICES system of publications. It arises because in diverse ways the organisation undertakes to publish documents of many types without a co-ordinated overview of the implications for resources, the timetable required, and of the likely demand and distribution requirements.

Conclusions and recommendations

- There is an immediate need for input of resources for the express purpose of clearing the currently stagnant publication backlog;
- The efficiency and speed of release of these document series could be improved by moving now to establish a Web site from which they may be downloaded by users as required. Introduced progressively on a case-by-case basis this need not compromise requirements for reproduction of half-tones or colour illustrations, and downloaded paper copies could still be mailed from the Secretariat to meet special needs;
- A task-group should be established to maintain an oversight of all ICES in-house publishing with a view to matching commitments to resources and to report on a development plan within an agreed period. Further contracting-out to commercial houses should be investigated as well as identifying income streams for selected publications.

In principle, ICES publications should be re-established as an asset and not a net drain on resources. They and the science that they represent, are potentially a most significant output from ICES, and influential in many positive ways.

The Committee also briefly considered the status of the ICES C.M. documents. The continued provision of paper copies seems now to be outmoded and it is suggested that a Web site could be established immediately to which authors of C.M. documents could forward their material. The distinction in status between the C.M. documents and other ICES publications (peer-reviewed, edited or cooperative outputs) must, however, remain completely clear. Material on the C.M. Web site would remain the responsibility solely of the authors and would not incur involvement of ICES headquarters staff or carry the ICES logo.

3. ICES Strategic Planning

The Committee considered the report of the Bureau Working Group on Strategic Planning (Doc. C.M. 1998/Del:15/Gen:4) and, in particular, noted the statement on page 2 taken from the ICES Convention, Article 1, outlining one of the fundamental purposes:

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

The Committee believes that the publications of ICES are, in the broadest sense, a crucial element in strategic planning. They are the only medium by which most of the world can appreciate and benefit from ICES science activities and, in return, from which ICES is likely to generate widespread support.

Several Delegates expressed their concern at increasing delays in the publication of the *ICES Cooperative Research Report* series (CRRs), *ICES Techniques in Marine Environmental Sciences (TIMES)*, the *ICES Identification Leaflets for Plankton*, the *ICES Identification Leaflets for Diseases and Parasites of Fish and Shellfish*, and the *ICES Fisheries Statistics*.

The **General Secretary** agreed that the problem had been especially compounded by a mixture of factors during the last year, including less time being devoted to these publications as the Secretariat had to take over the extra workload involved in compensating for the absence on medical grounds of the Fisheries Adviser, reduction in funds in the Budget for printing and dispatch of such publications, and increasingly higher prioritisation being given to meeting the requirements of the Advisory Committees. To redress the problem, the publications backlog needed to be decreased significantly by *inter alia* directing as many publications and resources as possible towards electronic publication media, with mobilisation of more workdays to this end.

The **President** indicated that the Bureau was clear about the importance of Council publications. It would consider how extra resources could be found for this purpose, including the possibility of re-focusing the unfilled position vacated by E. Thomasson (Information Officer/Librarian).

The **Chair of the Publications Committee** favoured a major effort being made towards a CD-ROM and electronic publishing environment. To achieve this, it was necessary to invest in appropriate technology and software, as well as willingly increase the human capacity aspects.

After some 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 commended** Professor Boyle and the Publications Committee for having held a very productive meeting. He **proposed**, and the **Council agreed**, that the issues raised by the Committee concerning problems with the ICES internal publications be addressed at the January 1999 Bureau Meeting.

Agenda Item 18 REPORTS AND RECOMMENDATIONS OF CONSULTATIVE COMMITTEE

a) Report of 1998 Mid-Term Meeting of Consultative Committee, and ASC Programme Planning

The **Council noted** the report provided as Doc. C.M. 1998/A:5, and **approved** the revised terms of office proposed by the Committee for Study/Working Group Chairmen.

b) Report of the Committee at the 1998 Annual Science Conference

The **Chair of the Consultative Committee** provided a summary of the Committee's report (as included later in the *ICES Annual Report for 1998*). In presenting the work of the Committee, he stated that lack of time had prevented a thorough treatment of most of the Committee's agenda items. This was partly due to the very busy and compressed programme of activities at this ASC that had prevented the Committee from meeting on two of its scheduled sessions. He stated that his Committee was of the view that a thorough review of the format of the ASC was now clearly necessary, as well as the procedures for handling Committee recommendations. The Committee had included such a review on the agenda of its 1999 Mid-Term Meeting, which was approved by the Council. He also drew attention to preliminary drafts from each of the Science Committees and ACME of the Five-Year Strategic Plan. The Committees were commended for taking this process so far by the end of the ASC. The process was now well on schedule for a draft to be presented to the Bureau at its January 1999 Meeting. The Chair also indicated that a number of Committees had expressed concern about the quality of membership of both Working Groups and Committees. It was anticipated that Delegates would ensure that participants in ICES activities be provided with adequate time and resources to allow them to undertake their commitments to the full. A number of Committees had also expressed the desire for an increased number of academics into the Working Groups, and hoped that Delegates could give sympathetic consideration to providing funds for such participants.

Election of New Chairs

Delegates noted that the following new Science Committee Chairs had been nominated to serve in office from 1 November 1998:

- Fisheries Technology Committee: Dr O. Misund (Norway)
- Baltic Committee: Prof. T. Osborn (USA).

Scientific Sessions for 1999 ASC

Delegates noted the scientific programme recommended by the Consultative Committee and the Bureau Working Group on the Planning of the ICES Centenary, in particular:

- Centenary Day Lectures: "Otto Pettersson and the Birth of ICES" - Dr A. Svansson, "On Oceanography" - Professor W. Wooster, "On Fisheries (Theory and Advice)" - Professor J. Jakobsson, and "On Environment" - (Presenter to be confirmed);
- Open Lecture: "The Evolution of ICES" - D. de G. Griffith;
- Mini-Symposium: "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 Professor P. Liss (UK);
- Theme Sessions: Sessions J-CC as outlined by the Committee.

The Chair informed Delegates that there would be no "Open Sessions" at the 1999 meeting. Papers not specifically addressing one of the Themes would be rejected at the Mid-Term Meeting of the Consultative Committee. In spite of this several Delegates expressed concern at the number of Theme Sessions and requested the Consultative Committee Chair to consult with his members with a view to reducing the number. This was particularly necessary in 1999 as a significant portion of the Scientific Session time (one half day) would be taken up with the Centenary Day Lectures. The Delegate of Canada suggested that the proposed Mini-Symposium could be scheduled in parallel with these Lectures, to provide Conference participants with an alternative to this event.

The **President** expressed concern that the further compression in the duration of the 1998 ASC compared with the 1997 ASC had caused serious problems with regard to the time available for support to and report-production from the various business sessions (Science, Advisory and Consultative Committees, as well as Finance and Publications Committees) channelling into those of the Delegates Meeting. This had significantly added to the already marked pressures on Council officials and the Secretariat.

Several Delegates raised concerns about the number of Theme Sessions that have been proposed, as it would be difficult to accommodate such a large number of sessions. The possibility of overlaps between theme session topics should also be reviewed.

A count of the number of proposed Theme Sessions for 1999 showed that two more Theme Sessions have been proposed for 1999 than were held in 1998.

The **Delegate of Canada** pointed out that planning for the 1999 ASC includes a half-day plenary on topics cov-

ering certain aspects of the history of ICES. This will further reduce the number of sessions possible.

The **President requested** the Chair of the Consultative Committee to correspond with his members with the aim of reducing the number of Theme Sessions, to prevent the 1999 ASC from becoming overloaded. The purpose of the Centenary in Stockholm should not be changed, and the historical aspects are considered important for this meeting, i.e. celebrating the 100-year anniversary of the initial founding meeting of ICES. Thus, the half-day Centenary session should be given prominence. The **Council agreed** that this session should be function instead of the Mini-Symposium for the 1999 ASC, and the Mini-Symposium suggested ('Plans for Major International Programmes in the North Atlantic Region over the Next Decade: Should ICES Be Involved?') should be held as a Theme Session in 1999.

In terms of the new format of the ASC, it was noted that the schedule has proved to be quite compressed, causing problems to Committees and Delegates.

The **President proposed** that some thought be given to adding one extra day back into the meeting. The Swedish Delegates were asked to consider whether an additional day could be accommodated in the 1999 ASC. Discussions will need to be held concerning the most reasonable way to add a day.

It was noted that Programme Planning for the 1999 ASC would take place as part of the Terms of Reference for the Mid-Term Meeting of the Consultative Committee as detailed in C.Res. 1998/2:3. This meeting would also further develop the ICES Five-Year Strategic Plan in consultation with BWGSTRAT.

Scientific Sessions for 2000 ASC

Attention was drawn to the current state of plans for the 2000 ASC. The Consultative Committee will make firmer proposals with regard to the Open Lecture at its 1999 Mid-Term Meeting. Concerning the Open Lecture, the Committee was unanimous in recommending that Dr D. Pauly be invited to talk on a subject of his choice. The Committee has also considered several proposals for the Mini-Symposia and Theme Sessions. The Science Committees will re-consider these at the 1999 ASC before a decision on the programme is finalised.

Recommendations by Committees

The **President** led the presentation of the Committee recommendations that had been prepared by the Consultative Committee. As was the case last year, each recommendation was supported by information on how each activity is costed.

The **General Secretary** drew attention to the three categories of costing, relating to Advisory (A), Mixed Advisory and Core (M) and Core (C) activities. Completely

new activities were identified by 'N' and other by 'R' (for recurrent).

Consultative Committee

The one recommendation from the Consultative Committee for its 1999 Mid-Term Meeting was adopted by the Council as C.Res. 1998/2:3.

ACFM

The **President** emphasised the need to keep the costs of ACFM to a minimum, in order to allow the achievement of full cost recovery as quickly as possible. He instructed the General Secretary to exercise his authority to constrain the costs of any ACFM activities that were not strictly necessary.

In considering the proposal for a new Study Group on Market Sampling Methodology, **Council** noted that there is a proposal for funding currently under consideration by the European Commission. Council therefore approved the establishment of this Study Group subject to the successful outcome of the funding proposal.

The **Council** did not approve the "Workshop on Peer Review of ICES Salmon Model" as it considered that this should first be considered critically by CGADV. Proposals on how to proceed with this activity will be made by CGADV and this will be reported to the Bureau at its January 1999 Meeting.

The recommendations originating from ACFM were adopted by Council as C.Res. 1998/2:4-2:4:22.

ACME

The **Delegate of Finland** drew attention to the many groups reporting to ACME concerned with quality assurance issues. As a result, information on new ICES work on quality assurance will be drawn to the attention of all such groups.

The **Delegate of Canada** noted that ACME advice is of interest not only to the European Environmental Commissions, but also to all Member Countries themselves, given that much information contained in the ACME Report would not reach national environmental managers otherwise.

In considering the terms of reference of the Working Group on Ecosystem Effects of Fishing Activities it was noted that some of these were a response to a request from the European Commission. As the request was a non-recurrent one (c.f., ICES/EC MoU), this will require negotiation with the European Commission before the meeting can proceed. The recommendation was approved subject to a satisfactory result of this negotiation by CGADV. Dates for this meeting will be arranged at that time.

Delegates questioned the proposed Study Group on Collecting and Reporting Discard Data. The Environmental Adviser explained that the basis of this recommendation was that the Working Group on Ecosystem Effects of Fishing Activities had difficulties in compiling information on discards as provided by 8 assessment working groups. This had been in response to a request by OSPAR. Several Delegates supported the conceptual idea for this Study Group, but believed that it was too early to commence activity at this time, and decided that this activity should be postponed for at least one year. The **Delegate of the United States** considered it important that ICES make it clear that this decision is simply to postpone work on this topic for a time, while nonetheless recognising the environmental consequences.

The recommendations originating from ACME were adopted by Council as C.Res. 1998/2:5-2:5:8.

Fisheries Technology Committee

The recommendations originating from the Fisheries Technology Committee were adopted by Council as C.Res. 1998/2:6-2:9.

Oceanography Committee

The **President** drew attention to a missing recommendation on a Steering Group for the GLOBEC Regional Office, which was a forum for the fund-holders of the Office. The Oceanographer was requested to draft this recommendation for subsequent approval by the President.

In considering the three recommendations concerned with a proposed expanded role for ICES in the Global Ocean Observing System Project (GOOS) which is sponsored by *inter alia* IOC, Delegates expressed concern about possible financial and policy implications of this. In particular it was noted that the structure of GOOS on an international level is extremely complicated, with regional components and scientific modules, and a number of steering bodies. Consequently the Delegate of the United States was requested to consider with the Delegate of Finland a means of pursuing these contacts on a policy level. In addition, the recommendation for a Workshop on GOOS was modified to ensure that information is provided to the Bureau prior to making formal contact with the sponsors of GOOS.

The recommendations originating from the Oceanography Committee were adopted by Council as C.Res. 1998/2:10-2:23.

Resource Management Committee

Delegates noted the large number of Working Group activities of this Committee and the Living Resources Committee indicating costs that were allocated entirely to the Advisory Process. These Committees should review such activities in consultation with ACFM, with a view to ascertaining the correct parentage of these.

The recommendations originating from the Resource Management Committee were adopted by Council as C.Res. 1998/2:24-2:29.

Marine Habitat Committee

The **Delegate of Finland** expressed concern about the quantity and diversity of the terms of reference for the Marine Chemistry Working Group. He felt that since this Group was the only one in ICES dealing with marine chemistry and geochemistry, it needed a much more focussed agenda. Accordingly the Delegate of Finland was requested to consider an altered remit for this Group in consultation with the Environment Adviser and the Chair of the Group.

The **Delegate of Finland** pointed out that two of the terms of reference for the Working Group on Environmental Assessment and Monitoring Strategies mention review of information arising under OSPAR and HELCOM, but it was not clear if these were in response to requests for advice.

The **Environment Adviser** explained that these terms of reference did not arise from a regulatory commission but from the Working Group itself.

The **President** noted that the coding for this recommendation indicated that this Working Group was working on 'core' functions rather than advisory activities. Thus the Delegate of Finland was requested to consult with the CGADV and the Secretariat to determine how this and other recommendations under this Committee that have a relation to the advisory function but do not respond to specific requests from the Commissions, should be coded.

The recommendations originating from the Marine Habitat Committee were adopted by Council as C.Res. 1998/2:30-2:40.

Mariculture Committee

The recommendations originating from the Mariculture Committee were adopted by Council as C.Res. 1998/2:41-2:44.

Living Resources Committee

In considering the proposed activities of the Planning Group on the Census of the Fishes, the **Council** expressed appreciation for its efforts, including the workshop that had been held in Southampton, UK earlier in 1998. The **Council** expressed a positive view toward participating in future planning and implementation of the Census of the Fishes and encouraged scientists that are participating in planning activity to consult with ICES, as appropriate, to keep ICES abreast of developments. It also indicated a willingness to undertake a more formal future role (including the option of accepting funding for planning activities). The **Council** agreed to a

re-drafting of the recommendation which proposed that the President should appoint an ICES liaison to the Sloan Foundation and to *ad hoc* planning groups for the Census of the Fishes. The liaison will report back to the Bureau and Council as appropriate.

The recommendations originating from the Living Resources Committee were adopted by Council as C.Res. 1998/2:45-2:60.

Baltic Committee

The **Council** noted that a recommendation concerned with the formation of a Steering Group on the Baltic Regional Seas Project was not necessary as it had already agreed to create such a Group under Council auspices.

The recommendations originating from the Baltic Committee were adopted by Council as C.Res. 1998/2:61-2:64.

Resolutions Involving Publications

The recommendations involving the above were adopted by Council as C.Res. 1998/1:1-1:4.

Resolutions Involving Symposia

The recommendations involving the above were adopted by Council as C.Res. 1998/2:1-2:2.

Resolutions Involving Cooperation with Other Organisations

The recommendations involving the above were adopted by Council as C.Res. 1998/3:1-3:3.

Other Resolutions Requiring Action

The recommendations involving the above were adopted by Council as C.Res. 1998/4:1-4:4.

The **Council** agreed that it was desirable to determine whether an extra day could be added to the Conference to provide more time for Committee and Council business. For next year this should be done in a way that the plans of the Swedish hosts will not be disrupted. Support was given to providing more time for the intersessional preparation of documents and reports towards the end of the meeting. The **Delegates of Sweden** agreed to consider this positively.

Agenda Item 19 ACFM AND ACME MATTERS

There being no specific matters related to the Advisory Committees that had not already been addressed elsewhere in the Agenda, the **General Secretary** circulated the list of names of the nationally nominated Members and Alternates of ACFM and ACME as registered by the ICES Secretariat. In response to the request that Dele-

gates advised him of any inaccuracies in the list, the necessary amendments were noted.

In accordance with Rule 26 of the Rules of Procedure governing the Advisory Committees, the **Council approved** the list of Members and Alternates of ACFM and ACME as submitted by the General Secretary.

Agenda Item 20 GEF BLOCK B PROPOSAL FOR BALTIC SEA REGIONAL PROJECT

The **Delegate of Sweden** introduced C.M. 1998/Del:19, which described a Proposal for a Baltic Sea Regional Project. The initial steps in this proposal had been made in informal meetings held during the ASCs in 1996 and 1997. Following three formal meetings in 1998, a detailed proposal for a PDF Block B Grant to the Global Environment Facility (GEF) had now been submitted jointly by ICES, HELCOM, and IBSFC in early September 1998. However, the application was subject to further approval by these organisations. HELCOM and IBSFC had already approved the proposals, and the Council should determine its position on this matter at this Delegates Meeting. The current proposal will provide ICES with USD 250 thousand (ca. DKK 1.8 million) to fund the preparation of a detailed proposal in the coming year according to Component 1, Activities A, B, and C (c.f. Doc. C.M. 1998/Del:19). If implemented, a sum of up to USD 10–12 million will be made available, most of it going to the Recipient Countries (Estonia, Latvia, Lithuania, Poland, Russian Federation). The Cooperating Countries comprised Denmark, Finland, Germany, Norway, Sweden, and the United States. It is anticipated that, if approved, ICES will work closely with IBSFC and HELCOM in the development of the project, ICES main engagement being as coordinator and lead organisation with a component on "Interrelationships of Living Marine Resources to the Baltic Sea Environment and Ecosystem". ICES will be responsible for the coordination of various Working Groups to develop project topics under this heading. In order to undertake this work, it was anticipated that ICES will need to create a Coordinator position, similar to that of the ICES/GLOBEC Coordinator.

The **Delegate of Finland** indicated that, in addition to the need for a Coordinator in the ICES Secretariat, a small Steering Committee consisting of representatives of ICES, IBSFC, and HELCOM needed to be established to plan the work and establish an appropriate representational model with the Baltic States and subsidiary bodies of the above-mentioned IGOs. He proposed that ICES be represented on this Committee by Professor J. Thulin (Sweden), the General Secretary, and Dr K. Sherman (USA). It was also clear that the Project would require a significant level of support from a number of ICES Committees in addition to the Baltic Committee. He believed that the Coordinator would be funded through the GEF, and recommended that the Council authorise the President and the General Secretary to search for and hire an appropriate person as Coordinator.

The **Delegates of Estonia and Latvia** firmly supported the initiative on the grounds that it would advance capacity building in the eastern Baltic Sea region as well as enhance further collaboration between ICES, HELCOM and IBSFC.

In response to a question of clarification regarding how the funds will be provided, the **Delegate of Sweden** indicated that USD 350 thousand will be provided by GEF for the preparation of a full plan, of which USD 250 thousand should be paid to ICES, to include funding a Coordinator position during the preparatory work. Additionally, Co-funding Sources for Component 1, A to C, would amount to USD 330 thousand.

The **Delegate of the United States** confirmed that contributions are often generously provided, including those provided 'in kind', i.e. workdays covered at institutional expense. NOAA/NMFS had substantial experience in assisting with similar GEF projects, which provide the opportunities for basic science and institutional capacity building. It is a strong vote of confidence in the role that ICES can play in the Baltic Sea region. USD 10–12 million is a significant amount of funding, but it was necessary to be realistic about the possible achievements. Currently attention was being given to building the project proposal, but later ICES should be rigorous in costing and evaluating achievements.

In response to the **Delegate of the Netherlands** raising the question of the possible impacts that the project would have on ICES, e.g. were the costs realistic and were they included in the Secretariat Workplan, the **President** indicated that it was premature to include various resources in the Workplan as Council approval for the project was being sought in order to include it in an appropriate manner in future Workplans.

The **Delegates of the United Kingdom and the Netherlands** emphasised that the proposed project ought to be budget neutral for the ICES Secretariat, and requested that the General Secretary work together—in the margins of the meeting—with the Delegate of Sweden and the Delegate of Finland to prepare a simple breakdown of the costs required during funding of the initial planning year. In response to this, a Draft Budget for the PDF Block B Grant, GEF Contribution, was circulated and accepted by Delegates for the first 12 months.

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

An ICES Steering Group on the Baltic Sea Regional Project (SGBSRP) will be established and chaired by Professor Jan Thulin (Delegate of Sweden) with membership to include the General Secretary, Dr K. Sherman (USA), representatives of relevant Cooperating Parties (e.g. HELCOM, IBSFC, World Bank, UNDP), as well as one of the Recipient Countries, and will meet at appropriate times and venues at the expense of GEF and the Co-Funders to:

- provide scientific, technical, and managerial guidance relating to the preparation of a GEF Project Brief for the Baltic Sea Regional Project, and to design and implement the ICES component (i.e. Interrelationships of Living Marine Resources of the Baltic Sea Environment and Ecosystem) thereof.

Under the direction of the Steering Group, the Baltic Committee and other relevant ICES Committees will participate in the preparation and compilation of the ICES component 'Interrelationships of Living Marine Resources to the Baltic Sea Environment and Ecosystem' within the GEF Project Brief. The Project Brief should be completed and submitted to the GEF by 31 October 1999.

Agenda Item 21 CRITERIA FOR SUSTAINABLE FISHERIES - CERTIFICATION AND ECO-LABELLING IN MARINE FISHERIES - THE POTENTIAL ROLE OF ICES

The **President** summarised Doc. C.M. 1998/Del:20, a request (letter dated 10 July 1998) from the Nordic Council of Ministers for ICES to conduct a Pilot Project on the Status of Fisheries and the Related Environment of Northern Seas. This would serve as a feasibility project financed by the Nordic Council of Ministers to provide input that might be of use towards the certification of sustainable fisheries and eco-labelling of fish and fish products. The Nordic Council of Ministers wished to develop an *"information programme with the aim to provide consumers, as well as the public in general, with reliable information on fisheries, to enhance knowledge and public awareness including a report by ICES on the north east Atlantic and fish stocks"*. Further details of the project, the format of the report and the need to have the technical content made easily accessible outside the scientific community were provided in the letter. ICES was asked to provide cost estimates to conduct the project. It was stressed by the Nordic Council of Ministers that the report should not require any new or additional research, but should be a compilation of existing knowledge, in a new format, for a bigger audience.

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

1. to establish a **Steering Group on the Pilot Project on the Status of Fisheries and Related Environment of Northern Seas (SGFIRENS)** in order to provide the best available scientific information, in an easily understandable format, as requested by the Nordic Council of Ministers. The Pilot Project will be conducted subject to the costs being met at the expense of the Nordic Council of Ministers. ICES will avoid involvement in the politics of eco-labelling, and related matters, concerning living marine resources; that the President and the General Secretary should establish an appropriate membership for SGFIRENS to meet at ICES Headquarters for one day by early November 1998, at the expense of the Nordic Council of Ministers, to draft a framework for carrying out the Pilot Project, including determining the costs to be budgeted for this purpose;
2. that SGFIRENS will report to the Bureau as appropriate, and to the Council at the 1999 Annual Science Conference. On the basis of a review of the outcome of the Pilot Project by the Bureau and the Council, ICES will consider its position as to possible further steps.

In response to this, SGFIRENS was established with the following membership:

- Niels Axel Nielsen (Chair of CGADV), Jean-Jacques Maguire (Chair of ACFM), Stig Carlberg (Chair of ACME), the General Secretary, the ICES Fisheries and Environmental Advisers, and the ICES Oceanographer.

Agenda Item 22 ANY OTHER BUSINESS

There being no other matters to be dealt with under this Agenda Item, the **Delegate of Sweden** on behalf of the Council thanked the President for his leadership in the very efficient running of the meeting and welcomed the Council, Secretariat and all participants to Stockholm next year.

The **President** expressed his great appreciation of the facilities provided by the Government of Portugal at the 1998 ASC. He also thanked the Delegates of Portugal, the Mayor and people of Cascais, and other institutions in the host country for their efforts and warm hospitality in making the meeting one of the most memorable and successful in his experience. The Bureau, Delegates, and the ICES Secretariat had provided immeasurable support throughout the meeting. He wished the Council well for 1999, looked forward to convening the 1999 ASC in Stockholm, Sweden, and adjourned the meeting.

Documents

Del:1	Final Accounts for Financial Year 1996/1997
Del:2	Preliminary Report on Administration
Del:3	Cooperation with Other International Organisations: Working and Financial Arrangements
Del:4	Estimated Accounts for Financial Year 1997/1998
Del:5	Budget for Financial Year 1998/1999
Del:5 (Revised)	Revised Budget for Financial Year 1998/1999
Del:6	Forecast Budget for Financial Year 1999/2000
Addendum to Del:6	Summary of ICES Secretariat Workplan, including Associated Resources
Del:7	Elections and Appointments at 1998 Annual Science Conference
Del:8	Arrangements for 1999 (87 th Statutory Meeting; Sweden), 2000 (88 th Statutory Meeting; Belgium), and Subsequent Annual Science Conferences
Del:9	Lithuanian Application to Accede to ICES Convention
Del:10	Report on Second Meeting of ICES/Commissions Working Group on Cooperative Procedures
Addendum to Del:10	Implications for ICES of Second Meeting of ICES/Commissions Working Group on Cooperative Procedures
Del:11	Developing Memoranda of Understanding
Del:12	Continuation of Advisory <i>Honoraria</i> to Chairmen of ACFM and ACME Beyond 1997/1998
Del:13	Progress on Planning and Funding for the ICES Centenary
Addendum to Del:13	Report of the Bureau Working Group on Planning for the ICES Centenary
Del:14	Report of Coordinating Group on ICES Advice
Addendum to Del:14	Report: ISO 9000 Quality Management Standards, Part 1 - A Preliminary Review to Determine Applicability to ICES Advisory Functions
Del:15	Report of Bureau Working Group on Strategic Planning
Addendum to Del:15	Preliminary Changes to ICES Strategic Plan Framework: Response to Guidance from the 1998 Meeting of the Council
Del:16	Report of Steering Group on Planning for Eleventh ICES Dialogue Meeting
Del:17	Progress Report on Planning for ICES Young Scientists Conference
Addendum to Del:17	Letters from Prof. K. Richardson (Convener of Young Scientists Conference) and Dr L. D'Ozouville (Secretary of EMaPS)
Del:18	Status of ICES/GLOBEC Project Office
Del:19	GEF Block B Proposal for Baltic Sea Regional Project
Del:20	Criteria for Sustainable Fisheries Certification and Eco-Labeling in Marine Fisheries - the Potential Role of ICES
A:5	Report of Mid-Term Meeting of Consultative Committee, and ASC Programme Planning
Addendum 1.	Memorandum of Understanding between ICES and PICES
Addendum 2.	Memorandum of Understanding between ICES and IBSFC
Addendum 3.	Memorandum of Understanding between ICES and NEAFC

ADDENDUM 1

MEMORANDUM OF UNDERSTANDING BETWEEN THE NORTH PACIFIC MARINE SCIENCE ORGANIZATION AND THE INTERNATIONAL COUNCIL FOR THE EXPLORATION OF THE SEA

Recognizing that the North Pacific Marine Science Organization, (PICES), hereinafter called "the Organization", exists to (a) promote and coordinate marine scientific research in order to advance scientific knowledge of the area concerned and of its living resources, including but not necessarily limited to research with respect to the ocean environment and its interactions with land and atmosphere, its role in and response to global weather and climate change, its flora, fauna, and ecosystems, its uses and resources, and impacts upon it from human activities; and (b) promote the collection and exchange of information and data related to marine scientific research in the area concerned. In order to further enhance its institutional capabilities, the Organization seeks, *inter alia*, to establish and maintain mutually agreed working arrangements with other international organizations which have related objectives.

Recognizing that the International Council for the Exploration of the Sea, hereinafter called "the Council", exists to: (a) promote and encourage research and investigations for the study of the sea particularly related to the living resources thereof; (b) draw up programmes required for this purpose and to organize, in agreement with its Contracting Parties, such research and investigations as may appear necessary; (c) publish or otherwise disseminate the results of this work; and (d) provide scientific information and advice to Member Country governments, and the regulatory commissions with which co-operative relationships have been established. In order to carry out these tasks appropriately and efficiently, the Council seeks, *inter alia*, to establish and maintain mutually agreed working arrangements with other international organizations which have related objectives.

The Organization and the Council, hereinafter called "the Parties", have, therefore, agreed to the following Understanding:

1. There shall be reciprocal consultations and regular contacts between the Parties on matters of common interest in the field of marine scientific research, data exchange, and training and related activities, including environmental studies.
2. There shall be regular exchange between the Parties of information, documents, and publications relating to programme and project plans and to the results of activities agreed to be of mutual interest, joint or otherwise.
3. The Parties shall invite each other to be represented, in an observer capacity, at meetings of common interest, to the extent that this is possible within their respective working procedures.
4. The Parties shall, as appropriate, undertake joint activities, including when required, the establishment of joint subsidiary bodies or other suitable arrangements, to study and report on matters of common interest, including the support of those activities that concern them both.

ADDENDUM 2

**Memorandum of Understanding
between
The International Baltic Sea Fisheries Commission
and
The International Council for the Exploration of the Sea**

RECOGNISING that the International Baltic Sea Fisheries Commission ("IBSFC")

- (a) has the responsibility for conservation and rational exploitation of the living resources of the Baltic Sea and the Belts;**
- (b) coordinates the management of the living resources of the Convention area and submits recommendations based as far as practicable on results of scientific research;**
- (c) seeks the services of the International Council for the Exploration of the Sea according to Article IX, paragraph 2 of the IBSFC 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) provides scientific information and advice to Member Country governments, and the regulatory commissions with which cooperative relationships have been established;**
- (d) seeks to establish and maintain working arrangements with other international organizations having related objectives.**

IBSFC AND ICES have therefore reached the following understanding:

Provision of Scientific Information and Advice

- 1. Scientific information and advice, which is independent and free from political influence, will be provided to IBSFC by ICES according to this Memorandum of Understanding.**
- 2. ICES and IBSFC 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.**

3. ICES will provide IBSFC with

- annual “standard advice” (i.e. recurring advice) on the state and the management of the main commercial stocks (herring, sprat, cod, salmon, and flatfish) according to the layout contained in Annex 1;
- “non-recurring” advice as agreed by IBSFC.

This will be provided at appropriate times during the year.

The information on which the advice is based, in the form of Study/Working Group Reports, will be made available following the full ICES review process. Any other relevant reports published by ICES will be made available to IBSFC.

4. The scientific information and advice will be presented at IBSFC's Annual Session by the Chairmen of ICES Advisory Committees or their designate.
5. At its Annual Session IBSFC may adopt a request for scientific information and advice which may be addressed to ICES for response prior to the next Annual Session of IBSFC. This request will be transmitted formally to ICES on a timely basis.

Finance

6. IBSFC accepts ICES policy of achieving 100% cost recovery from Member Countries and international client commissions which request ICES to provide information, advice and services. When assessing the contributions to be paid by IBSFC, due account shall be taken of contributions made by ICES Member Countries or other international client Commissions of ICES with interests in the same stocks and in the same geographical area.

7. IBSFC 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) for the main commercial stocks with an annual increase in accordance with the rate of inflation in Denmark. The components upon which the ICES costs are calculated are provided in Annex 3;
- (b) that the cost of preparing recurring advice, adjusted for inflation to the ICES fiscal year 1996/1997, amounts to DKK 485,000 (as detailed in the June 1998 Report of the ICES/Commissions Working Group on Cooperative Procedures);
- (c) that—during the three years following the entry into force of this Memorandum of Understanding—the IBSFC contribution to ICES shall be linearly increased from its current level to achieve 100% cost recovery during the third year;
- (d) to pay 100% of the costs for non-recurring advice on the basis of the costs agreed upon with ICES in accordance with procedures in Annex 2.
- (e) that the yearly payment to ICES shall be due in March of the same year.

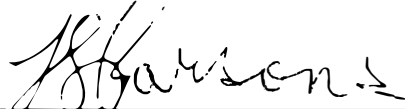
- 8 ICES undertakes to elaborate, on an annual basis, costing-spreadsheets with details for providing standard and non-recurring advice to IBSFC. The results will be reviewed jointly by ICES and IBSFC during a meeting as specified in Annex 2.

General Administrative Arrangements

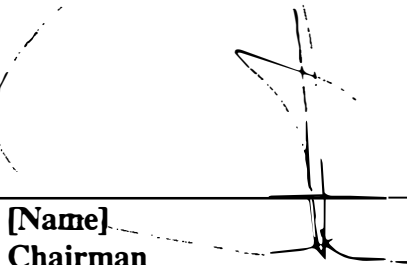
9. IBSFC will be invited to be represented in an observer capacity at the annual Statutory Meeting (Annual Science Conference) of ICES. ICES will be invited to be represented in an observer capacity at the Annual Sessions of IBSFC.
10. IBSFC will provide ICES with documents and reports circulated prior to and as a result of its Annual Session which are relevant to the work of ICES.
11. Either IBSFC or ICES may propose changes to this Memorandum of Understanding, notwithstanding item 15 below. Any such proposal will be made before the end of May. Any change will come into effect at the beginning of the calendar year after the change has been agreed by both ICES and IBSFC.
12. If any dispute should arise between IBSFC 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.
13. Either IBSFC or ICES may propose a withdrawal from this Memorandum of Understanding. Any such proposal will be made before the end of May, 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 IBSFC.
14. This Memorandum of Understanding will apply following signature by both Parties, and will take effect from 1 January following that signature. It will remain in force for three calendar years after that date.
15. 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 International Baltic Sea Fisheries Commission and the International Council for the Exploration of the Sea:

Date: 18 September 1997



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



[Name]
Chairman
International Baltic Sea Fisheries
Commission

ANNEX 1: Layout of "Standard" (recurring) advice required from ICES by IBSFC

The standard layout contains:

Area overview for all stocks (Cod, Herring, Sprat, Flatfish, Salmon, and Sea Trout by appropriate stock areas)

By stock:

- Development of:
 - Landings
 - Fishing mortality
 - Recruitment
 - Spawning stock
- Historic development of the fisheries
- State of Stocks
- Short-term forecast table including for some stocks catches by area/fleet
- Medium term consideration based on risk assessment
- Long-term consideration
- Management advice and recommendation
- Elaboration and Special comments
 - Environment information of relevance to management
 - Relevant technical and ecosystem interactions related to the point immediately above
- Data and assessment
- Source reference and Tables and Figures to support the text and conclusions

The content of the advice will reflect the request confined by the availability of data and knowledge about the biological, physical and technical processes. ICES should elaborate and make the advice as transparent and as understandable as possible, including explicit explanation of uncertainties associated with the advice.

The Management advice and recommendations should also take into account the international obligation to gradually implement the precautionary approach. IBSFC and ICES undertake to establish a close co-operation of mutual benefit to develop this topic.

There are some stocks for which the standard advice form does not apply, notably the salmon stocks in the Baltic. These stocks would in principle be treated in a similar manner, but with other reference points such as escapement or production targets. If a request is within the working format it should not be regarded as an additional request.

IBSFC applies a number of management measures to secure sustainable fisheries such as closed areas and seasons, effort limitations, minimum mesh size in nets and minimum hook sizes. ICES routinely evaluates and reports, as part of the assessment of the status of the stocks, whether these measures are effective in achieving the targets defined under the precautionary approach. A request on evaluating a change of these measures should be regarded as part of a standard assessment.

IBSFC will have full access to this information whether submitted by ICES as printed reports or through standard electronic format.

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

YEAR 1 September November	IBSFC agrees request for advice for Year 2 and formally transmits request to ICES. ICES provides proposed costs for IBSFC for the Year 2 advice.
YEAR 2 Early February March	a) Consultation between ICES and IBSFC to agree the sum budgeted by IBSFC in respect of the recurring and non-recurring advice for Year 2. IBSFC undertakes to give its full agreement within 30 days of this consultation. b) Review of costing-spreadsheets for Year 1. Payment by IBSFC to ICES for Year 2 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 IBSFC:

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 IBSFC 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 the Chairmen of ICES's Advisory Committees (or their designates) and of ICES Secretariat in attending IBSFC's Annual Meeting to present the scientific advice.
4. costs, including postage and packing, of producing the documents required by the IBSFC with respect to the information and advice.
5. databases: International Bottom Trawl Survey (IBTS), ICES Fisheries Assessment Program (IFAP), and STATLANT 27A.
6. computing costs.
7. the cost of any work where ICES proposes to employ a consultant or contractor.
8. other current expenditure.
9. 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. 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**

ADDENDUM 3

Memorandum of Understanding between

The North-East Atlantic Fisheries Commission

and

The International Council for the Exploration of the Sea

RECOGNISING that the North-East Atlantic Fisheries Commission ("NEAFC")

- (a) performs its functions in the interests of the conservation and optimum utilisation of the fishery resources of the Convention area and shall take into account the best scientific evidence available to it;
- (b) provides a forum for consultation and exchange of information on the state of fishery resources in the Convention Area and on management policies, including examination of the overall effect of such policies on the fishery resources;
- (c) shall seek information and advice from the International Council for the Exploration of the Sea (ICES) on matters related to the Commission's activities according to Article 14 (1) of the NEAFC 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) provides scientific information and advice to Member Country governments, and the regulatory commissions with which co-operative relationships have been established;
- (d) seeks to establish and maintain working arrangements with other international organisations having related objectives.

NEAFC AND ICES have therefore reached the following understanding:

Provision of Scientific Information and Advice

1. Scientific information and advice, which is independent and free from political influence, will be provided to NEAFC by ICES according to this Memorandum of Understanding.
2. ICES and NEAFC will consult on ways in which co-operation between them can be further improved and extended. Further improvements may include joint activities, e.g. seminars, symposia or other meetings.
3. ICES agrees to provide NEAFC with:
 - annual "standard advice" (i.e. recurring advice) on the state and the management of the main commercial stocks (listed in Annex 1) according to the layout contained in Annex 2;
 - advice at appropriate times during the year;
 - the information on which the advice is based, in the form of Study/Working Group Reports, following the full ICES review process. Any other relevant reports published by ICES will be made available to NEAFC;
 - "non-recurring" advice as agreed by NEAFC.
4. ICES agrees to present the scientific information and advice at NEAFC's Annual Meeting by the Chairman of ACFM or designate.
5. At its Annual Meeting NEAFC may adopt a request for scientific information and advice which may be addressed to ICES for response prior to the next Annual Meeting of NEAFC. This request will be transmitted formally to ICES on a timely basis.

Finance

6. NEAFC accepts ICES policy of achieving 100% cost recovery from Member Countries and international client commissions which request ICES to provide information, advice and services. When assessing the contributions to be paid by NEAFC, due account shall be taken of contributions made by ICES Member Countries or other international client Commissions of ICES with interests in the same stocks and in the same geographical area.
7. NEAFC agrees:
 - (a) to pay - following the procedure in Annex 3 - an amount as agreed upon with ICES for the "standard" advice (i.e. recurring needs) for the main commercial stocks (listed in Annex 1) with an annual increase in accordance with the official rate of inflation in Denmark. The components upon which the ICES costs are calculated are provided in Annex 4;
 - (b) that the cost of preparing recurring advice, adjusted for inflation to the ICES fiscal year 1996/1997, amounts to DKK 1.15 million (as detailed in the June 1998 Report of the ICES/Commissions Working Group on Co-operative Procedures);

- (c) that—during the three years following the entry into force of this Memorandum of Understanding—the NEAFC contribution to ICES shall be linearly increased from its current level to achieve 100% cost recovery during the third year;
- (d) to pay 100% of the costs for non-recurring advice on the basis of the costs agreed upon with ICES in accordance with procedures in Annex 3.
- (e) that the yearly payment to ICES shall be due in the same year in two instalments, payable in March and June.

8 ICES undertakes:

- to invoice NEAFC for payment due in March by the end of December and for June by the end of March, stating the amount, currency and due date of payment;
- to elaborate, on an annual basis, costing-spreadsheets with details for providing standard and non-recurring advice to NEAFC. The results will be reviewed jointly by ICES and NEAFC during a meeting as specified in Annex 3.

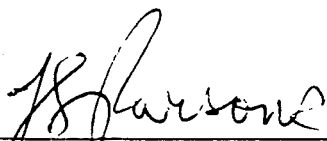
General Administrative Arrangements

- 9. NEAFC 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 Meeting of NEAFC.
- 10. NEAFC will provide ICES with documents and reports circulated prior to and as a result of its Annual Meeting which are relevant to the work of ICES.
- 11. If any dispute should arise between NEAFC 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.
- 12. Either NEAFC or ICES may propose changes to, or withdrawal from, this Memorandum of Understanding. Any such proposal will be made at least 10 weeks before the Annual Meeting of NEAFC, if proposed by ICES, or at least 10 weeks before the annual Statutory Meeting of ICES, if proposed by NEAFC. Any change will come into effect at the beginning of the calendar year after the change has been agreed by both ICES and NEAFC. Any withdrawal will come into effect one complete calendar year after the meeting in advance of which notice of the proposed withdrawal was given.
- 13. This Memorandum of Understanding will apply following signature by both Parties, and will take effect from 1 January following that signature. It will remain in force for three calendar years after that date.

14. 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-East Atlantic Fisheries Commission and the International Council for the Exploration of the Sea:

Date: 3 December 1998



Scott Parsons

President
International Council for the Exploration of
the Sea



Ole Tougaard

President
North-East Atlantic Fisheries Commission

ANNEX 1: List of species in the NEAFC Convention area for which NEAFC may request "Standard" (recurring) advice required from ICES. The particular stocks are those addressed to NEAFC in the ACFM Reports (ICES Co-operative Research Report series) from 1993 to 1998.

- cod
- haddock
- whiting
- saithe
- Greenland halibut
- plaice
- sole
- megrim
- hake
- Norway pout
- sandeel
- redfish
- herring
- sprat
- capelin
- blue whiting
- mackerel
- horse mackerel
- sardine
- anchovy
- anglerfish
- eels
- sharks
- Nephrops
- Pandalus
- deep-sea species as given in the 1998 ACFM report to NEAFC inter alia, ling, blue ling, tusk, great silver smelt, orange roughy, roundnose and roughhead grenadiers, black scabbardfish, red (=blackspot) sea bream, greater forkbeard, alfonsinos/golden eye perch.

ANNEX 2: Layout of “Standard” (recurring) advice required from ICES by NEAFC.

The standard layout contains, inter alia:

Area overview for all stocks as specified in Annex 1.

By stock:

- Development of:
 - * Landings
 - * Fishing mortality
 - * Recruitment
 - * Spawning stock
- Historic development of the fisheries by fleets
- State of Stocks
- Short-term forecast table including for some stocks catches by area/fleet
- Medium-term consideration in relation to agreed or proposed limits and reference points based on risk assessment
- Long-term consideration in relation to agreed or proposed limits and reference points based on risk assessment
- Management advice and recommendation in relation to short-, medium- and long-term perspective
- Elaboration and Special comments
 - * Environment information of relevance to management
 - * Relevant technical and ecosystem interactions related to the point immediately above
- Data and assessment
- Source reference and Tables and Figures to support the text and conclusions

The content of the advice will reflect the request within the confines set by the availability of data and knowledge about the biological, physical and technical processes. ICES shall elaborate and make the advice as transparent and as understandable as possible, including explicit explanation of uncertainties associated with the advice.

The Management advice and recommendations should also take into account the international obligation to gradually implement the precautionary approach. NEAFC and ICES undertake to establish a close Cupertino of mutual benefit to develop this topic.

There are some stocks for which the standard advice form does not apply. These stocks would in principle be treated in a similar manner, but with other reference points such as escapement or production targets. If a request is within the working format it should not be regarded as an additional request.

NEAFC may apply a number of management measures to secure sustainable fisheries such as closed areas and seasons, effort limitations, minimum mesh size in nets and minimum hook sizes. ICES routinely evaluates and reports, as part of the assessment of the status of the stocks, whether such measures are effective in achieving the targets defined under the precautionary approach. A request on evaluating a change of these measures should be regarded as part of a standard assessment.

NEAFC will have full access to this information whether submitted by ICES as printed reports or through standard electronic format.

ANNEX 3: Schedule of key annual administrative procedures for NEAFC and ICES

YEAR 0-1998	
November	NEAFC agrees request for advice for Year 1 and formally transmits request to ICES. The deadline for Year 1 advice to be received by NEAFC is agreed.
December	ICES provides an invoice for estimated costs for NEAFC for the Year 1 (1999) advice based on estimated inflation rate for Denmark in 1998.
YEAR 1-1999	
January	ICES informs NEAFC of official inflation rate for Year 0.
Early February	a) Consultation between ICES and NEAFC to agree the sum budgeted by NEAFC in respect of the recurring and non-recurring advice for Year 1. NEAFC undertakes to respond to ICES within 30 days of this consultation. b) Review of costing-spreadsheets for Year 0.
March	First payment by NEAFC to ICES for Year 1 Advice
June	Second payment by NEAFC to ICES for Year 1 Advice.
November	NEAFC agrees request for advice for Year 2 and formally transmits request to ICES. The deadline for Year 2 advice to be received by NEAFC is agreed.
December	ICES provides estimated costs for NEAFC for the Year 2 (2000) advice based on estimated inflation rate for Denmark in 1999.

ANNEX 4: 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 NEAFC:

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 NEAFC 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 the Chairmen of ICES Advisory Committees (or their designates) and of ICES Secretariat in attending NEAFC's Annual Meeting to present the scientific advice.
4. costs, including postage and packing, of producing the documents required by the NEAFC with respect to the information and advice.
5. databases: IBTS, IFAP, STATLANT 27A.
6. computing costs related to work undertaken for NEAFC.
7. the cost of any work for NEAFC where ICES proposes to employ a consultant or contractor.
8. other current expenditure related to NEAFC work.
9. 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. 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 1998 ANNUAL SCIENCE CONFERENCE 86TH STATUTORY MEETING

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.1998/

- | | |
|---|---|
| <p>1:1 The Report on Echo Trace Classification, edited by Dr D. Reid (UK), as reviewed and approved by the Chair of the Fisheries Technology Committee, will be published in the <i>ICES Cooperative Research Report</i> series. The estimated number of pages is 200.</p> <p style="text-align: center;">NC</p> | <p>edited by Dr R. Furness (UK) and M. Tasker (UK), as reviewed and approved by the Chair of the Oceanography Committee, will be included in the <i>ICES Cooperative Research Report</i> approved in C.Res.1997/1:6. The estimated number of pages is 90.</p> <p style="text-align: center;">NC</p> |
| <p>1:2 The Report on the Baseline Study of Contaminants in Baltic Sea Sediments, edited by Prof. M. Perttilä (Finland), as revised according to the guidelines accepted by ACME, and as reviewed and approved by the Chair of the Marine Habitat Committee, will be published in the <i>ICES Cooperative Research Report</i> series. The estimated number of pages is 150</p> <p style="text-align: center;">NC</p> | <p>1:4 The Report of the Workshop on Ocean Climate of the NW Atlantic during the 1960s and 1970s and Consequences for Gadoid Populations [Doc. ICES C.M. 1998/C:9], edited by Dr F. Werner (USA) and Dr S. Murawski (USA), as reviewed and approved by the Chair of the Oceanography Committee, will be published in the <i>ICES Cooperative Research Report</i> series. The estimated number of pages is 85.</p> <p style="text-align: center;">NC</p> |
| <p>1:3 The Report of the Working Group on Seabird Ecology [Doc. ICES C.M. 1998/C:5],</p> | |

RESOLUTIONS INVOLVING SYMPOSIA

C.Res.1998/

- | | |
|---|---|
| <p>2:1 A Symposium on Capelin - What Are They Good For? Biology, Management and the Ecological Role of Capelin will be held during the summer 2000, at Reykjavik, Iceland with Dr H. Vihjalmsson (Iceland) as Convener.</p> <p>A Scientific Steering Group will be established with members nominated by WGNPBW and NWWG to assist the Convener in planning the Symposium. In consultation with the Convener,</p> | <p>the General Secretary will solicit appropriate co-sponsorship.</p> |
| <p></p> | <p>2:2 ICES will co-sponsor, at no financial cost to ICES, the Symposium on the Changing States of Large Marine Ecosystems of the North Atlantic and Global Environmental Trends, co-sponsored by NOAA, IOC, and SCOR, to be held in Bergen, Norway from 16-18 June 1999. Dr K. Sherman (USA) will be ICES representative at the Symposium.</p> |

RESOLUTIONS INVOLVING MEETINGS OF COMMITTEES, GROUPS AND WORKSHOPS

CONSULTATIVE COMMITTEE

C.Res.1998/

- 2:3 The **Consultative Committee [CONC]** (Chair: Dr R.M. Cook, UK) will meet at ICES Headquarters from 8–11 June 1999 at Council expense to:
- a) prepare a draft programme of sessions for the 1999 Annual Science Conference (Stockholm, Sweden) taking into account the titles and abstracts of scientific papers/posters received in response to the January 1999 Call for Papers, for presentation in Theme Sessions and the Mini-Symposium;
 - b) review progress in development of ICES Five-Year Strategic Plan;
 - c) consider the future of Council papers and suitable alternative media for publication;
 - d) consider format of future Annual Science Conferences, taking into account the need to broaden participation and the need to include business at the Annual Science Conference;
 - e) consider a revised procedure for handling recommendations;
 - f) review draft recommendations from the Science and Advisory Committees to be approved at the 1999 Annual Science Conference;
 - g) discuss the issues of peer review and dissemination of results from Study/Working Groups and make proposals for their improvement.

ADVISORY COMMITTEE ON FISHERY MANAGEMENT

C.Res. 1998/

- 2:4 The **Advisory Committee on Fishery Management [ACFM]** (Chair: J.-J. Maguire, Canada) will meet:
- A) in plenary at ICES Headquarters from 17–20 May 1999 and from 1–4 November 1999 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, IBSFC 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) in Sub-Groups at ICES Headquarters from 12–15 May 1999 and 26–30 October 1999 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.

Each Sub-Group will be chaired by an ACFM member, 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 1999, and one Sub-Group in October 1999.

Sub-Group I will meet from 12–15 May 1999 to review the reports of the:

WGBAST, WGBFAS, WGNAS, WGNPBW.

Sub-Group II will meet from 12–15 May 1999 to review the reports of the:

NWWG, HAWG, SGDEEP, WGNPH.

Sub-Group III will meet from 26–30 October 1999 to review the reports of the:

WGNSSK, WGPAND, WGNSSDS, WGHARP.

Sub-Group IV will meet from 26–30 October 1999 to review the reports of the:

WGMHSA, WGSSDS, AFWG.

15 May and 30 October will be used primarily for preparation of the draft report by ACFM members and Working Group Chairs.

- C) for Consultations to be held at national expense on 28 September 1999 and at other times as required during the 1999 Annual Science Conference to:

- a) finalise Terms of Reference, dates and venues for meetings of groups reporting to ACFM in year 2000;
- b) conduct other business related to the functioning of ACFM.

The Consultations will be open to 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.

RM {ICES 4%, NEAFC 35%, IBSFC 7%, NASCO 8%, EC DGXIV 46%}

2:4:1 **The Arctic Fisheries Working Group [AFWG]** (Chair: Dr R. Bowering, Canada) will meet at ICES Headquarters from 23 August to 1 September 1999 to:

- a) assess the status of and provide catch options for the year 2000 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) review progress in determining precautionary reference points.

The above Terms of Reference are set up to provide ACFM with the information required to respond to requests for advice/information from the Commissions indicated below.

AFWG will report to ACFM at its October/November 1999 meeting.

RA {NEAFC 85%, EC DGXIV 15%}

2:4:2 **The Northern Pelagic and Blue Whiting Fisheries Working Group [WGNPBW]** (Chair: Dr J. Carscadden, Canada) will meet at ICES Headquarters from 27 April to 5 May 1999 to:

- a) assess the status of and provide catch options for year 2000 for the Norwegian spring-spawning herring stock;
- b) provide any new information on the present spatial and temporal distribution of Norwegian spring-spawning herring;
- c) assess the status of and provide catch options for the 1999–2000 season for the Icelandic summer-spawning herring stocks;
- d) assess the status of capelin in Sub-areas V and XIV and provide catch options for the summer/autumn 1999 and winter 2000 seasons;
- e) assess the status of and provide catch options for capelin in Sub-areas I and II (excluding Division IIa west of 5°W) in year 2000;
- f) assess the status of and provide catch options for 2000 and 2001 for the blue whiting stock;

- g) update the information on the spatial and temporal distribution of the stock and fisheries on blue whiting;
- h) review progress in determining precautionary reference points;
- i) describe the timing of pelagic fisheries in ICES areas I; IIa,b; IVa,b; Va; Vb1,2; VIa,b; VIIa,b, the gear used in those fisheries and catch per ICES statistical rectangle per month in the relevant areas; for blue whiting the following Divisions IIIa, VIIc, VIIg-k, VIII and IX should also be considered;
- j) propose, in consultation with NWWG, a Scientific Steering Group for the planned Symposium on "Capelin - What Are They Good For? Biology, Management and the Ecological Role of Capelin".

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. (Further items may be added on receipt of the request for advice from NEAFC)

WGNPBW will report to ACFM at its May 1999 meeting.

RA {NEAFC 95%, EC DGXIV 5%}

2:4:3 The Baltic Salmon and Trout Assessment Working Group [WGBAST] (Chair: T. Pakarinen, Finland) will meet at ICES Headquarters, from 15–23 April 1999 to:

- a) describe the salmon fisheries in the Baltic in 1998 including the non-commercial catches. The description should include how these statistics are collected in different countries;
- 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;
- d) define the necessary management measures and catches in number for Baltic salmon in year 2000 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). The influence of the non-commercial fisheries should be specifically commented upon;
- e) provide any new information on the state of sea trout stocks in the Baltic;
- f) provide any new information on a river basis on the present and potential production capacity for Baltic salmon. The basis for the estimates should be defined and standardised;
- g) provide any new information on predation on salmon by seals and on damage by seals to fishing gears and to salmon in fishing gears;
- h) provide estimates of unreported catches of salmon with a view to including this information in the statistics, assessments and population models;
- i) according to the requirements developed by WGAGFM, collate statistics on the quantities of cultured salmon (and possibly other salmonids) in the Baltic Sea, for review by WGAGFM in early 2000 (as a contribution to a chapter on 'Baltic fish stocks, diseases and ecosystem effects' for the HELCOM Fourth Periodic Assessment of the State of the Marine Environment of the Baltic Sea. 1994–1998 [HELCOM 1999/3].

The above Terms of Reference are set up to provide ACFM with the information required to respond to requests for advice/information from IBSFC and HELCOM.

WGBAST will report to WGAGFM and ACFM at its May 1999 meeting.

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)

RA {IBSFC 90%, HELCOM 10%}

2:4:4 The **Herring Assessment Working Group for the Area South of 62°N [HAWG]** (Chair: E.J. Simmonds, UK) will meet at ICES Headquarters from 15–24 March 1999 to:

- a) assess the status of and provide catch options (by fleet where possible) for year 2000 for the North Sea autumn-spawning herring stock in Division IIIa, Sub-area IV, and Division VIId (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 2000;
- b) assess the status of and provide catch options for year 2000 for the sprat stocks in Sub-area IV and Divisions IIIa and VIId,e;
- c) review progress in determining precautionary reference points;
- d) provide the data required to carry out multispecies assessments (quarterly catches and mean weights at age in the catch and stock for 1998 by statistical rectangle of the North Sea for herring and sprat), and suggest and document a time series of quarterly catch and weight at age for sprat in the North Sea from 1972–1991 for use in the multispecies modelling and by the WGECCO;
- e) analyse the length distribution of sprat based on the IBTS data in relation to its usefulness in length-based assessment.

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 DGXIV.

HAWG will report to ACFM at its May 1999 Meeting.

RA {NEAFC 24%, IBSFC 6%, EC DG XIV 70%}

2:4:5 The **North-Western Working Group [NWWG]** (Chair: J. Boje, Denmark) will meet

at ICES Headquarters from 26 April to 4 May 1999 to:

- a) assess the status of and provide catch options for year 2000 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 year 2000 would correspond to the fishing mortality identified as within safe biological limits;
- c) update survey and fishery information on the stocks of redfish in Sub-areas V, VI, XII and XIV;
- d) review progress in determining precautionary reference points;
- e) consider further possibilities for the incorporation of biological interactions into the assessments of capelin, herring, and cod stocks;
- f) 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;
- g) propose, in consultation with WGNPBW, a Scientific Steering Group for the planned Symposium on "Capelin - What Are They Good For? Biology, Management and the Ecological Role of Capelin".

The above Terms of Reference are set up to provide ACFM with the information required to respond to requests for advice/information from NEAFC.

NWWG will report to ACFM at its May 1999 meeting.

RA {NEAFC 100%}

2:4:6 The **Baltic Fisheries Assessment Working Group** [WGBFAS] (Chair: Dr T. Raid, Estonia) will meet at ICES Headquarters from 14–23 April 1999 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-division 25–29, 32), excluding the Gulf of Riga herring, should be included. For herring in Sub-division 29, the catches by Sub-division 29S and 29N should be shown separately.
- b) assess the status and provide catch options for herring cod and sprat for year 2000, that are consistent with the precautionary reference points identified by ACFM, according to IBSFC management areas. Catch options for the Gulf of Riga herring should be shown separately;
- c) assess the status and provide catch options for year 2000 for the cod stock in the Kattegat and sole stock in Division IIIa, a combined assessment of the cod stocks in the Kattegat and Sub-divisions 22–24 should be considered;
- d) review progress in determining precautionary reference points;
- e) review information available on cod discards and evaluate the effects on the status of cod stocks;
- f) review information available (including distribution maps), on immature herring, immature sprat and undersized cod taken in the small mesh fisheries and evaluate the effects of these catches on the status of the stocks;
- g) compile the available data on Baltic herring and sprat maturity ogives by age and length on areal basis;
- h) provide information on spatial and temporal distribution of the eastern Baltic cod stock spawning and propose appropriate timing and delineation of closed areas in the Gdansk Deep and Gotland Deep during the spawning season;
- i) evaluate the effects of closing all fisheries or only cod fisheries during cod spawning

time in the Bornholm Basin, Gotland Deep and Gdansk Deep area on the status of cod stocks;

- j) evaluate the effects of summer ban of cod fishing on the status of cod stocks;
- k) provide any new information on the state of flatfish stocks in the Baltic, focusing special attention on the state of turbot stocks in the Baltic, and evaluate the appropriateness of present management measures in respect to the precautionary approach;
- l) update information prepared for the HELCOM Third Periodic Assessment concerning commercial fish stocks in the Baltic Sea, with the aim of producing material by April 2000 as a contribution to a chapter on 'Baltic fish stocks, diseases and ecosystem effects' for the HELCOM Fourth Periodic Assessment of the State of the Marine Environment of the Baltic Sea, 1994–1998 [HELCOM 1999/3].

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, EC DGXIV and HELCOM.

WGBFAS will report to ACFM at its May 1999 meeting.

RA {NEAFC 3%, IBSFC 80%, EC DGXIV 12%, HELCOM 5%}

2:4:7 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 11–20 October 1999 to:

- a) assess the status of and provide catch options for year 2000 for the stocks of cod, haddock, whiting, saithe, sole, and plaice in Sub-area IV, Division IIIa (excluding sole in Division IIIa and cod in the Kattegat), and Division VIIId (excluding haddock and saithe), taking into account the technical interactions among the stocks due to the mixed-species fisheries and new management measures coming into force in 2000;
- b) assess the status of and provide catch forecasts for year 2000 for Norway pout and sandeel stocks in Sub-area IV and Divisions IIIa and VIa, and identify any needs for management measures (including

precautionary TACs) required to safeguard the stocks;

- c) review progress in determining precautionary reference points;
- d) 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;
- e) 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);
- f) assess the status of saithe 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;
- g) evaluate the potential impact on the stocks and the fisheries of the change in technical measures to be implemented by EC in year 2000.

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.

WGNSSK will report to ACFM at its October/November 1999 meeting.

RA {NEAFC 25%, EC DGXIV 75%}

2:4:8 **The Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine, and Anchovy** [WGMHSA] (Chair: Dr K. Patterson, UK) will meet at ICES Headquarters from 14–23 September 1999 to:

- a) assess the status of and provide catch options for year 2000 for the stocks of mackerel and horse mackerel (defining stocks as appropriate);
- b) assess the status of and provide catch options for 2000 for the sardine stock in Divisions VIIIc and IXa, and the anchovy stocks in Sub-area VIII and Division IXa;
- c) review progress in determining precautionary reference points;

d) provide the data required to carry out multispecies assessments (quarterly catches and mean weights at age in the catch and stock for 1998 by statistical rectangle of the North Sea for mackerel and horse mackerel) and review the time series of quarterly catch and weights at age for North Sea mackerel, western mackerel, North Sea horse mackerel and western horse mackerel used by the MAWG in Doc. ICES C.M. 1997/Assess:16, suggesting and documenting any necessary revisions to those series;

e) for sardine update information on the stock identification, composition, distribution and migration in relation to climatic effects.

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.

WGMHSA will report to ACFM at its October/November 1999 meeting.

RA {NEAFC 25%, EC DGXIV 75%}

2:4:9 **The Working Group on the Assessment of Northern Shelf Demersal Stocks** [WGNSDS] (Chair: S. Reeves, UK) will meet at ICES Headquarters from 14–23 June 1999 to:

- a) assess the status and provide catch options for year 2000 for the stocks of cod, haddock, whiting, saithe, 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) review progress in determining precautionary reference points.

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.

WGNSDS will report to ACFM at its October/November 1999 meeting.

RA {NEAFC 31%, EC DGXIV 69%}

2:4:10 **The Working Group on the Assessment of Southern Shelf Demersal Stocks [WGSSDS]** (Chair: A. Biseau, France) will meet at ICES Headquarters from 1–10 September 1999 to:

- a) assess the status and provide catch options for year 2000 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) review progress in determining precautionary reference points.

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.

WGSSDS will report to ACFM at its October/November 1999 meeting.

RA {NEAFC 25%, EC DGXIV 75%}

2:4:11 **The Working Group on North Atlantic Salmon [WGNAS]** (Chair: Dr L. Marshall, Canada) will meet in Quebec City, Canada from 12–22 April 1999 to:

- a) with respect to Atlantic salmon in the North Atlantic area:
 - i. provide an overview of salmon catches, including unreported catches and catch and release, and worldwide production of farmed and ranched salmon in 1998,
 - ii. evaluate non-catch fishing mortality for all salmon gear,
 - iii. report on significant developments which might assist NASCO with the management of salmon stocks,
 - iv. develop a framework for stock rebuilding programmes,
 - v. provide a compilation of egg collections and juvenile releases in 1998,
 - vi. provide a compilation of microtag, finclip and external tag releases by ICES Member Countries in 1998;

b) with respect to Atlantic salmon in the North-East Atlantic Fisheries Commission area:

- i. describe the events of the 1998 fisheries and the status of the stocks,
- ii. update the evaluation of the effects on stocks and homewater fisheries of the suspension of commercial fishing activity at Faroes since 1991,
- iii. further develop the age-specific stock conservation limits for smaller stock units in the Commission area, where possible based upon individual river-based estimates,
- iv. further develop methods to estimate the expected abundance of salmon for smaller stock units in the Commission area,
- v. provide catch options or alternative management advice with an assessment of risks relative to the objective of exceeding stock conservation limits,
- vi. provide an estimate of the by-catch of salmon post-smolts in pelagic fisheries,
- 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 1998 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,
- 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 1998 fisheries and the status of the stocks,
- ii. evaluate the effects on European and North American stocks of the Greenlandic management measures since 1993,
- iii. provide a detailed explanation 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,
- iv. provide age-specific stock conservation limits (spawning targets) for all stocks occurring in the Commission area based on best available information,
- v. provide catch options or alternative management advice with an assessment of risks relative to the objective of exceeding stock conservation limits,
- vi. identify relevant data deficiencies, monitoring needs and research requirements,
- vii. comment on the report of the Workshop on Peer Review of ICES Salmon Model.

The above Terms of Reference are set up to provide ACFM with the information required to respond to requests for advice/information from NASCO.

WGNAS will report to ACFM at its May 1999 meeting.

RA {NASCO 100%}

2:4:12 The **Joint ICES/NAFO Working Group on Harp and Hooded Seals** [WGHP] (Chair: Prof. T. Haug, Norway) will work by correspondence in 1999 to plan a meeting in year 2000 and to organise a Workshop on Modelling Population Dynamics in Harp and Hooded Seals.

WGHP will report at the Annual Science Conference in 1999 and to ACFM at its October/November 1999 meeting.

RC

2:4:13 The **Pandalus Assessment Working Group** [WGPAND] (Chair: S. Tveite, Norway) will meet in Flødevigen, Norway from 23–26 August 1999 to:

- a) assess the status of the stocks of *Pandalus borealis* in the North Sea, Skagerrak and Kattegat and provide catch options for year 2000;
- 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.

WGPAND will report to ACFM at its October/November 1999 meeting and to the Living Resources Committee at the 2000 Annual Science Conference.

RA {NEAFC 25%, EC DGXIV 75%}

2:4:14 The **Working Group on Nephrops Stocks** [WGNEPH] (Chair: Dr F. Redant, Belgium) will meet in Ostende, Belgium from 15–22 April 1999 to:

- a) assess the status of those *Nephrops* stocks in the ICES area where new methodology or new data justify a new assessment, revising catch options only where necessary;
- b) continue the work of SGNEPH on precautionary reference points;
- c) make comparisons between analytical assessment methods and fishery-independent data from, for example, TV surveys;
- d) update information on quantities of discards by gear type and area for the stocks of *Nephrops* and fisheries considered by this group [OSPAR 1997/5.3].

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.

WGNEPH will report to ACFM at its May 1999 meeting.

RA {EC DGXIV 75%, NEAFC 25%}

2:4:15 The EIFAC/ICES Working Group on Eels [WGEEL] (Chair: Dr W. Dekker, Netherlands) will meet in Silkeborg, Denmark, from 20–24 September 1999 to:

- a) assess trends in recruitment and their causes, in fisheries and the effects on stock and yield of the species;
- b) investigate the impact of fisheries in selected systems, especially with regard to the consequences for spawner escapement;
- c) investigate the options for developing escapement targets 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;
- f) advise on international coordination of research on this species 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/information from EC DGXIV.

WGEEL will report to ACFM at the October/November 1999 meeting.

RM {ICES 20%, EC DG XIV 80%}

2:4:16 The Study Group on the Biology and Assessment of Deep-Sea Fisheries Resources [SGDEEP] (Chair: Dr J.D.M. Gordon, UK) will work by correspondence in 1999 to:

- a) update 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 by Sub-area and identify target and by-catch species;
- c) update in tabular form, by Sub-area where possible, available data on length/age at

maturity, growth and fecundity for deep-water species, including blue ling, ling and tusk;

- d) make an inventory of available discards and deep-water fish community data;

- e) plan a meeting for year 2000.

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.

SGDEEP will report to ACFM at its May 1999 meeting.

RA {NEAFC 80%, EC DGXIV 20%}

2:4:17 The Study Group on Future Requirements for Fisheries Assessment Data and Software [SGFADS] (Chair: Dr R.M. Cook, UK) will meet at ICES Headquarters on 19 October 1998 at national expense to:

- a) consider and finalise intersessional work on the specification of assessment software programming guidelines, data file structures and working group data handling protocols;
- b) review progress on internet access to working group data, results and reports. Identify future needs and develop a plan for their implementation;
- c) consider the present status of IFAP and devise a timetable for phasing out Secretariat technical support to IFAP;
- d) identify software needed within the Secretariat required by assessment working groups to expedite the production reports. This software should concentrate on the production of standard graphics and tables needed in reports;
- e) review progress with the Castle Room LAN and make recommendations for its technical support and appropriate working procedures for its use by working groups and advisory committees.

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, IBSFC, NASCO and EC DGXIV.

SGFADS will report to ACFM at its October 1998 meeting.

The Chair of ACFM will attend at Council expense.

RM {ICES 4%, NEAFC 35%, IBSFC 7%, NASCO 8%, EC DGXIV 46%}

2:4:18 **A Study Group on Multiannual Assessment Procedures** [SGMAP] will be established (Chair: S. Iversen, Norway) and will meet in Vigo, Spain from 22–26 February 1999 to:

- a) investigate and propose appropriate simplified methodology and procedures which may be used to provide management advice (such as TACs) in years when a full assessment is not performed;
- b) provide software for the assessment tools proposed which are not currently available at ICES Headquarters;
- c) in order to test the proposed methodology, identify the stocks currently assessed by the WGSSDS and the WGMHSA which may be the subject of less frequent assessments while still providing adequate information for annual management advice;
- d) advise on a multi-annual assessment schedule for each stock and identify the methodology to be used.

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, IBSFC and EC DGXIV.

SGMAP will report to ACFM at its May 1999 meeting.

NM {ICES 50%, NEAFC 20%, IBSFC 4%, EC DGXIV 26%}

2:4:19 **A Study Group on Effects of Sandeel Fishing** [SGESF] will be established (Chair: Dr J. Rice, Canada) and will meet at ICES Headquarters on 11 May 1999 to:

- a) assess whether removal of sandeel by fishing has a measurable effect on sandeel predators such as sea birds, marine mammals and other fish species;
- b) assess whether establishment of closed areas and seasons for sandeel fisheries

could ameliorate any effects. Identify possible seasons/areas as specifically as possible.

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. These are subject to further clarification of the EC's requirements by the CGADV.

SGEFS will report to ACFM at its May 1999 meeting.

NA {EC DG XIV 100%}

2:4:20 **A Study Group on IIIa Herring** [SG3AH] will be established (Chair: Dr T. Gröhsler, Germany) and will meet in Charlottenlund, Denmark from 11–15 January 1999 to:

- a) review and update catch at age and mean weight at age data including information on proportions of North Sea autumn spawners and Western Baltic spring spawners for the period 1990–1997 and for all fishing fleets that catch herring in Division IIIa and Sub-division 22–24;
- b) review and update data including information on proportions of North Sea autumn spawners and Western Baltic spring spawners from acoustic surveys and bottom trawl surveys carried out in the eastern part of the North Sea, Division IIIa and in Sub-divisions 22–24 in the period 1990–1997;
- c) further improve the migration model of Western Baltic spring-spawning herring which can be used for understanding the results of an analytical assessment.

The above Terms of Reference are set up to provide ACFM with the information required to respond to requests for advice/information from IBSFC and EC DGXIV.

SG3AH will report to ACFM, HAWG and WGBFAS, and to the Living Resources Committee at the Annual Science Conference in 1999.

NA {IBSFC 50%, EC DG XIV 50%}

2:4:21 **A Study Group on Baltic Herring Maturity** [SGBHM] will be established (Chair: H. Müller, Germany) and will work by correspondence in 1999 to:

- a) compile the available data on Baltic herring maturity ogives on area 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 DGXIV.

SGBHM will report to ACFM, WGBFAS, and to the Baltic Committee at the Annual Science Conference in 1999.

NA {NEAFC 5%, IBSFC 80%, EC DGXIV 15%}

2:4:22 **A Study Group on Market Sampling Methodology** [SGMSM] will be established (Chair: M.A. Pastoors, Netherlands) and will work by correspondence in 1999 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.

The approval of the establishment of this Study Group is subject to the successful outcome of a funding proposal to the EC.

SGMSM will report to ACFM prior to its May 1999 meeting and to the Resource Management Committee who will parent the group.

NC

ADVISORY COMMITTEE ON THE MARINE ENVIRONMENT

2:5 **The Advisory Committee on the Marine Environment** [ACME] (Chair: S. Carlberg, Sweden) will meet:

A) at ICES Headquarters 31 May–5 June 1999 at Council expense to:

- i. respond to requests for advice from the Commissions, other regulatory agencies, and Member Countries;
- ii. identify issues of scientific concern that should be included in the ICES Five-Year Strategic Plan;
- iii. plan the autumn meeting of ACME for review of the OSPAR QSR 2000;
- iv. 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 84%, OSPAR 8%, HELCOM 8%}

B) for Consultations to be held at national expense on 28 September 1999 and at other times as required during the 1999 Annual Science Conference to:

- i. prepare Terms of Reference, dates and venues for meetings of groups reporting to ACME in year 2000;
- ii. conduct other business related to the functioning of ACME.

The Consultations will be open to ACME members and their alternates, Chairs of groups reporting to ACME or their designates, and other experts at the invitation of the Chair of ACME.

C) at ICES Headquarters 9–12 November 1999 at Council expense to 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.

NA {OSPAR 100%}

2:5:1 **The Working Group on Introductions and Transfers of Marine Organisms [WGITMO]** (Chair: Prof. J.T. Carlton, USA) will meet in Conwy, UK from 14–16 April 1999 to:

- a) review the value in promoting the establishment of reference collections of the alga *Caulerpa* based on specimens being moved through the aquarium trade;
- b) develop plans for a proposed Theme Session on 'Marine Biological Invasions: Retrospectives for the 20th Century, Prospectives for the 21st Century' to be convened for the ICES Annual Science Conference in Belgium in year 2000;
- c) continue work on a '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;
- d) discuss the rationale for listing as endangered or protected species, or under other actual or proposed conservation measures, non-native species in Member Countries;
- e) report on the current status of fish, shellfish, algal and other introductions in and between Member Countries, through:
 - i. submission of National Reports, to further newly included information on genetically modified organisms,
 - ii. standardization of a database questionnaire,
 - iii. review of the status of selected current invasions, as well as any biocontrol programmes that are under consideration,
 - iv. continued coordination with the Baltic Marine Biologists' Working Group on Non-Indigenous Estuarine and Marine Organisms (NEMO) and the EC Concerted Action Plan on ballast water,
 - v. review information on unprocessed and partially processed materials (e.g., fish, algae) as a dispersal vector for invasive species (such as pests, parasites, and disease agents) and describe any potential impacts,

- vi. assemble a comprehensive list of major invasive marine and estuarine animal and plant taxa of Europe and Atlantic North America as a basis for interannual tracking through the National Reports.

WGITMO will report to ACME before its May/June 1999 meeting and to the Marine Habitat and Mariculture Committees at the 1999 Annual Science Conference.

RC

2:5:2 **The Working Group on Ecosystem Effects of Fishing Activities [WGECO]** (Chair: Dr J. Rice, Canada) will meet at ICES Headquarters from 16-25 August 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 'Baltic fish stocks, diseases and ecosystem effects' for the HELCOM Fourth Periodic Assessment of the State of the Marine Environment of the Baltic Sea, 1994–1998 [HELCOM 1999/3];
- c) prepare a suitable format and framework to be transmitted to the Baltic Fisheries Assessment Working Group (WGBFAS), to assist WGBFAS in providing information on quantities of fish discards

and fish offal dumped into the Baltic Sea, on as fine a spatial scale as possible [HELCOM 1999/5];

- d) 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 1999/5];
- e) 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];
- f) begin consideration of the development of integrated management objectives as a basis for an ecosystem approach to management, integrating fisheries and environmental aspects.

Some of the above Terms of Reference are set up to provide ACME with the information required to respond to requests for advice/information from the Helsinki Commission and the European Commission.

WGECO will report to ACFM and ACME prior to their meetings in May/June 1999 and to the Marine Habitat, Living Resources, and Resource Management Committees at the 1999 Annual Science Conference.

RM{ICES, HELCOM, EC}

The relative proportion of costs attributed to each organisation will depend on the outcome of negotiations between CGADV and the EC concerning the full scope and time frame for response and Term of Reference e).

2:5:3 The **ICES/IOC/IMO Study Group on Ballast Water and Sediments** [SGBWS] (Chair: Prof. J.T. Carlton, USA) will meet in Conwy, Wales, UK from 12-13 April 1999 to:

- a) 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;

- b) continue the evaluation of the development of ballast water control technologies;
- c) 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.

SGBWS will report to ACME before its June 1999 meeting and to the Marine Habitat Committee at the 1999 Annual Science Conference.

RC

2:5:4 The **ICES/HELCOM Steering Group on Quality Assurance of Biological Measurements in the Baltic Sea** [SQAB] (Chair: Dr L. Hernroth, Sweden) will meet at ICES Headquarters from 15-17 February 1999 to:

- a) review the new reporting formats for biological data during a full-day session together with SGQAE [HELCOM 1998/4];
- b) review the outcome of the training course on phytoplankton in 1998;
- c) review the QA progress within the different expert groups in relation to parts B and C of the HELCOM COMBINE Manual [HELCOM 1999/2];
- d) provide information on the possibility to store chlorophyll extracts for periods longer than those mentioned in the COMBINE Manual [HELCOM 1999/2].

The above Terms of Reference are set up to provide ACME with the information required to respond to requests for advice/information from the Helsinki Commission.

SGQAB will report to ACME before its May/June 1999 meeting, and to the Baltic, Marine Habitat, and Oceanography Committees at the 1999 Annual Science

Conference. It will also report to MCWG concerning Term of Reference d).

RA {HELCOM 100%}

2:5:5 The ICES/HELCOM Steering Group on Quality Assurance of Chemical Measurements in the Baltic Sea [SGQAC] (Chair: Dr M. Krysell, Sweden) will meet at ICES Headquarters from 8–11 February 1999 to:

- a) finalise the draft technical notes on quality assurance aspects in the determination of organochlorine compounds in sea water [HELCOM 1998/2];
- b) finalise the draft technical notes on quality assurance aspects in the determination of PAH compounds in sea water and biota [HELCOM 1998/2];
- c) review and finalise, if appropriate, the draft technical notes on measurement uncertainty in chemical analysis, for possible inclusion in the QA Guidelines;
- d) review, with the aim of finalizing, a draft technical note on standard hydrographical parameters;
- e) evaluate the responses to the questionnaire on laboratory performance and compile them into a report;
- f) provide information about certified reference materials for salinity and pH measurements.

The above Terms of Reference are set up to provide ACME with the information required to respond to requests for advice/information from the Helsinki Commission.

SGQAC will report to ACME before its May/June 1999 meeting and to the Baltic, Marine Habitat, and Oceanography Committees at the 1999 Annual Science Conference. It will also report to MCWG.

RA {HELCOM 100%}

2:5:6 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 16–19 February 1999 to:

- a) review the guidelines for development of a QA programme in the Baltic area produced by SGQAB, evaluate their suitability for application to the OSPAR area, and make appropriate recommendations [OSPAR 1999/2.1];
- b) 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 forums;
- c) advise on approaches to the development of quality assurance manuals;
- d) harmonise QA approaches in the OSPAR and HELCOM areas through joint activities with SGQAB;
- e) review the draft biological reporting format produced by the ICES Environmental Data Centre [OSPAR 1998];
- f) review progress in the application of JAMP guidelines and associated QA activities, especially the outcome of workshops and intercomparison exercises, within OSPAR member countries;
- g) further evaluate criteria for judging the acceptability of biological data in international monitoring programmes;
- h) review progress in the preparation of appropriate taxonomic lists, especially for phytoplankton, taking into account the report of SGPHYT.

The above Terms of Reference are set up to provide ACME with the information required to respond to requests for advice/information from the OSPAR Commission.

SGQAE will report to ACME before its May/June 1999 meeting, and to the Marine Habitat and Oceanography Committees at the 1999 Annual Science Conference. It will also report to WGPE.

RA {OSPAR 100%}

2:5:7 The Second ICES/HELCOM Workshop on Quality Assurance of Chemical Procedures for the Baltic Monitoring Programme [WKQAC] (Chair: Dr M. Krysell, Sweden) will meet in Helsinki, Finland from 20–23 October 1999 to:

- a) review experience in the use of the Guidelines on Quality Assurance of Chemical Measurements in the Baltic Sea;
- b) exchange views on and experience in the implementation of a quality assurance system and on accreditation for monitoring laboratories;
- c) exchange information about internal and external quality control.

The above Terms of Reference are set up to provide ACME with the information required to respond to requests for advice/information from the Helsinki Commission.

WKQAC will report to ACME before its June 2000 meeting and to the Marine Habitat, Oceanography and Baltic Committees at the 1999 Annual Science Conference.

RA {HELCOM 100%}

2:5:8 The ICES/HELCOM Workshop on Baltic Sea Sediments: Conditions and

Contaminants [WKBSED] (Co-Chairs: Prof. M. Perttilä and Dr B. Winterhalter, Finland) will be held in Helsinki, Finland from 14-16 April 1999 to:

- a) carry out an overall review of the results of the Baseline Study of Contaminants in Baltic Sea Sediments;
- b) review the results of other relevant studies of Baltic sediments, particularly in relation to contaminant distribution and processes;
- c) prepare a multidisciplinary evaluation of these results and their implications for future monitoring of contaminants in Baltic sediments [HELCOM 1999/4].

The above Terms of Reference are set up to provide ACME with the information required to respond to requests for advice/information from the Helsinki Commission.

The Workshop will report to ACME before its May/June 1999 meeting and to the Marine Habitat and Baltic Committees at the 1999 Annual Science Conference.

NA {HELCOM 100%}

FISHERIES TECHNOLOGY COMMITTEE (B)

2:6 The Working Group on Fishing Technology and Fish Behaviour [WGFTFB] (Chair: Dr A. Engås, Norway) will meet in St. John's, Newfoundland, Canada from 19-22 April 1999 to:

- a) consider technical modifications to fishing gears and fishing operations to reduce their undesirable immediate and long-term physical and biological impacts, including ghost fishing by lost gear;
- b) review and consider recently developed methodologies to study physical impacts on benthos and benthic substrates;
- c) review recent research on fish behaviour, evaluate implications for assessment surveys and assess possibilities for quantitative modelling;

- d) review the mesh measurement procedure for the ICES gauge.

WGFTFB will report to the Fisheries Technology Committee at the 1999 Annual Science Conference.

RC

2:7 The Working Group on Fisheries Acoustics Science and Technology [WGFAST] (Chair: Dr F. Gerlotto, France) will meet in St John's, Newfoundland, Canada from 20-22 April 1999 to:

- a) review methods for estimating mean target strength in relation to spatial density statistics of scatterers;
- b) report on the impact of fish avoidance on the results of fisheries acoustics, particularly:

- i. the effect on target strength (TS),
- ii. the effect on biomass estimation,
- iii. the effect on species identification;

c) review the development of acoustic methods and tools for *in situ* observations of fish behaviour;

d) review the application of acoustic techniques to bottom trawl surveys;

e) select a format for exchanging data and software.

WGFAST will report to the Fisheries Technology Committee at the 1999 Annual Science Conference.

RC

2:8 A Joint Session of the **Working Group on Fishing Technology and Fish Behaviour** [WGFTFB] and the **Working Group on Fisheries Acoustics Science and Technology** [WGFAST] (Chair: Dr J. Massé, France) will be held in St John's, Newfoundland, Canada on 23 April 1999 to:

- a) review the problems encountered in fish stock surveys related to fish behaviour;
- b) consider the possibility for a single approach by WGFAST and WGFTFB to behavioural studies;

- c) draft Terms of Reference for a study group on the impact of fish behaviour on sampling in fish stock surveys.

The Joint Session will report to the Fisheries Technology Committee at the 1999 Annual Science Conference.

RC

2:9

A Study Group on Methods for Measuring the Selectivity of Static Gear [SGMMG] will be established (Chair: A. Carr, USA) and will meet in St John's, Newfoundland, Canada from 17-18 April 1999 to:

- a) write a manual of methods for measuring the selectivity of static gear;
- b) review selectivity studies on fish traps, fyke nets and pots to determine whether the information available on techniques for studying the selectivity of these gears is sufficient to warrant inclusion in the methods manual.

SGMMG will report to the Fisheries Technology Committee at the 1999 Annual Science Conference.

NC

OCEANOGRAPHY COMMITTEE

2:10 The **Working Group on Seabird Ecology** [WGSE] (Chair: M. Tasker, UK) will meet at ICES Headquarters from 22-26 March 1999 to:

- a) assess food consumption by seabirds in the ICES area, focusing primarily on areas other than the North Sea;
- b) review the data available for describing interannual to interdecadal variation in seabird distribution at sea, in connection to both their reproductive performance and winter survival, and in relation to variation in diet;
- c) review contents of the database of seabird diet composition;

- d) compare seabird community structure in the eastern and western Atlantic, in relation to differences in fish stocks and fisheries practices of these regions;

- e) review the usefulness of seabirds as monitors of pollutants in marine ecosystems;

- f) propose tactics, activities, and products in support of the Oceanography Committee's Five-Year Plan Objectives.

WGSE will report to ACME before its May/June 1999 meeting, and to the Oceanography and Marine Habitat Committees at the 1999 Annual Science Conference.

RC

2:11 **The Working Group on Phytoplankton Ecology [WGPE]** (Chair: Dr D. Mills, UK) will meet in Lowestoft, UK from 13–17 April 1999 to:

- a) assess the state of the art on the use of fluorescence techniques for measuring phytoplankton production and growth;
- b) review knowledge on the growth of phytoplankton;
- c) finalise the discussion on a standard chlorophyll *a* technique for use within ICES programmes, and prepare a report for ACME, in collaboration with MCWG, on the quality assurance of chlorophyll *a*;
- d) develop a proposal for a mesocosm experiment;
- e) review the work of SGPHYT;
- f) prepare the case for a joint meeting with WGZE;
- g) propose tactics, activities and products in support of the Oceanography Committee's Five-year Plan Objectives;
- h) consider the case for establishing a database on phytoplankton, and assess resource implications;
- i) compile a small data set of phytoplankton data, including relevant documentation, for analysis by WGSAM;
- j) revise the report prepared for ACME in 1998 on the effects of anthropogenic nutrient inputs on the phytoplankton community;
- k) take note of the reports of SGQAB and SGQAE.

WGPE will report to ACME before its May/June 1999 meeting, and to the Oceanography Committee at the 1999 Annual Science Conference.

RC

2:12 **The Working Group on Zooplankton Ecology [WGZE]** (Chair: Dr R. Harris, UK)

will meet in Reykjavik, Iceland from 19–21 April 1999 to:

- a) continue the review of the results of, and plans for publication of, the 1993 Sea-Going Workshop;
- b) report on the final aspects of publication of the Zooplankton Methodology Manual;
- c) report on the status of zooplankton stocks in the ICES area, and consider plans for a coordinated zooplankton monitoring programme based on national programmes as a contribution to a North Atlantic regional GOOS;
- d) consider the development and application of environmental indices involving zooplankton populations, and the standardisation of products from zooplankton monitoring data;
- e) consider plans for trans-Atlantic coordinated research activities in the context of GLOBEC;
- f) review an inventory, compiled inter-sessionally, of zooplankton taxonomists for the major taxa and prepare plans for a workshop on zooplankton taxonomy;
- g) prepare the case for a joint meeting with the WGPE;
- h) propose tactics, activities and products in support of the Oceanography Committee's Five-Year Plan Objectives.

WGZE will report to ACME before its May/June 1999 meeting, and to the Oceanography Committee at the 1999 Annual Science Conference.

RC

2:13 **The ICES/IOC Working Group on Harmful Algal Bloom Dynamics [WGABD]** (Chair: Dr P. Gentien, France) will meet in Jena, Germany from 16–20 March 1999 to:

- a) collate and assess National Reports and update the mapping of HABs;
- b) review the work of the *ad hoc* group set up to establish the ICES/IOC Harmful Algal Bloom Event Database (HAEDAT);

- c) complete preparation of a review document on the population scenarios for the different harmful algae species;
- d) continue the examination of the population dynamics and assess the role of harmful benthic microalgae in benthic and pelagic food web;
- e) identify and summarise existing knowledge on sources of "founding" populations for HABs such as over-wintering of vegetative cells, cyst germination, hydrographic transfer, transfer through biological or human activities;
- f) examine, with the help of invited experts and in collaboration with WGSSO, recent developments and inherent assumptions in physical coastal modelling;
- g) report and discuss new findings;
- h) prepare a final statement on the outcome of the 1996 ICES Workshop on "*in situ* Growth Rate Measurements for Dinoflagellates" (C.Res. 1995/2:55);
- i) propose tactics, activities, and products in support of the Oceanography Committee's Five-Year Plan Objectives.

WGHABD will report to ACME before its May/June 1999 meeting and to the Oceanography Committee at the 1999 Annual Science Conference.

RC

2:14 The **Working Group on Shelf Seas Oceanography** [WGSSO] (Chair: B. Sjöberg, Sweden) will meet in Hamburg, Germany from 15–17 March 1999 to:

- a) commence the synthesis of available time series related to the Skagerrak ecosystem variability;
- b) prepare input to the Fourth Backward Facing Workshop;
- c) summarise and review the outcome of the Theme Session on Skill Assessment of Environmental Modelling;
- d) continue the evaluation of the effectiveness in environmental monitoring programmes (with focus on the North Sea) in determining trends against the background

of natural space and time fluctuations, and the possible support from models;

- e) review the current and future applications of remote sensing in shelf sea studies;
- f) review the progress of the North Sea drifter experiment and agree a protocol for evaluating model performances;
- g) examine the effects on the coastal zone of regulating freshwater runoff (with focus on the Baltic Sea) and the effects of long-term shifts in runoff patterns;
- h) improve estimates of transit times along the Scottish west coast and around the North Sea;
- i) extend the sensitivity studies of open boundary conditions on model performance;
- j) propose tactics, activities and products in support of the Oceanography Committee's Five-Year Plan Objectives.

WGSSO will report to ACME before its May/June 1999 meeting and to the Oceanography Committee at the 1999 Annual Science Conference.

RC

2:15 The **Working Group on Oceanic Hydrography** [WGOH] (Chair: Dr S. Narayanan, Canada) will meet in Murmansk, Russia from 13–15 April 1999 to:

- a) update and review results from Standard Sections and Stations;
- b) consider the format and content of the Fact Sheet and annual climate summaries, and compile relevant information for 1998;
- 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) review recent research on shelf-edge, slope and eastern boundary currents;
- e) review the progress in the installation of vessel-mounted ADCP surveys on ships-of-opportunity;

- f) review present status of the operational use of new oceanographic equipment;
- g) review progress in the planning of the Second Decadal Symposium (C.Res. 1997/2.2);
- h) appraise the current and future role of the ICES Oceanographic Data Centre;
- i) assess developments in GOOS of relevance to ICES in the wake of the GOOS Agreements meeting, taking into account the work of SGGOS;
- j) propose tactics, activities and products in support of the Oceanography Committee's Five-Year Plan Objectives.

WGOH will report to ACME before its May/June 1999 meeting and to the Oceanography Committee at the 1999 Annual Science Conference.

RC

2:16 The **ICES/GLOBEC Working Group on Cod and Climate Change** [WGCCC] (Chair: Dr K. Drinkwater, Canada) will work by correspondence in 1999 to:

- a) continue the review and evaluation of work carried out to date on Cod and Climate Change in order to develop and support further work on:
 - i. methods for applying environmental data in stock assessments, using specific examples where possible and developing a dialogue with WGCOMP, WGZE, and WGSSO on the kind of data required,
 - ii. methods for longer term stock prediction, which make use of results from the 1997 ICES/GLOBEC Workshop on Prediction and Decadal-Scale Ocean Climate Fluctuations of the North Atlantic,
 - iii. application of new information on biological processes and coupled physical/biological models from recent ICES Symposia, Theme Sessions and regional and national GLOBEC programmes;
- b) prepare for a proposed Workshop on the Dynamics of Growth in Cod;

- c) plan and initiate intercomparisons among cod stocks and the synthesis of work to date on Cod and Climate Change;

- d) propose activities, tactics and products in support of the Oceanography Committee's Five-Year Plan Objectives.

WGCCC will report to the Oceanography Committee at the 1999 Annual Science Conference.

RC

2:17 The **ICES/GLOBEC North Atlantic Regional Coordination Group** [RCG] (Chair: Dr M. Reeve, USA) will work by correspondence in 1999 to:

- a) integrate country activities into a coordinated GLOBEC implementation plan and continuing oversight of the implementation phase;
- b) provide scientific direction for liaison with other regional bodies (e.g., PICES) and global organisations (IOC, SCOR, IGBP) and nominate representatives to those bodies as appropriate;
- c) identify the need for subsidiary groups to provide expert advice if and where necessary, but always first seeking to enlist the help of existing ICES Committees and Study/Working Groups by providing them with specific terms of reference as appropriate;
- d) identify and direct the Project Office to implement appropriate ways to engage the widest possible involvement in scientific development and communication through workshops, the ICES Annual Science Conference, and special sessions at other scientific meetings.

RCG will report to the Oceanography Committee at the 1999 Annual Science Conference.

RC

2:18 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 1999 and meet as appropriate at the expense of the Regional Office to:

- a) provide oversight and direction of the ICES/GLOBEC Regional Office;
- b) report to the Bureau at its 1999 Mid-Term Meeting and at the 1999 Annual Science Conference.

The Group will comprise the General Secretary, the GLOBEC Coordinator, and a representative from each of the fund-holder countries.

RC

2:19 **The Working Group on Marine Data Management [WGMDM]** (Chair: R. Gelfeld, USA) will meet in Ottawa, Ontario, Canada from 3–6 May 1999 to:

- a) assess the last five years' oceanographic data (1994–1998) sent to ICES by each Member Country, identify problems and suggest solutions;
- b) review progress in the implementation of IOC's Global Oceanographic Data Archaeology and Rescue (GODAR) Project in each Member Country, including consideration of biological oceanographic data types;
- c) quantitatively analyse the minimum requirements for quality assurance of oceanographic data;
- d) develop guidelines for the quality assurance and data management of nutrient, oxygen and chlorophyll data in cooperation with MCWG;
- e) report on the development of World Wide Web pages and links between them within Member Countries;
- f) investigate and evaluate the data dictionaries available to the marine science community, including an analysis of the parameter code list used for the IOC Cruise Summary Report, and produce an improved and updated set of codes;
- g) propose tactics, activities and products in support of the Oceanography Committee's Five-Year Plan Objectives.

WGMDM will report to ACME before its May/June 1999 meeting, and to the Oceanography Committee at the 1999 Annual Science Conference.

RC

2:20 **A Study Group on an ICES/IOC Checklist of Phytoplankton [SGPHYT]** will be established (Chair: Dr O. Moestrup, Denmark) and will meet at ICES Headquarters from 11–13 January 1999 to:

- a) commence compilation of an ICES phytoplankton checklist, including synonyms, authors, distribution and, if available, ecophysiological information – this checklist should be based on available local checklists for different ICES regions;
- b) discuss the relevance of a complete ICES checklist or the propagation of regional checklists.

The General Secretary will invite IOC to co-sponsor the Study Group.

SGPHYT will report to SGQAE in February 1999, to ACME before its May/June 1999 meeting, and to the Oceanography Committee at the 1999 Annual Science Conference.

NC

2:21 **The Steering Group on the Global Ocean Observing System [SGGOOS]** (Chair: Dr R. Sætre, Norway) will work by correspondence in 1999 to:

- a) carry out the tasks of the action plan developed by the Steering Group in 1998 (Doc. ICES C.M. 1998/C:12);
- b) advise and support the Secretariat on GOOS-related matters;
- c) act on any advice from ACME and ACFM concerning the ICES role in GOOS;
- d) prepare and distribute information on GOOS to encourage the broader participation of the Working Groups of the Living Resources and the Marine Habitat Committee.

2:22 **A Workshop on Gadoid Stocks in the North Sea during the 1960s and 1970s, the Fourth ICES/GLOBEC Backward-Facing Workshop [WK6070]** (Co-Chairs: Dr M. Heath, UK, Dr J. Alheit, Germany, and Dr M. St John, Denmark) will be held in Aberdeen, UK from 11–13 March 1999 to:

- a) identify and contrast the components of the physical environment (atmospheric and

oceanic) which may have contributed to observed high gadoid recruitment in the North Sea and adjacent sea areas during the 1960s and the 1970s;

b) determine the processes which may have governed high gadoid recruitment, in particular.

i) variations in transport,

ii) match/mismatch in the occurrence of larvae and their prey,

iii) growth and condition of larvae, juveniles and adults,

iv) predation on early life history stages,

v) variations in optimal environments,

vi) contributions from several stock components;

c) synthesise information on factors influencing gadoid recruitment in the Northwest Atlantic based on information presented at BF-3.

The Workshop will report to WGCCC, to ACFM at its May 1999 meeting, and to the Oceanography, Resource Management, the Living Resource Committees at the 1999 Annual Science Conference.

RC

2:23 **A Workshop on GOOS [WKGOS]** (Co-Chairs: Dr R. Sætre, Norway, Prof. C. Mooers, USA, and Dr H. Dahlin, Sweden) will be held in Bergen, Norway from 22–24 March 1999 to:

a) identify existing ocean observing activities within the ICES area that are relevant to GOOS;

b) investigate how observations already being made routinely, could be combined and enhanced and incorporated within a common plan;

c) propose a possible design for an ICES regional GOOS component;

d) develop a draft implementation plan for ICES-GOOS;

e) advise the Bureau on the policy role of ICES.

The Workshop will report to the 1999 mid-term meeting of the Bureau and to ACFM and ACME, and will also report to the Oceanography Committee at the 1999 Annual Science Conference.

The General Secretary will invite IOC to co-sponsor the Workshop.

RESOURCE MANAGEMENT COMMITTEE (D)

2:24 **The Comprehensive Fishery Evaluation Working Group [WGCOMP]** (Chair: Dr G. Stefánsson, Iceland) will meet in Miami, Florida, USA from 14–21 January 1999 to:

a) continue the development of tools for the comprehensive evaluation of fisheries, including those taking a mixture of stocks and species;

b) suggest and evaluate methods for medium-term projections which take into account harvest control rules, including methods capable of addressing fisheries that take a mixture of stocks and species;

c) suggest and evaluate harvest control rules to be applied for stocks which are harvested in mixed fisheries;

d) continue the comprehensive evaluation of the following fisheries:

- i. North Sea flatfish,
- ii. Norwegian spring-spawning herring,
- iii. North Sea herring,
- iv. Icelandic haddock,
- v. Southern Gulf of St. Lawrence cod,
- vi. Barents Sea cod;

e) review the work of the MAWG on the relevance of species interactions to precautionary approaches to fisheries

management and rebuilding, and where appropriate carry that work further;

- f) consider the implications of a precautionary approach and harvest control rules in relation to mixed fisheries and technical interactions;
- g) compare and evaluate methods for estimating the abundance of the oldest age group of "non terminal year" year-classes;
- h) compare and evaluate the merits of alternative procedures for bias correction of management quantity estimates.

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, IBSFC and EC DGXIV.

WGCOMP will report to ACFM before its May 1999 meeting, and to the Resource Management Committee at the 1999 Annual Science Conference.

RM {ICES 20%, NEAFC 20%, IBSFC 10%, EC DG XIV 50%}

2:25 **The International Bottom Trawl Survey Working Group [IBTSWG]** (Chair: A. Newton, UK) will meet in Lisbon, Portugal from 7–10 April 1999 to:

- a) consider further coordination and standardisation of quarter 4 bottom trawl surveys in Sub-areas VI, VII and VIII, and Division IXa;
- b) propose a depth and area/latitude stratified station grid;
- c) describe specific modifications of the IBTS exchange format, to include data from western and southern surveys;
- d) modify the Manual for the IBTS to include specifications for the western and southern surveys;
- e) evaluate the progress made in establishing a common database as specified at the last meeting of IBTSWG;
- f) consider the implications of the results of the Study Group on the Evaluation of the Quarterly IBTS Surveys for the North Sea area;

- g) consider the standard index calculations and the implication of changes in assessment units for the species-specific standard areas used.

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.

IBTSWG will report to ACFM before its May 1999 meeting and to the Resource Management and Living Resources Committees at the 1999 Annual Science Conference.

RM {ICES 10%, NEAFC 22%, EC DGXIV 68%}

2:26 **The Planning Group on Surveys on Pelagic Fish in the Norwegian Sea [PGSPFN]** (Chair: Dr J.C. Holst, Norway) will meet in Hamburg, Germany from 17–19 August 1999 to:

- a) describe the migration pattern of the Norwegian spring-spawning herring stock in 1999;
- b) analyse survey data, evaluate the survey transects carried out in 1999, and consider whether changes could be made to further optimise these with regard to the herring migration and the herring–environment interactions;
- c) investigate further the quality of the acoustic estimate;
- d) plan and coordinate the national surveys on the pelagic resources and the environment in the Norwegian Sea in year 2000;
- e) plan two coordinated surveys on Norwegian spring-spawning herring in May–June 2000.

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, the Resource Management Committee at the 1999 Annual Science Conference, and to ACFM before its October/November 1999 meeting.

RA {NEAFC 75%, EC DG XIV 25%}

2:27 **A Study Group to Evaluate the Effects of Multispecies Interactions** [SGEEMI] will be established (Chair: Dr N. Daan, Netherlands) and will meet from 7–11 September 1999 in Lowestoft, UK to:

- a) review progress, and continue the development of, existing multispecies models to incorporate additional components (such as growth and spatial structure), and develop new models as appropriate, to provide a basis for long-term advice for fisheries;
- b) identify the field work required to support the models;
- c) evaluate biological reference points in a multispecies context for the long-term management of fishing in relation to potential changes in fishing mortality and selection pattern, in particular, for the North Sea.

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 1999 Annual Science Conference and communicate results to WGECO and to ACFM before its October/November 1999 meeting.

NM {ICES 20%, NEAFC 40%, EC DGXIV 40%}

2:28 **The Study Group on the Management Performance of Fisheries Systems** [SGMPFS] (Chair: Dr D. Lane, Canada) will work by correspondence in 1999 to:

- a) propose tactics, activities and products which will assist the Resource Management Committee in establishing a framework for evaluation of management regimes and alternate management strategies;

- b) continue to compile case studies on modelling and analysis of overall fishery systems.

SGMPFS will report to the Resource Management Committee at the 1999 Annual Science Conference.

RC

2:29 **A Workshop on the Evaluation of the Plaice Box** [WKEPB] will be established (Chair: Dr A. Rijnsdorp, Netherlands) and will meet in IJmuiden, Netherlands from 22–25 June 1999 to:

- a) evaluate the effectiveness of the plaice box as a technical measure to improve the exploitation pattern of North Sea flatfish stocks;
- b) compile detailed spatial and temporal data on international fishing effort and discards in the North Sea;
- c) evaluate changes in growth and distribution of juvenile fish that may have affected the discard mortality rate.

WKEPB will report to the Resource Management Committee at the 1999 Annual Science Conference.

NC

MARINE HABITAT COMMITTEE (E)

2:30 **The Benthos Ecology Working Group** [BEWG] (Chair: Dr K. Essink, Netherlands) will meet in Kristineberg, Sweden from 28 April to 1 May 1999 to:

- a) finalise the details of the North Sea Benthos project;

- b) report on further developments in computer aids in benthic studies (taxonomic and operational);

- c) debate the merits of different (new) sampling approaches to benthos studies and new sampling devices, with the aim of upgrading existing guidelines;

d) provide guidance to ACME on Quality Assurance procedures for benthos studies through:

- i. a review of standard operating procedures (SOPs) currently in use in Member Countries,
 - ii. further review of case studies aimed at evaluating the quality of benthos data,
 - iii. finalising an inventory of national guidelines for the conduct of benthos surveys operated in different countries (within and outside the OSPAR area);
- e) prepare guidelines for sampling and objective community description of epibiota (of soft sediments and hard bottom substrata), including QA matters;
- f) commence an analysis of the impact of the North Atlantic Oscillations (NAO) on long-term variations of benthic population parameters in different geographical locations in the ICES area;
- g) contribute to the ICES strategic planning process through assisting the Marine Habitat Committee in the following tasks:
- i. formulating tactics to achieve the six objectives adopted by the Committee,
 - ii. suggesting and/or developing activities and products to fulfil the objectives,
 - iii. estimating the resources required for each activity according to categories that will be supplied.

BEWG will report to ACME before its May/June 1999 meeting, and to the Marine Habitat and Oceanography Committees at the 1999 Annual Science Conference.

RC

2:31 **The Marine Chemistry Working Group [MCWG]** (Chair: Dr B. Pedersen, Denmark) will meet in Dublin, Ireland from 8–12 March 1999 to:

- a) review and endorse the updated list of contaminants which can be monitored on a routine basis;
- b) review a note on how to identify topics under 'New contaminants and their

relevance to the marine environment' and plan how this can be implemented;

- c) review information on contaminant concentrations in biological media (including seabird eggs) as environmental indicators and report on the outcome;
- d) review information on QA systems used in a laboratory involved in marine monitoring and report on the outcome;
- e) review progress on supplementary work to the Icelandic cod liver study;
- f) review and report on information on estuarine transport of trace metals;
- g) review a note on tributyltin in the marine environment, with a view to submitting it to ACME;
- h) review and report on progress of the joint study on PCBs in fish-eating mammals;
- i) review and report on progress in the collaborative work on tris(4-chlorophenyl) methanol (TCPM) and tris(4-chlorophenyl) methane (TCPMe);
- j) review the note on synthetic musk compounds in the marine environment, with a view to submitting it to ACME;
- k) review and report on information on modelling PCB bioaccumulation in the Seine estuary;
- l) review an updated paper on polybrominated diethylethers (PBDEs) and polybrominated biphenyls (PBBs), with a view to submitting it to ACME;
- m) collate and critically review available data on the two main analytical techniques to measure PAH metabolites with the aim of establishing how robust each technique is with respect to its application to general monitoring and site-specific monitoring, and develop a strategy to calibrate results obtained by both techniques, including the conduct of intercalibration exercises;
- n) review progress on the application of high temperature techniques for the determination of total nitrogen in sea water;

- o) review and report on information on strategies for monitoring inputs of nutrients to the coastal zone;
 - p) review information on the experience of the use of automated *in situ* chemical oceanographic systems for the observation of chemical variables;
 - q) review the report on particulate organic carbon (POC) in oxidising waters;
 - r) in consultation with the ICES Oceanographic Data Centre and WGMDM, develop guidelines for the use of appropriate concentration units for reporting data on nutrients and oxygen in sea water;
 - s) review preliminary guidelines concerning QA of nutrient, chlorophyll, and oxygen data (also including CTD measurements);
 - t) finalise the discussion on a standard chlorophyll *a* technique for use within ICES programmes, and prepare a report for ACME, in collaboration with WGPE on the quality assurance of chlorophyll *a*;
 - u) contribute to the ICES strategic planning process through assisting the Marine Habitat Committee in the following tasks:
 - i. formulating tactics to achieve the six objectives adopted by the Committee,
 - ii. suggesting and/or developing activities and products to fulfil the objectives,
 - iii. estimating the resources required for each activity according to categories that will be supplied;
 - v) take note of the report of SGQAC.
- MCWG will report to ACME before its May/June 1999 meeting, and to the Marine Habitat and Oceanography Committees at the 1999 Annual Science Conference.

RC

2:32 **The Working Group on Biological Effects of Contaminants** [WGBEC] (Chair: Dr P. Matthiessen, UK) will meet in The Hague, Netherlands from 12–16 April 1999 to:

- a) update the lists of recommended and promising biological effects monitoring techniques;
- b) assist the Secretariat in the development of formats to be used to report data arising from the OSPAR JAMP contaminant-specific or general biological effects monitoring activities [OSPAR 1999/3.1];
- c) evaluate the use of biomarkers and bioassays in the risk assessment of chemicals in effluents and receiving waters;
- d) review and report on new methods in molecular biology which could be applied to marine monitoring;
- e) consider possible expert systems for the evaluation of monitoring data (as developed by future joint meetings with WGSAM);
- f) review and report on the impacts of specific contaminants of concern, e.g., veterinary medicines used in fish farming, algal toxins;
- g) develop suites of biological monitoring methods for use in brackish water systems;
- h) review the outcome of the Workshop on Biological Effects Methods to be applied to detect 'Combined Effects' in Marine Ecosystems (with WGEAMS);
- i) contribute to the ICES strategic planning process through assisting the Marine Habitat Committee in the following tasks:
 - i. formulating tactics to achieve the six objectives adopted by the Committee,
 - ii. suggesting and/or developing activities and products to fulfil the objectives,
 - iii. estimating the resources required for each activity according to categories that will be supplied.

Some of the above Terms of Reference are set up to provide ACME with the information required to respond to requests for advice/information from the Commissions indicated below.

WGBEC will report to ACME before its May/June 1999 meeting, and to the Marine

Habitat Committee at the 1999 Annual Science Conference.

RM {88% ICES, 12% OSPAR}

2:33 The **Working Group on Environmental Assessment and Monitoring Strategies [WGEAMS]** (Chair: L. Føyn, Norway) will meet at ICES Headquarters from 1–5 March 1999 to:

- a) continue reviewing information collated intersessionally on procedures to assess the combined effects of exposure of organisms to groups of chemically similar, or dissimilar, contaminants; the information should include the report of the Workshop on Biological Effects Methods to be applied to detect 'Combined Effects' in Marine Ecosystems (with WGBEC);
- b) review developments in the relationships between ICES and the European Environment Agency and European Topic Centre on Marine and Coastal Water in Marine Environmental Monitoring and Assessment, and invite representatives of the EEA and UNEP to attend the meeting;
- c) consider how far the strategies adopted in the HELCOM COMBINE and OSPAR JAMP allow integrated environmental assessments to be made;
- d) review the importance of long time series data for the interpretation of monitoring data and the preparation of assessments, and report on the outcome;
- e) review the report from the 1998 meeting of the OSPAR *Ad Hoc* Working Group on Monitoring (MON98) and prepare comments on the implications of the MON98 exercise for temporal trends;
- f) report on new opportunities for the application of microbiological measurements in monitoring programmes;
- g) prepare a report on the relationships between changes in contaminant input functions and consequential environmental responses, taking into account, *inter alia*, the outcome of Theme Session V at the 1998 Annual Science Conference;
- h) contribute to the ICES strategic planning process through assisting the Marine Habitat Committee in the following tasks:

- i. formulating tactics to achieve the six objectives adopted by the Committee,
- ii. suggesting and/or developing activities and products to fulfil the objectives,
- iii. estimating the resources required for each activity according to categories that will be supplied.

WGEAMS will report to ACME before its May/June 1999 meeting and to the Marine Habitat Committee at the 1999 Annual Science Conference. It will also report to WGBEC concerning Term of Reference a).

Through the auspices of the General Secretary, representatives of the European Environment Agency and UNEP should be invited to attend the meeting.

RC

2:34 The **Working Group on the Effects of Extraction of Marine Sediments on the Marine Ecosystem [WGEXT]** (Chair: Dr J. Side, UK) will meet in Uppsala, Sweden from 20–24 April 1999 to:

- a) collect further information on the effects of extraction of marine sand and gravel on the Baltic ecosystem with a view to finalising the 1997 WGEXT assessment;
- b) review and report on studies and theoretical work regarding the effects of aggregate extraction on higher trophic levels, in particular, fishes and fisheries;
- c) review and report on the results of environmental research on the effects of turbidity caused by dredging or large-scale natural erosion, reviewing also studies of overflow processes, particularly on the measurement and modelling of suspended fines;
- d) review and report on developments in new technology for high resolution seabed characterisation such as micro- and macrotopography, complex sediment distribution, and process interpretation (essential for sustainable development of resources and the definition of habitats in the coastal zone);
- e) review and report on the status of marine sediment extraction in relation to 'use' categories, the development of seabed

resource mapping, and developments in the international and national legal and administrative frameworks and procedures;

- f) contribute to the ICES strategic planning process through assisting the Marine Habitat Committee in the following tasks:
 - i. formulating tactics to achieve the six objectives adopted by the Committee,
 - ii. suggesting and/or developing activities and products to fulfil the objectives,
 - iii. estimating the resources required for each activity according to categories that will be supplied.

WGEXT will report to ACME before its May/June 1999 meeting, and to the Marine Habitat Committee at the 1999 Annual Science Conference.

RC

2:35 **The Working Group on Marine Mammal Habitats [WGMMHA]** (Chair: Dr A. Bjørge, Norway) will meet at ICES Headquarters from 8–12 March 1999 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) develop detailed plans for research on cause-effect relationships between contaminants and population-level effects in three species of seals—close cooperation will be sought with parallel research on three species of odontocetes as proposed by the IWC Scientific Committee;
- c) review invited papers and other available documents on status, recent achievements, and new ideas for progress in techniques and methodology for life history studies, and define specific research projects and explore possibilities for their funding;
- d) develop a scientific basis to handle the standing request from HELCOM for a triennial review of the health status of and effects of contaminants on marine mammals in the Baltic Sea;
- e) review habitat-related transmission of parasites to marine mammals, including the

threat presented by parasites to marine mammal health and the role of marine mammals as vectors in the distribution of parasites;

- f) contribute to the ICES strategic planning process through assisting the Marine Habitat Committee in the following tasks:
 - i. formulating tactics to achieve the six objectives adopted by the Committee,
 - ii. suggesting and/or developing activities and products to fulfil the objectives,
 - iii. estimating the resources required for each activity according to categories that will be supplied.

WGMMHA will report to ACME before its May/June 1999 meeting, and to the Marine Habitat Committee at the 1999 Annual Science Conference.

RC

2:36 **The Working Group on Marine Sediments in Relation to Pollution [WGMS]** (Chair: Dr M. Kersten, Germany) will meet in Haren, Netherlands from 1–5 March 1999 to:

- a) review and revise Technical Annex 2 of the Sediment Guidelines (normalisation), taking into account the results of the EC QUASH project;
- b) complete the report on normalisation prepared intersessionally and make recommendations as appropriate;
- c) review existing information for estimating and validating contaminant fluxes and budgets for sediment-water systems;
- d) report on the impact of processes that post-depositionally enrich or deplete metals and organic contaminants in sediments;
- e) consider in greater detail information on acid-volatile sulphide (AVS) content and reactivity in sediments and its utility for sediment quality criteria;
- f) consider, in greater detail, recent information on the equilibrium partitioning of pollutants between sediment and water;
- g) review recent information for the OSPAR Convention area on the use of isotopes or

other markers for the tracing of contaminant sources;

- h) report on new information regarding relationships between contaminants in sediments and effects on benthic organisms in view of former and possible future JMSBEC meetings;
- i) contribute to the ICES strategic planning process through assisting the Marine Habitat Committee in the following tasks:
 - i. formulating tactics to achieve the six objectives adopted by the Committee,
 - ii. suggesting and/or developing activities and products to fulfil the objectives,
 - iii. estimating the resources required for each activity according to categories that will be supplied.

WGMS will report to ACME before its May/June 1999 meeting and to the Marine Habitat Committee at the 1999 Annual Science Conference.

RC

2:37 **The Working Group on Statistical Aspects of Environmental Monitoring [WGSAEM]** (Chair: Dr S. Uhlig, Germany) will meet in The Hague, Netherlands from 12–16 April 1999 to:

- a) continue the development of trend detection methods for input data in order to:
 - i. develop a method for controlling the overall significance level of compound trend detection methods, and assess the power of these methods for a range of scenarios of changes in inputs,
 - ii. develop provisions for the use of monthly data in the trend detection methods (taking into account information from the OSPAR INPUT Working Group),
 - iii. develop and assess statistical methods for dealing with data which are more complex than a series of independent, annual unadjusted loads. The methods should address adjustments to annual and monthly data for, *inter alia*, climatic effects [OSPAR 1998/4.1];

- b) review and report on results of investigations concerning the characteristics of sampling and analytical variability of biomarkers and biological endpoints, and hence the design of effective sampling schemes relative to specified objectives;
- c) review and report on the results of investigations concerning the development of appropriate management tools for integrating and interpreting biological effects;
- d) develop statistical methods for assessing and designing monitoring programmes;
- e) collect information that will permit the calculation of uncertainties in estimates of the loads and mass balances of nutrients in the Baltic Sea;
- f) advise on the number of replicate samples of sediments or biota needed to characterise an area;
- g) contribute to the ICES strategic planning process through assisting the Marine Habitat Committee in the following tasks:
 - i. formulating tactics to achieve the six objectives adopted by the Committee,
 - ii. suggesting and/or developing activities and products to fulfil the objectives,
 - iii. estimating the resources required for each activity according to categories that will be supplied;
- h) take note of the report of WGEAMS.

Some of the above Terms of Reference are set up to provide ACME with the information required to respond to requests for advice/information from the OSPAR Commission.

WGSAEM will report to ACME before its May/June 1999 meeting, and to the Marine Habitat Committee at the 1999 Annual Science Conference.

RM {60% ICES, 40% OSPAR}

2:38 A Joint Meeting of the **Working Group on Biological Effects of Contaminants [WGBEC]** and the **Working Group on Statistical Aspects of Environmental**

Monitoring [WGSAM] (Chair: R. Fryer, UK) will take place in The Hague, Netherlands from 8–10 April 1999 to:

- a) collate estimates of analytical and environmental sources of variability in biomarkers in fish;
- b) explore the types and magnitude of changes that can be detected given these levels of variability, particularly in relation to existing sampling guidelines;
- c) identify where b) indicates that existing ICES and other international guidelines should be modified;
- d) report on progress in identifying the size of change in chemical concentrations/burdens needed to produce a meaningful change in biomarkers in fish, and the size of change in biomarkers in fish needed to produce a meaningful change in biological endpoints;
- e) review and report on the development of statistical models of the relationships between PAH exposure, PAH-related biomarkers and liver neoplastic disease in fish;
- f) examine the potential use of expert systems in prognostic and diagnostic use in biological effects monitoring.

The joint meeting will report to ACME before its May/June 1999 meeting, and to the Marine Habitat Committee at the 1999 Annual Science Conference.

RC

2:39 **A Study Group on Marine Habitat Mapping** [SGMHM] will be established (Chair: E. Jagtman, Netherlands) and will meet in The Hague, Netherlands from 14–17 June 1999 to:

- a) explore whether a habitat classification for the ICES area can be achieved through cooperation with OSPAR IMPACT or another international group, or a particular ICES habitat classification system is required; emphasis will be placed on the following points:
 - i. whether the EUNIS/BIOMAR classification type under construction is adequate to the needs of ICES,

- ii. if it is useful, how it can be extended or tailored to the needs of ICES;

- b) propose how the contribution of ICES to developing a habitat classification system for the ICES area can be organised;
- c) review the usefulness of GIS systems in this work;
- d) prepare a plan of action to be decided upon by the Marine Habitat Committee at its 1999 meeting;
- e) contribute to the ICES strategic planning process through assisting the Marine Habitat Committee in the following tasks:
 - i. formulating tactics to achieve the six objectives adopted by the Committee,
 - ii. suggesting and/or developing activities and products to fulfill the objectives,
 - iii. estimating the resources required for each activity according to categories that will be supplied.

SGMHM will report to the Marine Habitat Committee at the 1999 Annual Science Conference.

NC

2:40 **A Study Group on Marine Biodiversity** [SGMB] will be established (Chair: Dr K. Richardson, Denmark) and will work by correspondence in 1999 to explore this new area of research within ICES in order to:

- a) identify the most important gaps in the knowledge of marine biodiversity on all levels (e.g., genetic, species, habitats/ecosystems);
- b) identify known and potential threats against biodiversity;
- c) identify consequences of disturbances and anticipate how they will impact ecosystem functioning;
- d) highlight the most important issues for ICES to address in the near future;
- e) establish links with relevant organisations and commissions to identify areas of cooperation;

f) contribute to the ICES strategic planning process by assisting the Marine Habitat and other relevant Committees in the following tasks:

- i. formulating tactics to achieve the objectives of relevant Committees,
- ii. suggesting and/or developing activities and products to fulfil the objectives,

iii. estimating the resources required for each activity according to categories that will be supplied.

SGMB will report to the Marine Habitat Committee at the 1999 Annual Science Conference.

NC

MARICULTURE COMMITTEE (F)

2:41 **The Working Group on the Application of Genetics in Fisheries and Mariculture [WGAGFM]** (Chair: Prof. J. Mork, Norway) will meet in Reykjavik, Iceland from 12–15 April 1999 to:

- a) continue the review of general population genetics topics in fisheries and mariculture, with emphasis on the utilisation of possibilities arising from the combination of qualitative and quantitative genetics;
- b) review the potential of molecular markers as tools in breeding programmes;
- c) review and discuss the status and future development of triploidy in aquaculture species;
- d) review and evaluate measures used for protecting marine genetic diversity;
- e) review the use of genetic tags in the study and management of wild stocks;
- f) review problems and potential remedies concerning determining the gender of fish;
- g) review patenting of technology as a potential problem in genetic research on marine species;
- h) review genetic tissue authentication for forensic purposes;
- i) review basic experimental design and statistical framework when using highly variable genetic markers in various species;
- j) prepare updated protocols of fishery and mariculture genetics research in ICES Member Countries, and identify scopes for enhanced international cooperation;

k) define the information required to be able to evaluate the genetic effects of releases of cultured fish for use by WGBAST, and prepare for how the resulting material can be handled in early 2000 as a contribution to a chapter on 'Baltic fish stocks, diseases and ecosystem effects' for the HELCOM Fourth Periodic Assessment of the State of the Marine Environment of the Baltic Sea, 1994–1998 [HELCOM 1999/3];

l) review all available genetic results to make conclusions about how the *Sebastes mentella* in the Irminger Sea and adjacent waters should be structured into stocks or populations in order to obtain an optimal biological management.

Some of the above Terms of Reference are set up to provide ACME with the information required to respond to requests for advice/information from the Helsinki Commission.

WGAGFM will report to ACME before its May/June 1999 meeting, and to the Mariculture Committee at the 1999 Annual Science Conference.

RM {92% ICES, 8% HELCOM}

2:42 **The Working Group on Environmental Interactions of Mariculture [WGEIM]** (Chair Dr I. Davies, UK) will meet in Montpellier, France from 15–19 March 1999 to:

- a) develop a programme of work related to the objectives of the Mariculture Committee, the Marine Habitat Committee, ACFM, and ACME;

- b) develop a plan to obtain information on the effects of mariculture activities in the Baltic Sea with the aim of producing material by April 2000 as a contribution to a chapter on 'Baltic fish stocks, diseases and ecosystem effects' for the HELCOM Fourth Periodic Assessment of the State of the Marine Environment of the Baltic Sea, 1994–1998 [HELCOM 1999/3];
- c) update the section on integrated coastal zone management from the 1998 WGEIM report in the light of the needs expressed by ACME.

Some of the above Terms of Reference are set up to provide ACME with the information required to respond to requests for advice/information from the Helsinki Commission.

The General Secretary will invite representatives of EIFAC to attend the meeting.

WGEIM will report to ACME before its meeting in May/June 1999 and to the Mariculture and Marine Habitat Committees at the 1999 Annual Science Conference.

RM {90% ICES, 10% HELCOM}

2:43 **The Working Group on Marine Fish Culture [WGMAFC]** (Chair: Dr B. Howell, UK) will meet in St. Andrews, New Brunswick, Canada from 14–16 June 1999 to:

- a) report on the current status of marine fish cultivation in Member Countries and on the factors which are likely to constrain the 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) select and prepare proposed Theme Sessions for the 2000 Annual Science Conference on 'Diversification of Aquaculture Production' and 'Long-Term Effects of Cultivation of Juveniles'.

WGMAFC will report to the Mariculture Committee at the 1999 Annual Science Conference.

RC

2:44 **The Working Group on Pathology and Diseases of Marine Organisms [WGPDMO]** (Chair: S. Møllergaard, Denmark) will meet in Oporto, Portugal from 2–6 March 1999 to:

- a) analyse national reports on new disease trends in wild and cultured fish, crustaceans and molluscs;
- b) assess the progress in data submissions to the ICES Fish Disease Databank;
- c) provide an overview report of data available in ICES Databanks which may be used for a holistic analysis in relation to disease data;
- d) compile and review available information on suitable shellfish species and diseases for which it may be appropriate to submit data to ICES, and on available data in Member Countries;
- e) maintain an overview of new information on *Ichthyophonus hoferi* and report to ACFM and ACME;
- f) maintain an overview of new information on M-74 and report to ACME and ACFM;
- g) review new information on the spread, diagnosis and control of nodavirus to further advise on possible control measures;
- h) compile and review available information on the impact of marine biotoxins produced by dinoflagellates and algae on fish populations to provide a basis for evaluation of the significance and dynamics, and for future research;

- i) clarify the host specificity and pathogenicity of herpes-like viral infections in mollusc hatcheries, *Marteilia* sp. from *Crassostrea gigas* and the *Haplosporidium*-like parasite in *Ostrea edulis*;
- j) assess the disease risks for wild and cultured crustaceans from known pathogens of penaeids;
- k) review available information on the use of parasites of marine fish species as indicator organisms for environmental changes;
- 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) review progress in the development and implementation of a quality assurance programme for fish liver histopathological diagnosis;

- n) update information prepared for the HELCOM Third Periodic Assessment concerning diseases and parasites of Baltic fish with the aim of producing material by April 2000 as a contribution to a chapter on 'Baltic fish stocks, diseases and ecosystem effects' for the HELCOM Fourth Periodic Assessment of the State of the Marine Environment of the Baltic Sea, 1994–1998 [HELCOM 1999/3].

Some of the above Terms of Reference are set up to provide ACME with the information required to respond to requests for advice/information from the Helsinki Commission.

Through the auspices of the General Secretary, representatives of EIFAC should be invited to attend the meeting.

WGPDMO will report to ACFM and ACME before their May/June 1999 meetings and to the Mariculture, and Marine Habitat Committees at the 1999 Annual Science Conference.

RM

LIVING RESOURCES COMMITTEE (G)

2:45 **The Working Group on Marine Mammal Population Dynamics and Trophic Interactions** [WGMMPD] (Chair: Dr G.T. Waring, USA) will meet at ICES Headquarters from 12–15 March 1999 to:

- a) complete Tables 2 and 3 (in Doc. ICES C.M. 1998/G:6) on cetacean prey for ICES/NAFO areas, which will provide a broad-scale summary of preferred prey;
- b) continue the review of seasonal/spatial distribution and abundance data for several focal species (harbour porpoise, bottlenose dolphin, beluga whale (three IWC candidate species), grey seals and harbour seals and their prey;
- c) review data on prey size and compare these to size frequency in commercial catches and/or fisheries survey data;
- d) review infestation levels and transmission rates of cod worm, relative to grey seal population growth and expansion in the east and west Atlantic;

- e) review and evaluate information on potential ecological effects of fishing on marine mammal trophic interactions;
- f) obtain peer review of the Working Group report by a member of the Living Resources Committee prior to the 1999 Annual Science Conference;
- g) comment on the draft objectives and activities in the Living Resources Committee component of the ICES Five-Year Strategic Plan, and specify how the purpose of the Working Group contributes to it.

WGMMPD will report to ACFM and ACME before their meetings in May/June 1999 and to the Living Resources, and Marine Habitat Committees at the 1999 Annual Science Conference.

RC

2:46 **The Stock Identification Methods Working Group [SIMWG]** (Co-Chairmen: Dr K.D. Friedland and Dr J. Waldman, USA) will work by correspondence in 1999 to:

- a) continue development of the Stock Identification Methodology;
- b) advise on the need for future meetings of the Working Group, and prepare appropriate terms of reference if required;
- c) obtain peer-review of the Working Group report from a member of the Living Resources Committee prior to the 1999 Annual Science Conference;
- d) comment on the draft objectives and activities in the Living Resources Committee component of the ICES Five-Year Strategic Plan, and specify how the purpose of the Working Group contributes to it.

SIMWG will report on progress to the Living Resources Committee at the 1999 Annual Science Conference.

RC

2:47 **The Working Group on Crangon Fisheries and Life History [WGCRAN]** (Chair: Prof. A. Temming, Germany) will meet in Newcastle, UK from 4-6 September 1999 to:

- a) collate new assessment and by-catch data becoming available from the *Crangon* fisheries and from monitoring programmes;
- b) evaluate whether knowledge of the stock structure, biology and life history of *Crangon* can be used to assess the status of stocks, and if possible prepare terms of reference for an assessment of stocks in year 2000;
- c) investigate the causes of variability in shrimp stocks, and review the role of *Crangon* as both a predator and prey in the southern North Sea ecosystem;
- d) coordinate cooperative research on selectivity devices to reduce the by-catch in shrimp fisheries;
- e) obtain peer-review of the Working Group report from a member of the Living Resources Committee prior to the 1999 Annual Science Conference;

- f) comment on the draft objectives and activities in the Living Resources Committee component of the ICES Five-Year Strategic Plan, and specify how the purpose of the Working Group contributes to it.

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.

WGCRAN will report to ACFM at its May 1999 meeting, and to the Living Resources and the Fisheries Technology Committees at the 1999 Annual Science Conference.

RM {ICES 10%, EC DGXIV 90%}

2:48 **The Working Group on Cephalopod Fisheries and Life History [WGCEPH]** (Chair: Dr G. Pierce, UK) will meet in Heraklion, Greece from 25-27 March 1999 to:

- a) update currently available landing statistics;
- b) review the results of national and transnational projects collecting data on fished cephalopods, especially those studying migration and distribution patterns of juveniles and adults, and the factors affecting recruitment;
- c) continue the compilation of data, methods and results available for stock assessment of fished cephalopods, including information on stock identity, fishing effort and discards;
- d) develop a bibliographic database of cephalopod literature, including grey literature;
- e) obtain peer-review of the Working Group report from a member of the Living Resources Committee prior to the 1999 Annual Science Conference;
- f) comment on the draft objectives and activities in the Living Resources Committee component of the ICES Five-Year Strategic Plan, and specify how the purpose of the Working Group contributes to it.

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.

WGCEPH will report to the Living Resources Committee at the 1999 Annual Science Conference.

RM {ICES 30%, NEAFC 20%, EC DGXIV 50%}

2:49 **The Working Group on Mackerel and Horse Mackerel Egg Surveys [WGMEGS]** (Chair: J.H. Nichols, UK) will meet in Hamburg, Germany from 13–19 April 1999 to:

- a) analyse and evaluate the results of the 1998 mackerel and horse mackerel egg surveys of the western and southern areas, including the comparisons of egg staging;
- b) calculate the total seasonal stage I egg production estimates for mackerel and horse mackerel separately for the western and southern areas;
- c) analyse and evaluate the results of the mackerel and horse mackerel fecundity and atresia sampling in the western and southern areas and provide estimates of fecundity, corrected for atresia, separately for each area;
- d) investigate the possibilities of combining the mackerel fecundity estimates, corrected for atresia, from the western and southern areas;
- e) analyse and evaluate the results of the sampling for mackerel and horse mackerel maturity in the western and southern areas, and produce maturity ogives for 1998 for each area;
- f) provide estimates of the spawning stock biomass of mackerel and horse mackerel, using the stage I egg production estimates and the estimates of fecundity and atresia, separately for the western and southern areas;
- g) provide an estimate of the spawning stock biomass of the North-East Atlantic mackerel by combining the estimates from the western and southern areas;
- h) use the new estimates of the spawning stock biomass from the egg surveys to re-tune the VPA estimates of stock size for North-East Atlantic mackerel, western

horse mackerel and southern horse mackerel and produce a report for the ACFM meeting in May 1999 (relevant assessment biologists to carry out this task);

- i) obtain peer review of the Working Group report from the appropriate Assessment Working Group prior to the 1999 Annual Science Conference;
- j) comment on the draft objectives and activities in the Living Resources Committee component of the ICES Five-Year Strategic Plan, and specify how the purpose of the Working Group contributes to it.

The above Terms of Reference are set up to provide ACFM with the information required to respond to requests for advice/information from the NEAFC and EC DGXIV.

WGMEGS will report to the Living Resources and Resource Management Committees at the 1999 Annual Science Conference, and to WGMHSA.

RA {NEAFC 25%, EC DGXIV 75%}

2:50 **The Planning Group for Pelagic Acoustic Surveys in ICES Sub-Areas VIII and IX [PGPAS]** (Chair: P. Carrera, Spain) will meet from 2–4 February 1999 to:

- a) analyse the results of the 1998 acoustic surveys, especially those relating to species communities and assemblages;
- b) assess the quality of the information coming from the trawl hauls performed during the acoustic surveys in order to improve the estimation of abundance;
- c) assess what improvements in survey design and data analysis would improve the understanding of the coastal pelagic ecosystem;
- d) coordinate the acoustic survey activities planned for 1999;
- e) examine the feasibility of exchanging acoustic data;
- f) obtain peer-review of the Planning Group report from the appropriate assessment working group prior to the 1999 Annual Science Conference;

- g) comment on the draft objectives and activities in the Living Resources Committee component of the ICES Five-Year Strategic Plan, and specify how the purpose of the Planning Group contributes to it.

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.

PGPAS will report to the WGMHSA, and to the Living Resources and Resource Management Committees at the 1999 Annual Science Conference.

RM {ICES 10%, NEAFC 25%, EC DGXIV 65%}

2:51 **The Planning Group for Herring Surveys [PGHERS]** (Co-Chairs: E. Torstensen, Norway and K.-J. Stæhr, Denmark) will meet in Hirtshals, Denmark from 2-4 February 1999 to:

- a) coordinate the timing, area allocation and methodologies for acoustic and larval surveys for herring and sprat in the North Sea, Division VIa and IIIa and the Western Baltic;
- b) combine the survey data to provide estimates of abundance for the populations within the area;
- c) review the existing manual of the North Sea acoustic survey (Doc. ICES C.M. 1994/H:3), taking into consideration recent developments in methodology and the results of the scrutiny workshop;
- d) plan for a further echogram scrutiny workshop to be held in year 2000;
- e) for the historical database of larvae surveys, complete the analysis of the effect of reduced sampling effort, in order to improve the basis for a final decision on the index and the target sampling units to be used;
- f) provide a revised MLAI with explanation of any differences between this and the MLAI presented in Patterson *et al.* (1997);
- g) investigate the methodological problem related to estimation of larval indices when

very high numbers are caught in single hauls;

- h) develop and coordinate an international survey to be carried out by Denmark, Germany and Sweden which should cover the whole area where Western Baltic spring-spawning herring are distributed;
- i) obtain peer-review of the Working Group report from the appropriate Assessment Working Group prior to the 1999 Annual Science Conference;
- j) comment on the draft objectives and activities in the Living Resources Committee component of the ICES Five-Year Strategic Plan, and specify how the purpose of the Working Group contributes to it.

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, IBSFC and EC DGXIV.

PGHERS will report to HAWG, and to the Resource Management and Living Resources Committees at the 1999 Annual Science Conference.

RM {ICES 10%, NEAFC 20%, IBSFC 9%, EC DGXIV 61%}

2:52 **The Study Group on Beam Trawl Surveys [SGBEAM]** (Chair: S. Rogers, UK) will be re-established as the **Working Group on Beam Trawl Surveys [WGBEAM]** and will work by correspondence in 1999 to:

- a) prepare a progress report summarising the results of the 1998 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;
- f) obtain peer-review of the Working Group report from the appropriate Assessment Working Group prior to the 1999 Annual Science Conference;
- g) comment on the draft objectives and activities in the Living Resources Committee component of the ICES Five-Year Strategic Plan, and specify how the purpose of the Working Group contributes to it.

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 1999 Annual Science Conference, and to ACFM before its October 1999 meeting.

RA {NEAFC 25%, EC DGXIV 75%}

2:53 **The Study Group on the Biology and Life History of Crabs [SGCRAB]** (Chair: Dr R. Dufour, Canada) will work by correspondence in 1999 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 cooperative 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;
- f) obtain peer-review of the Study Group report from a member of the Living

Resources Committee prior to the 1999 Annual Science Conference;

- g) comment on the draft objectives and activities in the Living Resources Committee component of the ICES Five-Year Strategic Plan, and specify how the purpose of the Study Group contributes to it.

SGCRAB will report to the Living Resources and the Marine Habitat Committees at the 1999 Annual Science Conference.

RC

2:54 **The Study Group on Elasmobranch Fishes [SGEF]** (Chair: Dr P. Walker, Netherlands) will meet in Santander, Spain from 23–27 March 1999 to:

- a) compile the available information on the species-specific catch, distribution, abundance, and biology of Northeast and Northwest Atlantic spurdog/spiny dogfish (*Squalus acanthias*) stocks in order to review and evaluate geographical distribution, life history patterns, and compensatory mechanisms;
- b) evaluate the effects of exploitation and environmental changes on these stocks;
- c) obtain peer-review of the Study Group report from a member of the Living Resources Committee prior to the 1999 Annual Science Conference;
- d) comment on the draft objectives and activities in the Living Resources Committee component of the ICES Five-Year Strategic Plan, and specify how the purpose of the Study Group contributes to it.

SGEF will report to the Living Resources Committee at the 1999 Annual Science Conference, and to ACFM before its October 1999 meeting.

RM {ICES 80%, EC DGXIV 20%}

2:55 **The Study Group on Life History of *Nephrops* [SGNEPH]** (Chair: Dr N. Bailey, UK) will work by correspondence in 1999 to:

- a) continue work on biological reference points for *Nephrops*, the intercalibration of underwater TV surveys to estimate

Nephrops biomass, the collection of data on biological parameters for stocks assessed by the *Nephrops* Working Group, and methods for the estimation of natural mortality;

- b) plan cooperative research on the potential effects of the parasite *Haematodinium* on *Nephrops* stocks and fisheries;
- c) obtain peer review of the Study Group report from a member of the Living Resources Committee prior to the 1999 Annual Science Conference;
- d) comment on the draft objectives and activities in the Living Resources Committee component of the ICES Five-Year Strategic Plan, and specify how the purpose of the Study Group contributes to it.

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 1999 meeting, and to the Living Resources Committee at the 1999 Annual Science Conference.

RM {ICES 10%, EC DGXIV 68%, NEAFC 22%}

2:56 **The Study Group on Sea Trout [SGSTR]** (Co-Chairs: Dr G. Euzenat, France and Prof. B. Jonsson, Norway) will work by correspondence in 1999 to:

- a) review progress in the management of sea trout and the biological knowledge on their distribution, migration/residency, life history and population parameters, and evaluate future needs;
- b) examine the objectives, feasibility and design of a cooperative tagging-recapture programme to study migration and distribution in the open sea;
- c) obtain peer review of the Working Group report by a member of the Living Resources Committee prior to the 1999 Annual Science Conference;
- d) comment on the draft objectives and activities in the Living Resources

Committee component of the ICES Five-Year Strategic Plan, and specify how the purpose of the Working Group contributes to it.

SGSTR will report to the Living Resources Committee at the 1999 Annual Science Conference.

RC

2:57 **The Study Group on Redfish Stocks [SGRS]** (Chair: T. Sigurdsson, Iceland) will meet in Reykjavik, Iceland tentatively from 16–18 February 1999 to:

- a) plan the international acoustic survey of oceanic redfish to be carried out in the Irminger Sea and adjacent waters in June/July 1999;
- b) discuss what contribution could be made to the Census of the Fishes project;
- c) comment on the draft objectives and activities of the Living Resources Committee component of the ICES Five-Year Strategic Plan, and specify how the purpose of the Study Group contributes to it.

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.

SGRS will report to NWWG and to the Living Resources Committee at the 1999 Annual Science Conference.

RM {ICES 15%, NEAFC 85%}

2:58 **The Workshop on Otolith-Ageing of North Sea Whiting [WKOAW]** (Chair: A. Newton, UK) will be held in Hirtshals, Denmark, from 23–28 October 1998 to:

- a) review existing knowledge on otolith ageing and ageing problems of whiting;
- b) estimate growth of whiting by analysis of size frequency distributions;
- c) use patterns in otolith microstructures to infer annual increment patterns in whiting otoliths;

- d) analyse growth from otoliths of individuals of known age (e.g., reared or recaptured whiting);
- e) provide guidelines for the interpretation of otolith annuli in whiting;
- f) define an intercalibration programme for ageing of whiting between laboratories based on the exchange of reference material;
- g) evaluate possibilities for recalibrating existing age data;
- h) propose procedures for ensuring that new age-readers are well calibrated against experienced age readers in other institutes;
- i) obtain peer review of the Workshop report from the appropriate Assessment Working Groups prior to the 1999 Annual Science Conference.

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.

WKOAW will report to the Living Resources Committee at the 1999 Annual Science Conference, and to the WGNSSK.

NA {NEAFC 25%, EC DGXIV 75%}

2:59 **A Horse Mackerel Otolith Workshop [WKHMO]** (Chair: Dr A. Eltink, Netherlands) will be held in Lowestoft, UK from 15–19 January 1999 to:

- a) improve the quality of horse mackerel age readings;
- b) prepare a synopsis of the biology of the species (stocks, migrations, spawning, feeding, maturity, growth, etc.);
- c) prepare an overview on how the ageing technique was validated;
- d) review the sample processing methods;

- e) prepare a manual for age reading (date of birth, interpretation of rings and edges, guidelines on how the best ageing can be achieved, etc.); with the objective of improving expertise and training and ensuring that new age readers are well calibrated against experienced age readers in other institutes;
- f) compile available information on when translucent and opaque otolith edge structures occur by month and by age group for both western and southern horse mackerel stocks;
- g) carry out an exercise to estimate the precision, accuracy and bias from an age reading comparison on otoliths of known age to be carried out at the end of the workshop to demonstrate the improvements;
- h) make recommendations on how to improve the age reading quality;
- i) determine to what extent age-reading errors affect stock assessments of horse mackerel;
- j) obtain peer review of the Workshop report from the appropriate Assessment Working Groups prior to the 1999 Annual Science Conference.

NC

2:60 **A Workshop on the Usefulness of Scale Growth Analyses and Other Measures of Condition in Salmon [WKUS]** (Co-Chairs: Dr J.C. Maclean, UK and Dr K. Friedland, USA) will meet in Amherst, Massachusetts, USA from 5–10 July 1999 to:

- a) evaluate data sets and methods to interpret ocean effects on salmon populations;
- b) design, if feasible, an experiment to test hypotheses concerning growth and condition effects in salmon.

NC

BALTIC COMMITTEE (H)

C.Res.1998/

2:61 The **Baltic International Fish Survey Working Group** [WGBIFS] (Chair: E. Aro, Finland) will meet in Tallinn, Estonia from 2–6 August 1999 to:

- a) propose detailed protocols on fishing methods, sampling, report formats, etc. for trawl surveys in the Baltic in order to implement a quality assurance to the Baltic International Trawl Survey (BITS) Manual;
- b) compare results from concurrent survey activities by the traditional and the new standard trawls and plan intercalibration programmes;
- c) develop effective and operational sampling procedures for the collection of SMALK information;
- d) plan experiments to evaluate the biological sampling and TS conversion formulas presently applied in the Baltic during hydroacoustic surveys;
- e) evaluate the Manual for Baltic International Acoustic Surveys (BIAS) from practical experiences obtained during the 1998 hydroacoustic surveys;
- f) establish an acoustic database BAD2 (including the information on Elementary Sampling Distance Unit (ESDU) and biological sampling) which should replace the existing database BAD1.

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 IBSFC.

WGBIFS will report to the Baltic and Resource Management Committees at the 1999 Annual Science Conference.

RM {ICES 20% IBFSC 80%}

2:62 The **Study Group on Baltic Acoustic Data** [SGBAD] (Chair: Dr E. Götze, Germany) will meet at ICES Headquarters from 12–14 April 1999 to:

- a) combine and analyse the results of the 1998 acoustic surveys and report to WGBFAS;
- b) correct errors in and update the hydroacoustic database BAD1 for the years 1991 to 1998;
- c) plan and decide on acoustic surveys and experiments to be conducted in 1999 and 2000.

The above Terms of Reference are set up to provide ACFM with the information required to respond to requests for advice/information from IBSFC.

SGBAD will report to WGBFAS, and to the Baltic and Resource Management Committees at the 1999 Annual Science Conference.

RA {IBFSC 100%}

2:63 The **Baltic Herring Age-Reading Study Group** [BHARSG] (Chair: G. Kornilovs, Latvia) will work by correspondence in 1999 to coordinate the otolith exchange programme.

The above Term of Reference is set up to provide ACFM with the information required to respond to requests for advice/information from IBSFC.

BHARSG will report to the WGBFAS, and to the Baltic Committee at the 1999 Annual Science Conference.

RA {IBSFC 100%}

2:64 A **Workshop on Baltic Trawl Experiments** [WKBTE] (Co-Chairs: Dr H. Hovgård, Denmark and Dr P. Ernst, Germany) will be held in Rostock, Germany from 11–14 January 1999 to:

- a) organise experiments for 1999 with the objective to optimise the rigging and gear protocol for the new standard trawl;
- b) plan intercalibration experiments between vessels equipped with the new standard trawl;

C.Res.1998/

- c) compile depth strata information and identify appropriate trawl tracks, indicating these depth strata.

WKBTE will report to the Baltic and Fisheries Technology Committees at the 1999 Annual Science Conference.

NC

RESOLUTIONS INVOLVING COOPERATION WITH OTHER ORGANISATIONS

C.Res.1998/

- 3:1 ICES will inquire about the work programme of the OECD Fisheries Committee on the project entitled "Transition to Responsible Fisheries" in order to ascertain the desirability of collaborative involvement.

16–18 November 1998. The report of this Workshop will be reviewed by WGBEC, WGEAMS, and ACME at its May/June 1999 meeting, and by the Marine Habitat Committee at the 1999 Annual Science Conference

- 3:2 ICES will co-sponsor, together with AMAP and EEA, a **Workshop on Biological Effects Methods to Be Applied to Detect 'Combined Effects' in Marine Ecosystems** [WKCEME] that will be held in Copenhagen (EEA) from

- 3.3 Dr M.P. Sissenwine (Delegate of the US) will act as ICES Liaison to the Sloan Foundation's Census of the Fishes Project, and will report to the Bureau and Council as appropriate.

OTHER RESOLUTIONS REQUIRING ACTION

C.Res.1998/

- 4:1 During 1997 and so far in 1998, Norwegian survey vessels have not been permitted to undertake traditional research surveys in important distribution areas for cod, haddock, herring, and capelin in the Russian EEZ in the Barents Sea. As a result, an unknown fraction of the stocks has been surveyed. This introduces uncertainties in the assessment that are larger than would have been the case if the entire area of distribution of the stocks had been surveyed. This is particularly critical for the cod whose recent assessments have indicated lower stock biomass than was anticipated earlier. In the context of implementing a precautionary approach, it would be prudent to reduce catches to account for the greater uncertainties introduced by the lack of survey coverage.

of relevant other countries recognising the importance of the stock to world markets and request other Member Countries to use their good offices to encourage a resolution to this problem.

- 4:2 A routine survey, for estimation of the fishable stocks of *Sebastes marinus* and *S. mentella* in ICES Sub-areas I and II, should be designed and conducted.

- 4:3 ICES will adopt the species codings for elasmobranch fishes as described in the Report of the Study Group on Elasmobranch Fishes Doc. ICES C.M. 1998/G:12 (pp 11 & 12).

The General Secretary will inform FAO.

ICES strongly recommends that the Parties find a solution such that the traditional Norwegian fisheries research surveys can be conducted in the Russian EEZ in 1999 and in subsequent years.

- 4:4 ICES should take the initiative to develop and implement a regional component of GOOS by establishing centres or institutional networks for operational fishery oceanography on a non-meteorological time-scale for the ICES area or parts thereof. Delegates are asked to ensure that their representatives on international forums in connection with GOOS are aware of this interest. They should also try to ensure that elements of national activities of GOOS make the best possible use of ICES capabilities and know-how.

The General Secretary will send a letter to National Institutes, the Ministry of Fisheries and the Ministry of Foreign Affairs in both Russia and Norway. A letter will also be sent to the Foreign Affairs and Fisheries Ministries

REPORT OF FINANCE COMMITTEE

Chair: Dr A. Post

The Committee met on Wednesday 17 September 1998 from 08.30 - 12.10 hrs, and also held an extraordinary session on Friday 18 September 1998 from 12.45 - 13.20 hrs. This extraordinary session specifically was arranged to consider and propose options for finding DKK 400,000 in the Draft Budget for 1998/1999 in response to the decision by the Council to reinstate the *Advisory Honoraria* (c.f. Agenda Item 9 of Delegates Meeting).

All members were present at the 17 September 1998 meeting. The First Vice-President, representing the Bureau, the General Secretary, and Jytte Andersen-Rosendal, and Inger Lützhøft from the ICES Secretariat also attended. At the 18 September meeting, in addition to the Chair and the General Secretary, the First-Vice President, the representative of Denmark, Dr R. De Clerck, and a designate of the US were present.

In opening the first meeting, the Chair drew attention to two working papers (**Annex 1** and **Annex 2**) that he had prepared and that were proposed for consideration under Agenda Item 3 and Agenda Item 9, respectively.

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 informed the Committee that the Bureau would be proposing the name of a Delegate to succeed Dr R. De Clerck (Belgium) as member of the Committee, to the Council for its approval for the three-year period starting on 1 November 1998. The Chair proposed, and the Committee agreed, that Prof. Jan Thulin (Sweden) be nominated by the Committee for this purpose.

Agenda Item 3 AUDITED ACCOUNTS FOR FINANCIAL YEAR 1996/1997

The Chair drew attention to the working paper given in **Annex 1**. After some discussion, the Committee **approved** the proposal as outlined in the working paper.

The General Secretary summarised the final Income and Expenditure Accounts and Balance Sheet for Financial Year 1996/1997 (Doc. C.M. 1998/Del:1). He drew attention to:

- a) the Profit and Loss Account indicating a loss of DKK 94,979 for the year as a whole, taking into account withdrawals of DKK 1,044,842 from the Capital Reserve Fund (DKK 288,750 covering no increases in

national contributions and DKK 756,092 for earmarked expenses as agreed by the Council at the 1996 Annual Science Conference in Iceland;

- b) the amounts in the Capital Reserve Fund (reduced to DKK 1,660,553 including the year's loss) as of 31 October 1997;
- c) Salaries being overspent by DKK 102,841 due to consultancy costs incurred in the restructuring of the Secretariat;
- d) Travels and Meetings were overspent by ca. DKK 670,500—mainly due to substantially higher than budgeted expenses in holding ACFM Meetings and unbudgeted extra Bureau Meetings including Bureau Working Groups and expenses for the Historian;
- e) under Contributions from Commissions, the contribution from NEAFC was greater than budgeted due to an increase to move closer towards 100% cost recovery, while the contribution paid by NASCO was 27% lower than budgeted due to a unilateral decision made by NASCO;
- f) the supplementary document prepared by the Council's Auditors (KPMG C.Jespersen), the Long-Form Audit Report dated 31 January 1998 in Respect of the Annual Accounts for 1996/1997, which provided *inter alia* a clear declaration of the objective, planning and conduct of the audit as well as the Auditors' declaration in connection with the accounts for 1996/1997.

In the subsequent discussion in the Committee, it was noted *inter alia* that:

- under Salaries: the term Personnel Services referred to monies deducted and transferred—as a service—on behalf of staff to their personal pension schemes; Staff Assessment referred to an internal ICES 'tax' to cover *inter alia* contributions to the Danish authorities in respect of medical and social security matters;
- under Travels and Meetings: the cost of the Annual Science Conference in the USA had been about 10% greater than budgeted;
- under Office Expenses: Postage, Telephone etc., was higher than budgeted. It was noted that while increasingly competitive short-term contracts were being signed with the telephone and mail institutions, the number and size of reports dispatched by post was steadily increasing and use of the telephone by Working Groups' members (ca. 500 persons) meeting in-house significantly contributed to higher costs. It was recommended *inter alia* that the General Secretary should apply appropriate constraints on international telephone use by Working Group members attending meeting at ICES Headquarters and consider compensating for this, for example, by providing for greater availability of e-mail facilities for WG members. It was further proposed that postage and telephone costs be separately identified in the future;

- under Capital: the Computer Fund had been abolished with its contents having been merged with the Capital Reserve Fund as agreed at the 1997 Mid-Term Meeting of the Bureau and noted at the 1997 Council Meeting;
- the Secretariat should 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);
- the CRF was still at only about 8% of Income despite it having been agreed at the 1997 Council Meeting that it should be kept above 10%.

The Committee signed the Accounts and Balance Sheet as well for receipt of the Long-Form Audit Report.

Agenda Item 4 ESTIMATED ACCOUNTS FOR FINANCIAL YEAR 1997/1998

The General Secretary reviewed the Estimated Accounts for Financial Year 1997/1998 (Doc. C.M. 1998/Del:4). He pointed out that:

- 1) Under Income:
 - total Income was estimated at about DKK 900,000 less than budgeted;
 - all the national contributions had been paid;
 - NASCO had reduced, in accord with its previous unilateral decision, its contribution by DKK 77,973 compared with the budgeted figure;
 - the Miscellaneous Income was about DKK 363,000 less than budgeted mainly due to a short-fall in contributions to GLOBEC from Norway and unfavourable exchange rates of the other currencies with DKK;
 - the budgeted DKK 502,000 from the Commissions for Advisory Services had not materialised, leaving a deficit to pay for the *Advisory Honoraria* (DKK 400,000 for the whole year);
 - Sale of Publications was less than budgeted due to decreased sales of Internal Publications and Symposia proceedings via the Secretariat—the latter were now sold primarily by Academic Press.
- 2) Under Expenditure:
 - total Expenditure was about DKK 1,160,000 less than budgeted;
 - Under Salaries, Periodic Assistance was overspent, partly due to extra costs incurred in engaging outside help to conduct some of the tasks normally done by the Fisheries Adviser who had been on sick leave since 1 November 1997. Due to the Fisheries Adviser having resigned on 1 June 1998, this was ex-

pected to be offset by savings in salary during the remainder of the year, although one month's Holiday Pay and unbudgeted Relocation Expenses for the Fisheries Adviser would have to be met. Salary savings had also been made by continuing to leave vacant the Librarian/Information Officer post vacated by Edgar Thomasson on 31 December 1997 and—as far as feasible without jeopardising contracts with Clients—leaving the vacant Environment Data Scientist and Computer Assistant posts unfilled for four months and three months, respectively;

- under Office Expenses, Office Maintenance had been frozen in order to make further savings (DKK 322,000) towards paying for the non-materialised Miscellaneous Income from the Commissions that was required for paying the *Advisory Honoraria*;
- regarding Travels, Meetings etc., under Other Secretariat Travels, nearly all travel had been stopped since mid-March 1998 to make further savings, but Bureau and ACFM expenses would be greater than budgeted (DKK 105,000 and DKK 178,000 respectively) due mainly to the costs generated by the Bureau Working Groups and an extra meeting day for ACFM to address a request from Norway and Russia.

- 3) Regarding the overall Profit and Loss balance, it was anticipated that there would be an excess of Income over Expenditure for the year as a whole of about DKK 102,000. However, this had been achieved through making drastic savings within the budget items within the Secretariat's control in order to offset *inter alia* the eight-month absence of the Fisheries Adviser on full salary and the non-materialised Miscellaneous Income from the Commissions.

After some discussion, the Committee accepted the Estimated Accounts for 1997/1998 and recommended their approval by the Council.

Agenda Item 5 DRAFT BUDGET FOR FINANCIAL YEAR 1998/1999

The General Secretary summarised the Draft Budget for Financial Year 1998/1999 (Doc. C.M. 1998/Del:5) and emphasised that the Budget was very precarious. He pointed out that:

- an increase of 3.5% in Income was applied to both Member Countries and Commissions;
- NASCO had paid ICES less than the budgeted contribution for several years, and the draft budget figure was reduced to better reflect this;
- GLOBEC is being funded separately outside the normal budget system. At its 1998 Mid-Term Meeting,

the Bureau had agreed that this project and similarly financed projects should be separated from the standard Budget presentation. Accordingly, the ICES Budget is now solely funded by traditional National Contributions and Commissions' Contributions;

- as the *Advisory Honoraria* were agreed at the 1996 ASC for a period of up to 2 years, and no agreements on funding of this had materialised, the corresponding items under Income as well as Expenditure had been reduced to 0;
- Salaries: Prof. Category Posts was reduced to reflect the new Fisheries Adviser beginning at step one of the P.5 grade, and a new P.2 (replacement Environment Data Scientist) also beginning at step one. The GLOBEC Secretary (P.5) had been deleted from the budget in accord with other externally financed projects. General Service Posts was slightly lower due to the C.4 (replacement Computer Assistant) starting at step one. The actual increase in salary steps plus cost of living increase for staff is up by 2.01% (c.f. 3.5% Income increase). The Periodic Assistance had been deleted entirely as a temporary measure to balance the budget this year—this item should ideally be increased to about DKK 500,000 to reflect the costs to cover extraordinary tasks to be conducted by outside labour. Personnel Services had been reduced to reflect the salary changes;
- Office Expenses had been further reduced to the bare minimum relative to the Forecast Budget. These savings must be seen as one-off savings to balance the budget this year. In Office Maintenance, only meagre repairs and no improvements to facilities can be carried out. Since 1995/1996, Office Expenses had been reduced by DKK 423,000 to help balance the budget;
- there were no changes in ADP Expenses from the Forecast Budget;
- no changes had been made to Expenses for 1999 ASC in Stockholm relative to the Forecast Budget;
- Travels and Meetings: Travel costs for the Bureau had been increased to DKK 320,000 to reflect holding two standard Bureau meetings annually and the holding the meetings of two Bureau Working Groups. ACFM costs were DKK 1,110,000 for holding two ACFM meetings with Sub-Groups: this would hold only if ACFM reduced the number of Chairmen participating in the meetings and did not increase the number of meeting days. ACME costs had been reduced to DKK 360,000 for one meeting. Other Secretariat Travels & Meetings was reduced slightly. Intercalibration Exercises had been reduced to 0, as a temporary measure;
- Publications: no changes had been made to the Forecast Budget, despite it having been recognised by the Council that reductions of DKK 811,500 since 1994/1995 should be reinstated.

In the subsequent discussion in the Committee, it was noted *inter alia* that:

- the projects which were not financed as part of the Core Science Programme or the Advisory Function (e.g. GLOBEC, EC-projects) through the share-scheme of National Contributions and the Commissions' Contributions should nevertheless be open to scrutiny and audit, despite the recognition that these projects reported directly to their funding sources according to protocols determined outside of ICES. The Committee proposed that the Bureau investigated the pros and cons of incorporating all projects into the general Budget;
- EDB (e.g. computer) costs were financed through an outside contract, including renewal of equipment at regular intervals;
- it would be helpful if the various posts within the Final Accounts could be more easily compared with the Budget or Estimated Accounts;
- the precarious state of the CRF;
- continuing concerns at the lack of resources within the Budget (e.g. several Budget items being set to 0, including Public Relations) and the associated negative effect on the capacity of the Secretariat to fulfil its work.

Given the concerns expressed above, the Committee accepted the draft Budget for 1997/1998 and recommended its approval by the Council.

The Committee subsequently reconvened, at the request of the Bureau, in an extraordinary session on 18 September to advise as to how the funds for reinstating the *Advisory Honoraria* in the Draft Budget for 1998/1999 may be found. After some discussion, the Committee determined that it could not recommend making further savings in the Expenditure items on the grounds that this would further compromise the ability of the Secretariat and the Council to address its work programme. Accordingly, with substantial reluctance, the Committee proposed that the necessary funds be met from the CRF.

Agenda Item 6 DRAFT FORECAST BUDGET FOR FINANCIAL YEAR 1999/ 2000

The General Secretary summarised the draft Forecast Budget for Financial Year 1999/2000 (Doc. C.M. 1998/Del:6), underlining that:

- the draft Forecast Budget had been prepared by the Bureau to reinstate Expenditure items that had been either reduced or deleted in recent years (c.f. 1998/1999), e.g. Publications, Office Expenses, Periodic Assistance, as well as writing-off the deficit of DKK 94,000 from the Final Accounts according to Rule of Procedure 18(iii);
- at the time of preparation of the draft Forecast Budget for 1999/2000, it was impossible to count on particular increased income from the Commissions. Experience had shown that inserting uncertain Income from the Commissions in the Budget had contributed to major

problems when these hadn't materialised. Thus, the Income from the Commissions had been increased by only 4.0% relative to the draft Budget 1998/1999, and the necessary shortfall in income had been shared among the Member Countries on a *pro rate* basis;

- the increase in national contributions amounted to ca. DKK 1,430,000 (9.34%), and the overall Budget increase was ca. 8.1% compared with the previous year's Draft Budget;
- in order that Delegates would better understand what the Budget Expenditure was used for, the General Secretary and the Secretariat Management Group had been requested to prepare an Addendum to Doc. Del:6 providing a *Summary of the 1997/1998 Workplan* showing the associated resources required to implement it.

In the subsequent discussion in the Committee, it was noted *inter alia* that:

- the concerns of the Council regarding the needs to enhance the Quality Assurance of the Advisory Function had not been budgeted for;
- Under Office Expenses: there were no funds available for Public Relations (c.f. DKK 90,000 in Budget 1997/1998);
- under Travels, Meetings etc.: the amount for the Bureau and its subsidiary groups was considered to be too low for current needs, being DKK less than in the Draft Budget for 1998/1999;
- there were no provisions for raising the CRF above 10% of Income as agreed for the future size of the CRF at the 1997 Council Meeting.

Documents

F:1 Agenda for Finance Committee

Given the apprehensions expressed above regarding remaining omissions, the Committee accepted the draft Forecast Budget for 1999/2000 and recommended its approval by the Council.

Agenda Item 7 APPOINTMENT OF AUDITORS FOR 1998/1999

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. MATTERS REFERRED TO COMMITTEE BY BUREAU OR COUNCIL

The Chair informed the Committee that he was not aware of any matters referred to the Committee by the Bureau or the Council beyond the issue of reinstating the Advisory Honoraria in the Draft Budget for 1998/1999 (c.f. Agenda item 5).

Agenda Item 9 ANY OTHER BUSINESS

The Chair drew attention to the working paper given in **Annex 2**. After some discussion, the **Committee approved** the proposal as outlined in the working paper.

Noting that this would be Dr De Clerck's last meeting in the Committee, the Chair expressed his gratitude and that of the Committee for the devotion which Dr De Clerck had applied to his duties. He thanked all the Committee members and the ICES Secretariat for their support.

ANNEX 1: WORKING PAPER ON TASKS OF THE FINANCE COMMITTEE

The Finance Committee is one of two Committees which have been introduced into the Convention by the Contracting Parties.

The tasks of the Finance Committee are described Rules of Procedure 24, which *inter alia* states:

"The Finance Committee at each ordinary meeting of the Council shall examine (a) the audited Accounts of the Council for the preceding financial year, (b) the preliminary Accounts for the current financial year, and (c) a Budget for the ensuing financial year and a Forecast Budget for the next following year. The Committee shall consider such other matters as may be referred to it by the Bureau or as it may deem desirable and shall report its observations and conclusions to the Bureau."

The Accounts and Budgets are submitted to the Finance Committee by the Bureau according to Rule 13:

"It shall be the duty of the Bureau:.....

ii) to prepare for consideration by the Finance Committee at each annual meeting;

a) the audited accounts for the preceding financial year,

b) a preliminary account for the current financial year, and

c) the Budget for the ensuing financial year and a Forecast Budget for the next following year,

and, after considering the report of the Finance Committee on these documents, to present them with such alterations as it may deem desirable to the Council;"

The consideration of the Final Accounts traditionally includes a formal signature by the members of the Finance Committee. In the past years the Finance Committee signed under the words:

- *"We approve the foregoing Accounts and Balance Sheet".*

The Finance Committee believes that it is not entitled to approve the Accounts and Balance Sheet on behalf of the Council. Nevertheless, the Finance Committee should indicate, that it has meticulously dealt with the document. Therefore, the **Finance Committee proposes** to sign under the following wording:

- *"Having scrutinized the Final Accounts and Balance Sheet, we recommend that the Bureau submits the document to the Council for approval."*

ANNEX 2: WORKING PAPER ON SUBMITTING OF THE FORECAST BUDGETS TO MEMBER COUNTRIES

Currently, the Forecast Budget of ICES is submitted to Member Countries in June or July, one year before they shall pay the shares as displayed therein.

In many—if not in most—Member Countries, financial applications for the next following year are submitted to the Finance Ministry about one year in advance, i.e. early in the foregoing year. As the contribution to ICES is unknown at that time, the Contracting Parties (e.g. Ministry of Agriculture, Fisheries) are obliged to put a fictive number on the list of applications for their ICES contributions. Most probably this number closely refers to that of the past year.

Thus, unexpected increments in contributions might be easily blocked by formal arguments, e.g. "belatedly submitted".

Therefore, the **Finance Committee** proposes that:

- the Bureau prepares the Draft Forecast Budget in its January Meeting in order to submit it to the Member Countries immediately thereafter.

PROFIT AND LOSS ACCOUNT FOR THE PERIOD 1 NOVEMBER 1996–31 OCTOBER 1997

Note	DKK	DKK
Income		
1. National Contributions.....	14,437,500	
2. Other Contributions.....	5,361,814	
Sale of Publications.....	127,854	
3. Miscellaneous Income.....	598,620	20,525,788
Expenditure		
4. Salaries.....	13,274,543	
5. Office Expenses.....	2,229,159	
EDP Expenses.....	1,092,519	
6. Travels and Meetings.....	3,373,518	
Publications.....	272,629	
Pensions.....	955,798	
Incidentals for President and Chairmen.....	455,800	
Write off Debtors/Write down Stock.....	23,506	21,677,472
Operating Result.....		-1,151,684
Transferred from Capital Reserve Fund ¹		1,044,842
Expenses on earmarked projects.....		-315,813
7. Interest Receivable.....	327,676	327,676
Result of the Year.....		-94,979

¹ DKK 288,750 covering no increases in National contributions and DKK 756,092 for earmarked expenses (c.f. ICES ANNUAL REPORT for 1996 p.p. 75-78)

BALANCE SHEET AS AT 31 October 1997

Note	DKK	DKK
ASSETS		
Current Assets		
Stocks		93,126
Debtors		
8. Other Debtors	412,798	
Total Debtors		412,798
9. Investments		5,694,265
Cash at bank and in hand		8,889,299
Total Current Assets		15,089,488
TOTAL ASSETS		15,089,488

BALANCE SHEET AT 31 October 1997

Note	DKK	DKK
LIABILITIES		
10. Capital		
Capital	1,660,533	
Total Capital		1,660,533
Creditors		
Short-term creditors		
Prepaid Contributions	12,594,739	
Trade creditors	279,725	
Other creditors	114,306	
Publications	440,185	
Total creditors		13,428,955
TOTAL LIABILITIES		15,089,488



Christopher C.E. Hopkins
General Secretary

J. Andersen Rosendal
Jytte Andersen-Rosendal
Administrative Secretary

AUDITORS' REPORT

We have audited the final accounts of the International Council for the Exploration of the Sea for 1996/1997.

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.

Supplementary Information

The result for the year is influenced by the transfer of earmarked amounts from capital to the profit and loss account.

Opinion

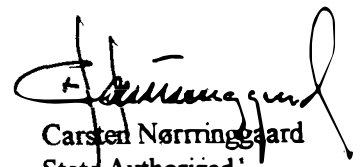
In our opinion, the final accounts of the International Council for the Exploration of the Sea as at 31 October 1997 present fairly assets and liabilities, the financial position and loss for the year.

Copenhagen, 3 March 1998

KPMG C. Jespersen



Poul Erik Olsen
State Authorized
Public Accountant



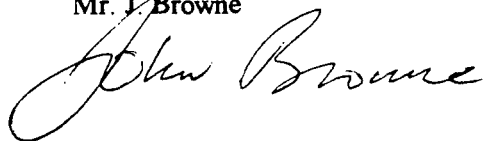
Carsten Nørringgaard
State Authorized
Public Accountant

Having scrutinized the Final Accounts and Balance Sheet, we recommend that the Bureau submit the document to the Council for approval.

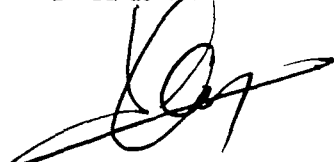
Prof A. Post
Chairman



Mr. J. Browne



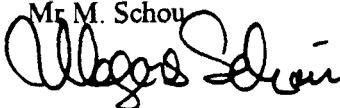
Dr R. de Clerck



Dr. N. Riekstins



Mr M. Schou



BUDGET FINANCIAL YEAR 1998/1999

INCOME

	Budget 1997-1998	Approved Forecast Budget 1998-1999	Draft Budget 1998-1999
	DKK	DKK	DKK
National Contributions			
Belgium.....	563,600	583,600	583,600
Canada	845,400	875,400	875,400
Denmark.....	845,400	875,400	875,400
Estonia	281,800	291,800	291,800
Finland.....	422,700	437,700	437,700
France.....	1,127,200	1,167,200	1,167,200
Germany	1,127,200	1,167,200	1,167,200
Iceland	845,400	875,400	875,400
Ireland	563,600	583,600	583,600
Latvia	281,800	291,800	291,800
Netherlands	845,400	875,400	875,400
Norway	1,127,200	1,167,200	1,167,200
Poland.....	845,400	875,400	875,400
Portugal.....	563,600	583,600	583,600
Russia	845,400	875,400	875,400
Spain	845,400	875,400	875,400
Sweden.....	845,400	875,400	875,400
United Kingdom.....	1,127,200	1,167,200	1,167,200
USA	845,400	875,400	875,400
Total	14,794,500	15,319,500	15,319,500
Interest	400,000	350,000	400,000
Sale of Publications.....	200,000	150,000	150,000
Other Contributions.....	5,442,649	5,633,143	4,467,627
Misc. Income from Commissions for Advisory Services...	502,600	590,231	0
Scientific Observers' Contributions	61,500	62,100	62,100
Transfer from Capital Reserve	0	0	200,000
GRAND TOTAL.....	21,401,249	22,104,974	20,599,227

EXPENDITURE

	Budget 1997-1998	Approved Forecast Budget 1998-1999	Draft Budget 1998-1999
	DKK	DKK	DKK
Incidentals for President and Chairmen	455,800	455,800	255,800
Salaries	13,777,324	14,271,899	13,079,110
Office Expenses	2,088,325	2,127,600	1,887,600
ADP Expenses	1,200,000	1,235,875	1,235,875
Expenses for ASC 1999, Sweden	675,000	675,000	675,000
Travels, Meetings, etc.	2,068,000	2,068,000	2,306,000
Publications	190,000	324,000	324,000
Pensions	946,800	946,800	835,842
GRAND TOTAL	21,401,249	22,104,974	20,599,227

REPORT OF PUBLICATIONS COMMITTEE

Chair: Professor P. R. Boyle

The Committee met on 18 September from 13.30 to 18.00. All members except the Chair of the Consultative Committee, who was represented by Vice-Chair S. Carlberg, were in attendance during all or most of the meeting. Professor E. Ojaveer on behalf of the Bureau, J. W. Ramster, S. Lord of Academic Press, and the ICES Senior Editor were also present.

Agenda Item 1 INTRODUCTION

The Chair introduced the participants and, with the help of overheads, those with principal responsibility for the production of ICES publications, including editors of the various series. It was his intention to engage as many of them as possible in the affairs of the Committee, working intersessionally when appropriate. With reference to Rule 27 of the Council's Rules of Procedure on the membership and remit of the Committee, the proposed scope and objectives of the meeting were outlined. Attention was drawn to the importance of rounding off discussion of the main Agenda Items with conclusions or recommendations whenever possible. The work of the Committee—focused on establishing policy and guidelines for the publications—should be an integral part of the Council's strategic planning.

Agenda Item 2 APPROVAL OF AGENDA

The Draft Agenda (Doc. ICES CM 1998/Pub:1) was presented and accepted. Agenda Items 9 and 12 would be moved forward to accommodate participants who could not be present throughout the meeting. Agenda Item 14 would include a discussion of CM papers.

Agenda Item 3 REVIEW OF ICES PUBLICATION ACTIVITIES IN 1997/1998

Doc. ICES CM 1998/Pub:2 furnished an update on ICES serial publications since the 1997 Annual Science Conference. Most of these publications would subsequently be discussed as individual Agenda Items. For many of them, however, similar circumstances prevailed and thus they could be discussed with advantage as a group.

A recurrent theme was noted in Pub:2 sections 3, 4, 6, 7, and 8, all dealing with publications requiring substantial Secretariat input: the serious delays, stretching back for years in some cases, which were attributed to inadequate resources of different kinds but most notably lack of staff time and funding. The gulf between commitments and the allocation of resources to support them had grown over several years as the Council had continued to

assume responsibility for new publication activities that could not be sustained.

The Council's recognition of the need to match future publishing plans to resources was a relatively recent but welcome development. The existing backlog of material, both in the pipeline and waiting for attention in the Secretariat, was now the most pressing issue in need of attention. Members of the Committee commented on the severe problems entailed by publication delays, including damage to the reputation of ICES, alienation of authors and editors, and waste of an obvious opportunity for ICES and the wider scientific community to benefit from the work that had been submitted.

It was suggested that some of the work now handled by the Secretariat could be transferred to commercial firms and, in addition, outside funding sought to cover publication expenses. Both possibilities ought to be investigated, although the means for doing so could not yet be identified.

Throughout the discussion, the importance of exploiting possibilities for electronic dissemination of the publications and related information was stressed, while at the same time the lack of an agreed ICES policy in this area—not only for publications—was noted as a complicating factor in need of resolution. (See also Agenda Item 12.)

There was unanimous agreement among members of the Publications Committee that the current situation represented a crisis of confidence in the ICES system of publications. The problems detailed in the document Pub:2 were deplored by several participants. As a long-term goal the aim should be to place the publications on a stable footing so they could eventually become self-sustaining. Rather than being seen principally as a drain on Secretariat resources in competition for staff time and funding, the scientific publications should be viewed as a valuable asset to ICES with great potential for both reflecting and influencing the Council's continued growth and evolution.

Agenda Item 3: Conclusions and recommendations

1. There is an *immediate* need for input of resources for the express purpose of clearing the currently stagnant publication backlog.
2. A task group should be established to maintain an oversight of all in-house publishing with a view to matching commitments to resources and to report on a development plan within an agreed period. Further contracting-out to commercial houses should be investigated as well as identifying income streams for selected publications.

NOTE: Points 1 and 2 above are cited several times in connection with subsequent Agenda Items since they have general applicability to a range of problems.

Agenda Item 4 SALE OF ICES PUBLICATIONS DURING THE LAST THREE YEARS

Doc. ICES CM 1998/Pub:3 showed the Council's income from the various publication series sold in 1996/1997, the most recent ICES Year for which figures were available, along with that for the previous two years for purposes of comparison. Direct income had fallen by 51% and 30% compared with 1994/1995 and 1995/1996 respectively, principally owing to the inclusion of ICES Symposium proceedings volumes in the *ICES Journal* series since 1995 (see Docs. ICES CM 1998/Pub:6 and Pub:7 for details). Sales had also declined in the train of meagre advertising and the absence of a convenient purchasing system, including credit-card facilities, for an international public—both of which had suffered from inadequate resources in the Secretariat to initiate and carry out the necessary work.

Pub:3, a routine document that had been presented in the same form for several years, was considered of little or no use by some participants because the figures were presented in isolation rather than being related to costs of production and staff salaries. The term "Net outcome for ICES" (referring to the 50% share of the sales made by the Council's bookseller) was seen as misleading since the document only showed revenues.

Agenda Item 4: Conclusions and recommendations

1. The Committee could not comment on this Agenda Item in any constructive way because document Pub: 3 dealt with only one aspect of the finances relating to publications. In future additional relevant information should be furnished.
2. The income and expenditure for publications should, like all other aspects of the Council's finances, be linked to the overall strategic planning for ICES.
3. The information on the ICES Web site for purchasing publications should be supplemented with an order form, and the Secretariat should continue to pursue possibilities for handling credit-card transactions.

Agenda Item 5 ICES JOURNAL OF MARINE SCIENCE

Agenda Item 5.1 Editors' Report for 1997/1998

Doc. ICES CM 1998/Pub:4 was presented by the Editor-in-Chief, Dr N. Daan, who had succeeded Professor J. H. S. Blaxter on 1 November 1997. He was assisted by two new Editors who had succeeded S. J. Smith: Dr E. M. P. Chadwick and Dr J. R. G. Hislop, in addition to J. W. Ramster, who had remained as a member of the editorial team. The Editors intended to revise future ver-

sions of their Report in order to render a more informative overview of some of the work described.

A total of 105 manuscripts had been submitted in 1997/1998 for the regular issues, continuing the growth noted in recent years (compared with the 82 submitted in 1993/1994, a 28% increase). Several manuscripts that had been particularly demanding and years under way during revision were nearing completion, and time limits for handling similar material were being enforced to prevent excessive delays in future. The target of having manuscripts in print within a year of submission had usually been met, but the Editors intended to work towards reducing the time to nine months.

Two volumes of ICES Symposium proceedings had been published in record time in 1997: "Seabirds in the Marine Environment" in August and "Interactions between Salmon Culture and Wild Stocks of Atlantic Salmon – The Scientific and Management Issues" in December, respectively nine and eight months after the meetings. A single proceedings volume, "Temporal Variability of Plankton and Their Physico-Chemical Environment", was scheduled for publication in 1998. Four proceedings volumes were projected for 1999: one stemming from a 1997 meeting and formerly scheduled for publication in 1998, "Recruitment Dynamics of Exploited Marine Populations: Physical-Biological Interactions", and three stemming from meetings held in 1998, "Marine Benthos Dynamics: Environmental and Fisheries Impacts" and "Confronting Uncertainty in the Evaluation and Implementation of Fisheries-Management Systems", in addition to "Brackish Water Ecosystems", which would be issued as a special supplement with full cost recovery whereby all expenses except those relating to the Secretariat would be covered by the Symposium budget. The four proceedings issues for 1999—compared with the two originally agreed as the standard for each year—would make it difficult to meet schedules for timely publication and also underlined the importance of securing adequate support for the Editors.

An agreement was nearly complete for publication of the proceedings of a meeting for which ICES was a co-sponsor, the Seventh International Conference on Artificial Reefs and Related Aquatic Habitats (7th CARAH), to be held in San Remo, Italy, in 1999. Tentatively scheduled for October 2001, the 400-page issue would be published as a special supplement funded entirely by the Conference budget except for Secretariat costs.

The question of how to handle obituaries in the *ICES Journal* was raised. It was pointed out that this was a sensitive subject and that awkward situations had arisen respecting the criteria for the selection of people to be remembered in this way. This was particularly so in connection with the receipt of unsolicited material. There was a consensus in favour of continuing to print obituaries of those scientists whose contribution to the work of ICES had been of particular significance. It was agreed

as a matter of policy, however, that unsolicited material would not normally be accepted, and that the General Secretary would continue, as before, to play the decisive role in proposing and inviting the submission of particular obituaries.

Agenda Item 5.2 Strategy for Development

Following the Committee's discussion in 1997 about defining the role of the *ICES Journal*, Doc. ICES CM 1998/Pub:5 had initially been prepared by Dr Daan as a working document for the Mid-Term Meeting of the Bureau (Doc. No. 1098). The section entitled "The niche" discussed the position of the *ICES Journal* in relation to competing periodicals and in particular its potential role as defined in a newly revised text on "Scope and Aims"; the Committee's agreement on this text would be sought as well as comments on the document as a whole.

Attention was drawn to the increasingly restrictive financial conditions prevailing at many research institutes which were in effect making it virtually impossible for active scientists to accept demanding editorships. The *ICES Journal* should eventually pay for itself, and it was suggested that the Council work towards facilitating fully paid compensation to be split among several editors and including a secretary. When plans for future ICES Symposia were endorsed, the considerable editorial resources needed for handling the published proceedings should also be taken into account.

Two new features that could increase the attractiveness of the *ICES Journal* to a wider audience were proposed: 1) short "scientific news articles" focusing on new ideas, to be published very quickly (material based on work presented at ASCs, for example, would be printed in the following December or at the latest February issues); and 2) articles on important new developments and major achievements within ICES and deserving of wider and at times quicker dissemination than they would otherwise be accorded.

Discussion of the document Pub:5 elicited a wide range of views and suggestions, including the following: 1) the document was a most valuable contribution, not only in developing the role of the *ICES Journal* but also in strengthening its links with this Committee and other Council entities; 2) the text on "Scope and Aims" was commendable; the impact of human activities was a very important component of any such statement, and the insertion of a reference to contaminants and their effects should be considered; 3) with respect to the widened scope of material to be included in the *ICES Journal*, the publication of interdisciplinary articles would be facilitated as the number of submissions grew (permitting by extension greater selectivity in favour of the best interdisciplinary material); 4) the publication of ICES Symposium proceedings was among the Council's most important responsibilities, and these volumes should continue to be available to individual scientists who

might not wish or be able to subscribe to the whole series; 5) certain items proposed for inclusion as new features might go into the newsletter, *ICES/CIEM Information*, instead; and 6) Committee and Working Group Chairs should be encouraged to take the initiative in drawing the Editors' attention to important new issues suited to coverage in the *ICES Journal*.

Some concern was expressed about the proposal to introduce articles on important developments within ICES to the extent this could conceivably weaken or even lead to the disappearance of the *ICES Cooperative Research Report* series, which was seen as a valuable publication in its own right. Others thought that the CRRs would continue to play their accustomed role, constituting as they did the core publications containing all the detailed material with, for example, justifications and background; the much shorter *ICES Journal* articles would refer to them. In addition, not all developments covered by CRRs would be included in the *ICES Journal* since some would not be well suited to the wider presentation envisaged.

Agenda Item 5.3 Academic Press Publisher's Report for 1997/1998

Doc. ICES CM 1998/Pub:6 was presented by S. Lord. Academic Press were very happy to be publishing the *ICES Journal* and would fully support the Editor-in-Chief's approach for developing it along the lines described in the preceding document, Pub:5.

Academic Press continued to find that there were no significant cost benefits to be derived from solely electronic handling of manuscripts in production. They would, however, be pleased to accommodate the electronic submission of material and would assist the Editors with setting up a template and information on it in "Notes for Authors".

The 33% price increase introduced for 1997 had not triggered any notable decrease in subscriptions, and the marked rise in revenues had led to the first significant annual net profit since Academic Press had begun publishing the *ICES Journal* in 1991. The 1997 profit of GBP 20 979, which had reduced the cumulative loss to GBP 69 567, was expected to continue at this level in 1998, and institutional subscriptions for the period were expected to reach approximately 335. As a means of reducing costs it was possible that the allowance of five colour pages printed in each volume without extra charge would be dropped; the colour could be accessible electronically, including through the ICES Web site so that it would also be available to readers not included in the Academic Press site-licence system.

Marketing continued to be focused on the development of two Web-based facilities: IDEAL, allowing free access to contents lists and abstracts, which increased the visibility of the journal, and APPEAL, a site-licence system

for consortia of institutions enabling readers to access and download full-text versions of articles and to subscribe to paper copies at "deep-discount" prices. A portion of the licensing fees was fed back into subscription accounts and was expected to become more visible as the system developed.

Following a Council decision made at the 1996 ASC, more than forty names had been removed from the complimentary distribution list, and J. W. Ramster would personally approach as many of them as possible by telephone in an effort to increase the number of paid subscriptions.

Agenda Item 5.4 Status of ICES/Academic Press Joint Account for 1997

Doc. ICES CM 1998/Pub:7 with two Annexes, originally prepared for the Mid-Term Meeting of the Bureau (Doc. No. 1097), was noted. It expanded on details contained in the joint account received from Harcourt Brace / Academic Press) in May 1998 (Annex 1) and included a table showing predicted and realized income and costs for 1991–1997 (Annex 2).

Agenda Item 5: Conclusions and recommendations

1. The "Scope and Aims" statement proposed by the Editor-in-Chief was supported by the Committee and would be developed into a final version.
2. The introduction of sections for short "scientific news articles" and "important new ICES developments" would be evaluated by the Editors.
3. The Editors would continue to set appropriate time limits for the return of manuscripts in revision.
4. Options for the electronic submission of manuscripts would be introduced into "Notes for Authors".
5. The *ICES Journal* would not normally accept contributed obituaries but, exceptionally, could invite or accept an obituary on advice from the General Secretary.
6. J. W. Ramster would follow up on his offer to approach those no longer receiving free copies to encourage them to subscribe.
7. All of the signs pertaining to the *ICES Journal* were positive, and continued development along the lines discussed would be encouraged.

Agenda Item 6 ICES COOPERATIVE RESEARCH REPORT SERIES

Doc. ICES CM 1998/Pub:8 was distributed at the meeting. Only one number in the *CRR* series had been produced since the 1997 ASC: No. 222, "Report of the ICES Advisory Committee on the Marine Environment", dated December 1997. The Editor's Report described the hindrances that had affected production of this series, including the funding constraints that had sharply reduced the original 1997/1998 budget allocation and a severe shortage of capacity in the Secretariat, owing to the setting of other priorities. Although it had been foreseen that the budget could be restored for 1998/1999, other

contingencies had intervened and the budget remained at a reduced level, according to the Report, providing only sufficient funds to publish the *ACFM* and *ACME* Reports and one or two other volumes. There was a considerable backlog of material that could not be issued under these circumstances. Consultative Committee members had expressed a strong interest in helping to correct matters, but how they could do so remained to be settled. The Publications Committee noted the information contained in the Report with regret and commented on the frustrating and embarrassing situation in which authors and editors of *CRRs* had been placed through a failure to match publishing commitments with resources.

Agenda Item 6: Conclusions and recommendations See those for Agenda Item 3.

Agenda Item 7 ICES IDENTIFICATION LEAFLETS FOR PLANKTON

Doc. ICES CM 1998/Pub:9 was noted. The Editor's Report commented on the leaflets that had once again not been published, remaining as they were, "still in press". The situation described in detail in last year's Publications Committee Report, referring to delays caused by a shortage of capacity in the Secretariat, still prevailed and had not improved with time.

Agenda Item 7: Conclusions and recommendations See those for Agenda Item 3.

Agenda Item 8 ICES IDENTIFICATION LEAFLETS FOR DISEASES AND PARASITES OF FISH AND SHELLFISH

Doc. ICES CM 1998/Pub:10, prepared by the new Editor appointed at the 1997 ASC, Dr S. E. McGladdery, was presented. The Committee warmly welcomed the Editor's initiatives in furnishing an overview of this series and in suggesting ways in which it could be improved. The Editor's Report included proposals for a revision of outdated leaflets and for a set of new guidelines tailored to authors of the series, both subject to the Committee's approval. The Working Group on Pathology and Diseases of Marine Organisms had endorsed the proposals and reiterated its view that the series should be continued. It was noted that the backlog of material mentioned in last year's Publications Committee Report, like that of the preceding leaflets series, still existed for similar reasons.

Agenda Item 8: Conclusions and recommendations

1. The Editor's proposals for revising the series and for authors' guidelines were approved. At the same time caution was advised in soliciting new material until it had been ascertained that the necessary resources would be available for production.
2. With reference to the existing backlog of material, see the conclusions and recommendations for Agenda Item 3.

Agenda Item 9 ICES TECHNIQUES IN MARINE ENVIRONMENTAL SCIENCES

Doc. ICES CM 1998/Pub:11, provisionally included on the Agenda, would not be presented. Publication of the four numbers in this series mentioned in the 1997 Publications Committee Report had been delayed owing to resource problems in the Secretariat, but they would be issued in the autumn of 1998. The general procedure for producing numbers was described as well as some of the problems generated when there were excessive delays between submission and publication: material could be out of date before it was issued; other publications contained references to numbers that were in fact not yet off press; authors became irritated and lost interest in contributing both new material and revisions; and those responsible for overseeing the series had received complaints and been seriously embarrassed by the lack of progress. Several manuscripts were in various stages of preparation and waiting for attention. Some numbers in this series were ideally suited for Web distribution, but policy questions needed to be settled first. These documents were much in demand, which only pointed up the gravity of the situation and again, the vital importance of matching commitments and resources.

Agenda Item 9: Conclusions and recommendations
See those for Agenda Item 3.

Agenda Item 10 ROLE OF THE ICES PUBLICATIONS COMMITTEE

Doc. ICES CM 1998/Pub:12 had been prepared by the Chair as a draft for discussion during the Mid-Term Meeting of the Consultative Committee. Citing the view advanced at the 1997 ASC (Publications Committee Report, Agenda Item 9, paragraph 2) that the establishment of direct links between the Committees should be pursued, Pub:12 raised issues of a principal nature concerning the role and effective functioning of the Publications Committee.

The same topics and problems had been discussed year after year, but the situation often remained static and there appeared to be no clear understanding of how to effect change. The Consultative Committee had responded very positively, indicating a strong interest in establishing closer contact and working together so that both Committees could coordinate their support for the scientific publications. The details of how the work would be carried out remained to be developed, but members of the Publications Committee agreed that they needed to take the initiative in defining their own role and sphere of operations in relation to the overall strategic planning for the Council. If, for example, recommendations made by the various science committees concerning publications were routinely tabled with the Publications Committee, members could play an active part in setting priorities and helping to monitor what was produced.

Agenda Item 10: Conclusions and recommendations

1. Links with the Consultative Committee should continue to be developed as an essential means of coordinating work on the scientific publications.
2. The Consultative Committee would receive a copy of the personal summary of the Publications Committee Meeting prepared by the Chair for presentation to the Delegates Meeting.
3. Members of the Publications Committee would work towards defining and strengthening their own role within the context of the strategic planning for the Council.

Agenda Item 11 ROLE OF ICES PUBLICATIONS IN THE WORK OF THE COUNCIL

Doc. ICES CM 1998/Del:15/Gen:4, the Report of the Bureau Working Group on Strategic Planning, would play a key role in formulating the Council's long-term goals and their realization. Citing the ICES Convention and its reference to publishing as one of the fundamental purposes of the Council, the Report mentioned ICES publications in several instances. Proposals included: under "Strategic Goals", broadening the scope and readership of publications; and under "Potential Activities for Fulfilling the Strategic Plan", publishing more interdisciplinary material and moving towards IT and electronic publication. Members of the Committee expressed their great interest in supporting the ideas and proposals; they lacked, however, formal involvement and it would be necessary to develop ways of interacting with these plans. It was possible, for example, that they could offer to contribute material on publications that would become a part of the ICES Strategic Plan.

Agenda Item 11: Conclusions and recommendations

1. Doc. Del:15/Gen:4, in confirming the continued role of ICES publications as an integral part of the Council's strategic planning, had helped to clarify that role for the Committee. Members would try to contribute to the articulation of these plans and would work to develop guidelines for the publications in accord with plans as they evolved.

Agenda Item 12 ICES PUBLICATIONS AND ELECTRONIC MEDIA

The increasing role played by the World Wide Web as a medium of publication was a principal theme of discussion throughout the meeting. The importance of using the Web for the dissemination of ICES publications and related information, as a means of speeding their release and reaching a wider public, was stressed by several participants. Professor Ojaveer, speaking on behalf of the Bureau, and S. Carlberg, speaking on behalf of the Consultative Committee, urged the Publications Committee to work towards exploiting the possibilities inherent in the Web, with reference to proposals and ideas mentioned in Docs. ICES CM 1998/Del:14 (Report of the Coordinating Group on ICES Advice) and Del:15/Gen:4

(Report of the Bureau Working Group on Strategic Planning). Members were assured of the support of the Consultative Committee, which would encourage them to make proposals and formulate advice.

There was as yet no agreed ICES policy regarding the Web, and several complex questions, financial and otherwise, remained to be settled. The Secretariat had placed a considerable amount of material on the Web and enabled others to do so, but the need for further development was noted. With respect to ICES publications, some were not suited to Web distribution for such reasons as size and the demands of special illustrations, but others were eminently well suited and could be made accessible from the ICES Web site. Decisions about such electronic publication should be made on an individual basis. To aid the submission of manuscripts for publication, templates could eventually be developed for the separate series. Committee members were extremely interested in seeing selected publications made available for downloading from the Web as soon as possible. It was understood that the demand for printed copies would continue to be met by the Secretariat.

Agenda Item 12: Conclusions and recommendations

1. The efficiency and speed of release of certain series could be improved by moving *now* to establish a Web site from which they may be downloaded by users as required. Introduced progressively on a case-by-case basis this need not compromise requirements for reproduction of half-tones or colour illustrations, and downloaded paper copies still could be mailed from the Secretariat to meet special needs.

DOCUMENTS

Pub:1	Agenda for Publications Committee
Pub:2	Review of ICES publication activities in 1997/1998
Pub:3	Sale and promotion of ICES publications during the last three years
Pub:4	<i>ICES Journal of Marine Science</i> : Editors' Report for 1997/1998
Pub:5	<i>ICES Journal of Marine Science</i> : Strategy for development
Pub:6	<i>ICES Journal of Marine Science</i> : Academic Press Publisher's Report for 1997/1998
Pub:7	<i>ICES Journal of Marine Science</i> : Status of ICES/Academic Press joint account for 1997, with two Annexes
Pub:8	<i>ICES Cooperative Research Report</i> series: Editor's Report for 1997/1998
Pub:9	<i>ICES Identification Leaflets for Plankton</i> : Editor's Report for 1997/1998
Pub:10	<i>ICES Identification Leaflets for Diseases and Parasites of Fish and Shellfish</i> : Editor's Report for 1997/1998
Pub:11	<i>ICES Techniques in Marine Environmental Sciences</i> : Editor's Report for 1997/1998
Pub:12:	Role of the ICES Publications Committee

REFERENCE PAPER: Del:15/Gen:6

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

CM papers, although outside the Committee's formal remit, were a subject of considerable interest. Members commented on Professor John Shepherd's article in the recently published newsletter, *ICES/CIEM Information*, urging ICES "to go the extra mile and attack the CM papers problem" by placing them on the Web, and also possibly on CD-ROMs. The Committee agreed that steps should be taken to facilitate the establishment of a Web site for the CM papers with unlimited distribution; this site should be the sole responsibility of the authors, however, and not the ICES Secretariat. It was important to make it apparent that there was a clear difference in status between these papers and those appearing in the official ICES publications, which were always edited and, depending on the series, peer reviewed or cooperative projects.

Agenda Item 14: Conclusions and recommendations

1. CM papers with open distribution should be made accessible to all on a Web site, where they would in every respect be the responsibility of the authors.

There being no other business, the Chair thanked participants for their contributions, and the meeting was adjourned at 18.00.

REPORTS OF SCIENCE COMMITTEES AND THEME SESSIONS

Reports of Science Committees

The Business Sessions of the Science Committees are an important forum for proposing work programmes and events to be supported by ICES. The Business function is fulfilled by drawing up Recommendations. Although there are official members appointed to each Committee, either by national Delegates or by the Council, all participants are welcome to join in the discussions in the Business Sessions of the seven Science Committees. The Recommendations then pass from the parent Science and Advisory Committees to the Consultative Committee, where they are polished, amended, and coordinated to ensure that duplication is avoided and that they are justified scientifically. Finally, the package of Recommendations approved by the Consultative Committee is presented to the decision-making body of the Council, the national Delegates, where they are discussed and, if supported, eventually endorsed as 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 1998 Annual Science Conference the following Theme Sessions were held:

- Mini-Symposium on Coastal Eutrophication, System Productivity, and (Harmful) Algal Blooms: What Do We Learn from Mesocosms?
Conveners: Prof. Y. Olsen and Dr A. Smaal
- Variation in the Pattern of Fish Aggregation: Measurement and Analysis at Different Spatial and Temporal Scales and Implications (J)
Conveners: Dr F. Gerlotto and Dr D.G. Reid
- The Use of Genetics in Aquaculture (K)
Conveners: Prof. J. Mork and Dr R. Devlin
- Farming Marine Fish beyond the Year 2000: Technological Solutions for Biological Challenges (L)
Convener: Dr B. Howell
- Impact of Cephalopods in the Food Chain and Their Interaction with the Environment (M)
Conveners: Dr U. Piatkowski and M. da Cunha
- Ecology of Diadromous Fishes during the Early Marine Phase (N)
Conveners: D. Reddin, Dr L.P. Hansen, and E. Rochard
- Deepwater Fish and Fisheries (O)
Conveners: Dr J.D.M. Gordon and I. Figueiredo
- Development of Toxicity and Quality Standards for Contaminants in the Marine Environment (P)
Conveners: Dr R. Laane, Dr P. Matthiessen, Dr K. Cooreman, and M. Nicholson
- Skill Assessment of Environmental Modelling (Q)
Conveners: E. Svendsen and B. Sjöberg
- Mesoscale Physical Phenomena and Biological Production: Implications for GLOBEC (R)
Conveners: Dr L. Valdes, Dr J.A. da Silva, and Dr K. Tenore
- Visualisation of Spatial (including Survey) Data (posters/software demonstrations) (S)
Conveners: Dr J. Ault, Dr B.A. Megrey, and Dr E. Moksness
- Management under a Precautionary Approach: Ecological, Social, and Economic Consequences (T)
Conveners: Dr R.L. Stephenson, Prof. E. Cadima, and Prof. J.G. Pope
- Evaluation of Marine Protected Areas as Management Tools (U)
Conveners: Dr A.D. Rijnsdorp and Dr R. Brown
- Recovery and Protection of Marine Habitats and Ecosystems from Natural and Anthropogenic Impacts (V)
Conveners: Dr H. Rumohr, Dr H. Rees, and Dr A.D. Rijnsdorp
- Stock Components in Management (AA)
Conveners: Dr R.L. Stephenson and Dr K. Friedland
- Fisheries Assessment Methods (BB)
Convener: J.-J. Maguire
- Population Biology (CC)
Convener: Dr R.C.A. Bannister
- Spawning and Recruitment (DD)
Convener: E. Aro

Supplement 1: Reports of Science Committees

REPORT OF CONSULTATIVE COMMITTEE

Chair: Dr R.M. Cook

The Committee met during the following three sessions:

Tuesday 15 September	12.30 - 14.00 hrs
Thursday 17 September	18.00 - 18.50 hrs
Monday 21 September	08.30 - 18.30 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. Görel Kjeldsen of the ICES Secretariat attended the first and last sessions, and the ICES/GLOBEC Coordinator attended the first session.

Agenda Item 1 OPENING

The Chair welcomed the Committee at the start of the short first (working-lunch) session. He indicated that the session scheduled for 18.00 hrs on Friday 18 September would not take place as ACFM wished to hold a session at that time. The session on Wednesday 16 September, was also cancelled.

Agenda Item 2 ADOPTION OF AGENDA AND TIMETABLE

The Chair submitted the draft Agenda. This was adopted with the inclusion of two items for Any Other Business. He noted that the first session would serve merely as a brief introduction to those Agenda Items connected with running the 1998 Scientific Sessions.

Agenda Item 3 ARRANGEMENTS FOR ANNUAL SCIENCE CONFERENCE

Item 3.1 General Arrangements

The Committee noted the meeting arrangements, and the 1998 ICES ASC Handbook containing Contributions, Agendas and Orders of the Day, and Abstracts. It was noted that there would be pigeonholes for Delegates, Committee Chairs, Officers of the Council, and Secretariat staff. File-folders would be available for most other participants in the ASC, although there might not be enough to distribute to the large number of late registrations. There would also be a noticeboard adjacent to the Documents Room.

Item 3.2 Review of Programme of Sessions (Blue Card), and List of Papers/Posters

The Chair drew attention to the 'Blue Card' which specified the rooms and dates for all Committee and Scientific Sessions (Theme) Sessions, and the Poster

Session to be held on Friday evening (18 September). A cash bar would be available for this latter session.

Item 3.3 Selection of Awards for Best Paper Presentation, Best Poster Presentation and Newcomer

Theme Session Conveners were asked to provide nominations for the awards, by 16.00 hrs on Saturday 19 September. In the case of the Poster Session, Committee members were asked to provide nominations. The Chair presented the awards at the Closing Session.

Item 3.4 Science Committee Sessions

The Chair noted that these sessions would be open to all registered participants at the Conference in addition to the officially nominated Committee members. Six and a half hours in three sessions have been allocated, and he expressed the hope that this time could be used productively in order to provide detailed input into the preparation of the ICES Five-Year Plan.

The Chair pointed out that, in accordance with the timetable provided in the report of BWGSTR, Committees were required to prepare draft objectives during the course of this Conference. All Committees indicated that they were ready to do this. The final first-draft would be presented to the Bureau in January 1999.

Agenda Item 4 ELECTION OF NEW COMMITTEE CHAIRS

Elections of new Chairs of the Fisheries Technology Committee and Baltic Committee took place at 16.00 hrs on 18 September, and 16.00 hrs on 19 September respectively. Delegates voted in cases where approved Committee members were not present.

The results of the elections were as follows:

Fisheries Technology Committee: Dr O. Misund (Norway);
Baltic Committee: Prof. T. Osborn (USA).

Agenda Item 5 CONDUCT OF 1998 ANNUAL SCIENCE CONFERENCE

Item 5.1 Instructions to Chairs, Conveners, and Rapporteurs

The Committee was informed that Instructions to Chairs, Conveners, and Rapporteurs were available in the ICES Secretariat. Copies of the Instructions to Rapporteurs

were placed in the file-folders of those Conveners who were not members of the Committee.

Item 5.2 Presentation of Papers/Posters

The Chair urged Committee Chairs and Conveners of Theme Sessions to intervene three minutes before the scheduled end of each presentation to ensure that the presentations and sessions did not overrun and to ensure time for discussion. During the Conference it was noted that the presentations and posters were generally improving each year.

Item 5.3 Handling of Recommendations

Most Recommendations had, as usual, been drafted by the Professional Secretaries prior to the ASC, and were available in Doc. C.M. 1997/A:6. In considering Recommendations for new activities Chairs were urged to anticipate the forthcoming requirement for a detailed appraisal of the resources required. The Chair asked that Recommendations be consistent with the objectives which the Committees would be drafting in connection with the development of the Five-Year Plan. He also drew attention to the fact that, in accordance with the conclusions of CGADV, all new activities which are partly or wholly subsidised by the ICES Commission Clients should be approved by the client prior to Council approval.

The deadline for the receipt of Recommendations was 09.00 hrs on Sunday, 20 September.

Item 5.4 Publicity and Press Releases for 1998 Annual Science Conference

The Committee noted that no press release had been produced and that there would be no press conference at the conclusion of the ASC.

The Committee was informed that details of the 1998 ASC Scientific Sessions were, as usual, available on the ICES Web site.

Item 5.5 Reports of Science Committees and Conference Sessions

At the first session, the Committee was informed that the deadline for receipt of reports would be 09.00 hrs on Sunday 20 September. Committee reports should elaborate in some detail the conclusions of the debate on the ICES Five-Year Programme. The Chair indicated that it was the responsibility of the Professional Secretaries and the relevant Committee Chair "shadow" to ensure that the Theme Session Conveners and Rapporteurs were aware of these deadlines, as well as the information referred to under this agenda item.

The Committee reviewed the outcome of the Conference at the third session. It was felt that, because of pressures arising from shortage of time, clear consideration should be given to restructuring the General Assembly and Open Lecture. The Open Lecture for 1999 has been decided, but it was felt that it should not be necessary to have such a lecture every year. Interesting possibilities for an Open Lecture should be evaluated, depending on the venue for the meeting and other relevant factors, and would be discussed at the Mid-Term Meeting.

The Open Lecture is often compromised by catering for those who are experts on the subject as well as those who know little about the topic, which often does not work. There could be a more limited "Keynote Lecture" on a much narrower topic held at another point during the meeting.

The suggestion was made that the opening of the meeting could be linked with a reception, and does not need to be held before the Business Sessions of the Committees. This could then be held on a less formal basis and would save both time and space.

In conclusion, the Committee agreed that consideration needs to be given to the format of the General Assembly. It was decided that this topic will be considered at the June 1999 Consultative Committee Meeting on the basis of intersessional work.

The Committee reviewed the 1998 ASC on a Committee-by-Committee basis, as follows:

Marine Habitat Committee: The Committee Chair stated that the main problem was the lack of attendance by Committee members. She also stated that the lecture-room style of the rooms was not appropriate to this type of meeting.

Resource Management Committee: There was inadequate time for Committee business, particularly in relation to review of Working Group reports. Consideration may need to be given to having Working Group Chairs prepare executive summaries of their reports for review by the Committees.

Oceanography Committee: The Committee had asked reviewers to review and summarise Working Group reports. This was done, but the reviews were not available in written form for Committee members. This was compounded by a lack of time for the work. The main overall problem was a lack of time for Committee sessions. Otherwise, there had been a good discussion about the objectives and work plan of the Committee. It was pointed out that the ASC is an excellent opportunity to meet with Working Group Chairs, and they should be specifically invited to attend. More flexibility in the amount of time available is needed, however.

Living Resources Committee: It was pointed out that review of the large number of Working Group reports was a serious problem owing to the lack of time. Approximately 50% of the members were present.

Baltic Committee: There was good participation; the facilities were adequate, but the time available was much too short. It was difficult to communicate with Committee members now that the pigeonholes were not available; the file-folders were difficult to use.

Mariculture Committee: There was good participation: 15 to 17 members. Discussion was good. There was not enough time and one Working Group report was not available to members. If the Committee is to function correctly, it must have more time.

Fisheries Technology Committee: The Chair agreed that the structure of the room is important to how a session functions. Participation is a problem, and something needs to be done to encourage members to attend the ASC and the Committee meetings.

In the concluding discussion, the issue of a Chair's summary of Working Group reports was considered. It was stated that summaries should include: 1) general information, 2) critical review of the scientific aspects of the report, and 3) information on the action points requested by the Working Group. It was noted that several Committees had requested members to review Working Group reports. The Committee agreed that Working Group Chairs should be requested to prepare a summary of their reports, with a list of action points, for the consideration of the parent Science Committee. The Chair's Handbook will be amended to reflect this need.

It was noted that Working Group reports are currently made available on the ICES Web site, if so requested by the relevant Committee Chair. The Chair encouraged the Committee to avail itself of this facility if members considered it would improve the functioning of their Committee, and facilitate the review of reports.

Mini-Symposium/Theme Sessions/Poster Session

The Committee noted the pleasing participation in almost all of the Theme Sessions. Most of the sessions had generated comprehensive reports. The Poster Session was also considered a success. The very high number of posters (ca. 120) had resulted in rather cramped conditions, but this was not seen to have detracted from their value. The Committee considered that increased efforts should be made to encourage posters. Görel Kjeldsen was asked to check that the facilities for posters at the 1999 ASC were suitable.

Agenda Item 6 MATTERS ARISING FROM MID-TERM CONSULTATIVE COMMITTEE MEETING

Item 6.1 Approval of Report

The report of the 1998 Mid-Term Meeting was noted.

Item 6.2 Procedures for Electing New SG/WG Chairs

The Chair reminded the Committee of the revised procedures for electing new Chairs of the Study/Working Groups that were proposed by the Committee under Agenda Item 12 of the Mid-Term Report. Since this procedure would not be approved by Delegates before the end of the Science Committee sessions, the Chair proposed that a final implementation of this procedure would not be required until next year. However, as several Working Groups had acted on the advice that they had received, these decisions would be honoured. As usual, Committees were required to ratify Working Group nominations for Chairs.

Item 6.3 Topic Groups

The Chair reminded the Committee of the extensive discussion of this subject at the Mid-Term Meeting of the Committee (Agenda Item 8). It had been agreed that presentation of this issue at the ASC would be based on a written proposal, explaining how the system would be allowed to work, but there had been no opportunity to develop this proposal.

The Living Resources Committee is one example where the diversity of interests need to be maintained, which may not always be possible with the Theme Sessions chosen for any particular ASC. It was agreed that informal groups could both meet during the ASC and work intersessionally by e-mail to discuss areas of scientific work, provided that this was done with the knowledge of the Committee Chair, and that the groups were not constituted as sub-committees.

Item 6.4 Sponsorship of ICES Symposia

The Chair informed the Committee that the Bureau had considered the proposal made by the Committee at the Mid-Term Meeting (Agenda Item 6)

Item 6.5 ICES Five-Year Plan

The Chair referred to his document "First Steps in Developing the ICES Five-Year Plan" which he had circulated to members in August. He explained at the first session what was required from the Committees at this meeting with respect to the preparation of Objectives.

Draft Objectives prepared by the Committees were compiled into a draft document for consideration at the third session. Because of lack of time the Committee was unable to digest this material during the Conference, but agreed on a programme of activities by means of e-mail that would result in a document suitable for submission to the Bureau in January 1999. A number of Committees plan to refer their draft objectives to their working groups, following the approval of the Bureau. This will ensure that the Working Groups have the opportunity to provide information relevant to the provision of activities, tasks, products and resource estimates related to each objective.

Item 6.6 Coordinating Group on ICES Advice

The Chair informed the Committee that this report had been well received by the Bureau, and progress was being made via a consultant to develop procedures for ISO 9001 certification of the ICES advisory procedures.

Agenda Item 7 1999 ANNUAL SCIENCE CONFERENCE (STOCKHOLM, SWEDEN): TOPICS/SPEAKERS /CONVENERS FOR OPEN LECTURE, MINI-SYMPOSIUM AND THEME/ JOINT SESSIONS

Item 7.1 Consideration of Reports from Session Conveners

The Committee noted progress in those 1999 Theme Sessions which had been agreed at last year's ASC and at the Mid-Term Meeting. The Chair reminded members of the decision made at the Mid-Term Meeting that there would be no "open" sessions in 1999. Any papers or posters that did not relate to one of the designated themes would be rejected. He asked Committees to propose a small number of main themes and several smaller, but more focused themes. There were no written reports from Conveners of sessions already proposed.

It was noted that the intended Mini-Symposium on "Processes Influencing Trophic Transfer of Top Predators" has been cancelled because the proposed Conveners had not accepted their assignment.

Item 7.2 Final Proposals

The Committee concluded that the provisional programme of scientific sessions for the 1999 meeting should be:

Open Lecture

"The Evolution of ICES": David de G. Griffith.

Mini-Symposium

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)

Theme Sessions

- j) **Application of Acoustic Techniques to Bottom Trawl Surveys:** Co-Conveners - J. Massé (France), and Dr O. Godø (Norway);
- k) **Application of Coupled Bio-Physical Models in Studies of Zooplankton and Ichthyoplankton Advection and Dispersion:** Co-Conveners - E. Svendsen (Norway), Dr F. Werner (USA), and Dr K. Drinkwater (Canada);
- l) **Nordic Seas Exchanges:** Co-Conveners - Harald Loeng (Norway) and Prof. J. Meincke (Germany);
- m) **4-D Sampling of the Oceans at Micro- to Mesoscales:** Co-Conveners - Dr M. Heath (UK), Dr J. Steele (USA), and H. Loeng (Norway);
- n) **On Management and Mitigation for Harmful Algae:** Co-Conveners - H. Dahlin (Sweden), Dr L. Edler (Sweden), and H. Enevoldsen (IOC) (IOC-co-sponsor);
- o) **Global Change Aspects:** Co-Conveners - Dr R. Hendry (Canada) and Dr S. Jonsson (Iceland);
- p) **Sustainability Criteria:** Co-Conveners - Dr R. Stephenson (Canada) and another from Europe;
- q) **The Language of Fisheries Science and Management:** Proposed Co-Conveners - Dr E. Anderson (USA) and O. Hagström (DG IV) (not confirmed);
- r) **The Relationship between Fishing Capacity, Effort and Mortality:** Proposed Conveners - E. Kirkegaard (Denmark), J.-J. Maguire (Canada), and Dr M. Pastoors (Netherlands) (not confirmed);
- s) **Evaluation of Complete Fisheries Systems: Economic, Social, and Ecological Analyses:** Proposed Conveners - Dr G. Stefansson (Iceland), Dr D. Lane (Canada), and Prof. J. Sutinen (USA) (not confirmed);
- t) **Bayesian Approach to Fisheries Analysis:** Co-Conveners - Dr R. Conser (USA) and M. Azevedo (Portugal);
- u) **M-74 Syndrome and Similar Reproductive Disturbances in Marine Animals:** Proposed Co-

Conveners – Dr B.-E. Bengtsson (Sweden) + a North American colleague;

- v) **Habitat Classification and Mapping:** Co-Conveners – To be appointed;
- w) **Regional QSR2000** (with OSPAR): Co-Conveners – To be appointed;
- x) **Health and Welfare of Cultivated Animals:** Convener – J.C. Holm (Norway);
- y) **Size-Based Processes in the Sea (Poster):** Convener – Prof. J. Pope (UK);
- z) **Cod and Haddock Recruitment Processes - Integrating Stock and Environmental Effects:** Co-Conveners - Dr M. Heath (UK), Dr B. Mackenzie (Denmark), and G. Marteinsdottir (Iceland);
- aa) **Ecosystem Management - Can We Make it Operational ?:** Co-Conveners – Prof. J. Pope and Dr J. Rice;
- bb) **Microprocessors and Things that Swim in the Ocean: Smart Tags in the Study of Marine Life:** Co-Conveners – Dr K. Friedland (USA), Dr G. Arnold (UK), Dr G. Stenson (Canada), and Dr L. Karlsson;
- cc) **Life History Studies in Living Marine Organisms: Recent achievements and methodological developments:** Co-Conveners – Prof T. Haug (Norway), and 2 others (Shellfish and Finfish).

**Agenda Item 8 2000 ANNUAL SCIENCE
CONFERENCE (BELGIUM):
TOPICS /SPEAKERS/
CONVENERS FOR OPEN
LECTURE, MINI-SYMPOSIUM,
AND THEME SESSIONS**

Open Lecture

The Chair referred to the approach he had received from Dr E. Anderson proposing that Dr **D. Pauly** present the Open Lecture in 2000. The Committee had given a very positive response. The Committee therefore confirmed this selection and asked that Council invite Dr Pauly to present the Open Lecture. Dr Pauly has agreed in principle following an informal approach.

Mini-Symposia- Theme Sessions

The Committee noted several proposals for the Mini-Symposia and Theme Sessions. The Science Committees will re-consider these at the 1999 ASC before a decision on the programme is finalised.

Agenda Item 9 STATUS OF ICES SYMPOSIA

Item 9.1 Symposia in 1998

The Committee noted the report from the Symposium on "Recruitment Dynamics of Exploited Marine Populations: Physical-Biological Interactions", Baltimore, Maryland, USA, 22-24 September 1997. Co-Conveners: Prof. M.J. Fogarty (USA), H. Loeng (Norway), Prof. T. Osborn (USA), and Prof. J.G. Shepherd (UK). The process of preparing the presentations in the *ICES Journal* is under way.

Only one Symposium has been held since the 1998 ASC, namely the Symposium on "Brackish Water Ecosystems", Helsinki, Finland from 25-28 August 1998. Convener: Prof. P. Mälikki (Finland). A report of the symposium is in C.M. 1998/Gen:4.

The Committee noted that preparations are well in hand for the Symposium on "Marine Benthos Dynamics: Environmental and Fisheries Impacts" to be held in Heraklion, Crete, Greece, 5-7 October 1998. Co-Conveners: Prof. A. Eleftheriou (Greece) and Dr P. Kingston (UK). Details of the programme and arrangements are available from the ICES Web site (http://www.ices.dk/symposia/ben_sym.htm).

Preparations are also well in hand for the Symposium on "Confronting Uncertainty in the Evaluation and Implementation of Fisheries-Management Systems": Cape Town, South Africa, 16-19 November 1998. Co-Conveners: Dr T. K. Stokes (UK), Prof. D. Butterworth (South Africa), and Dr R. L. Stephenson (Canada). Detailed arrangements are available from http://www.ices.dk/symposia/u_sym.htm.

**Item 9.2 Symposia for 1999, 2000, 2001
and 2002**

The following Symposia are already approved for the years 1999-2001:

ICES/SCOR Symposium on "Ecosystem Effects of Fishing": Montpellier, France, 16-19 March 1999: Co-Conveners – Prof. H. Gislason (Denmark) and Dr M.M. Sinclair (Canada). The call for papers, pre-registration form, and preliminary programme have been issued and are available from <http://www.ices.dk/symposia/ecoeff.htm>.

"Population Dynamics of *Calanus* in the North Atlantic: Results from the Trans-Atlantic Study of *Calanus finmarchicus*": Tromsø, Norway, 24-27 August 1999. Co-Conveners: Prof. K. S. Tande (Norway) and Prof. C. Miller (USA). Preliminary announcement published (<http://calanus.nfh.uit.no/TASC.HTML>, <http://www.ices.dk/symposia/tasc.htm>, <http://europa.eu.int/comm/dg12/envsc/events.html>).

NAFO Scientific Council Symposium (co-sponsored by ICES and PICES) on "Pandalid Shrimp Fisheries - Science and Management at the Millennium": Halifax, Nova Scotia, Canada, 8 - 10 September 1999: Co-Conveners - P. Koeller (NAFO), S. Tveite (ICES), and J. Boutillier (PICES). A Call for Papers has been issued (<http://www.mar.dfo-mpo.gc.ca/shrimp/>).

"Environmental Effects of Mariculture": St Andrews, N.B., Canada, 13-16 September 1999: Co-Conveners - Dr D. Wildish (Canada) and Dr M. Héral (France). A preliminary announcement has been published (<http://www.ices.dk/symposia/cem.htm>).

"Seventh International Conference on Artificial Reefs and Related Aquatic Habitats" San Remo, Italy, 7-11 November 1999. (ICES co-sponsor, proceedings possibly to be published in *ICES Journal*).

"100 Years of Science under ICES": Helsinki, Finland, 1-3 August 2000. Convener: Dr E. D. Anderson (USA). The call for papers, pre-registration form, and preliminary programme have been published (<http://www.ices.dk/symposia/history.htm>).

"Hydrobiological Variability in the ICES Area, 1990-1999": Edinburgh, Scotland, UK, 8-10 August 2001. Co-Conveners: Dr R. R. Dickson (UK) and Professor J. Meincke (Germany). NAFO is to be invited to co-sponsor this symposium. Further details of the preparations in hand are given in Doc. C:8.

"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, (http://www.ices.dk/symposia/sym_acou.htm). (The original title of this Symposium was "Fisheries and Plankton Acoustics", C.Res. 1997/1:3).

Item 9.3 Prospects and Proposals for Additional Future Symposia and Workshops

The Committee submitted for Council approval the following Symposium to be held in 2000:

"Capelin - What Are They Good For? Biology, Management and the Ecological Role of Capelin", Reykjavik, Iceland, Summer 2000: Convener - Dr H. Vilhjalmsón (Iceland).

The Committee also recommends that ICES co-sponsor the following Symposium in 1999:

"The Changing States of Large Marine Ecosystems of the North Atlantic and Global Environmental Trends", co-

sponsored by NOAA, IOC, SCOR, and ICES, Bergen, Norway in June 1999.

The Committee noted that there were now two Symposia planned for 2000, and one each for 2001 and 2002. There was no information available on prospects for additional Symposia for these years. These would be considered again at the 1999 meeting.

Agenda Item 10 PROGRESS REPORT ON PLANNING FOR ICES YOUNG SCIENTISTS CONFERENCE

The Committee noted that the ICES Young Scientists Conference (C.M. 1998/Del:17) may not proceed as planned unless DKK 95,000 to cover planning and secretariat costs could be realised. However, various measures have been taken to save costs so that this Conference can be held at Hirtshals (Denmark).

Agenda Item 11 PROGRESS IN PLANNING FOR THE 11TH ICES DIALOGUE MEETING

It was noted from C.M. 1998/Del:16 that the 11th Dialogue Meeting would be held at IFREMER, Nantes, France, 26-27 January 1999. It would address four topics, from the 1) Precautionary Approach, 2) Confidence Building, 3) the Form and Nature of Advice, and 4) the Future Evolution in Science, Management, and Public Perception. IFREMER, the city of Nantes, and the EC would provide sponsorship.

Agenda Item 12 MATTERS ARISING FROM THE PUBLICATIONS COMMITTEE

Item 12.1 Future Cooperation

The Chair reminded the Committee of a discussion paper considered at the Mid-Term Meeting from Prof. Peter Boyle, Chair of the Publications Committee. The Bureau has suggested that the links between the Publications Committee and the Consultative Committee be strengthened in order to allow the Publications Committee to contribute more energetically to the activities of ICES. The Committee Vice-Chair (S. Carlberg) took part in the Publication Committee in order to strengthen these ties.

Item 12.2 Other Matters

The Vice-Chair indicated that he had informed the Publications Committee that the Consultative Committee was in favour of publication on the World Wide Web. However, ICES does not yet have a policy concerning publication on the web, and this needs to be formulated. The Chair also reported that the Publication Committee had identified a substantial problem in the production of

ICES Cooperative Research Reports. A task group may be set up to propose solutions to this.

Agenda Item 13 ADVISORY COMMITTEE MATTERS

Item 13.1 ACFM

ACFM presented a statement about how it views the quality control issue as presented in the CGADV report and in the report of the external consultant regarding a review of the present Advisory Function. It was agreed that the Chair of the Consultative Committee should present the ACFM statement to Delegates.

Item 13.2 ACME

The Chair of ACME highlighted the following issues in C.M.1998/A:4.

The Baseline Study of Contaminants in Baltic Sediments was carried out some time ago, but the final report has not yet been completed to the satisfaction of relevant Working Groups and ACME. ACME has compiled a list of points that need to be addressed in the finalisation of the report on this study, and a mechanism for completing the document is being devised.

The ICES Secretariat is presently developing a biological database for HELCOM and OSPAR covering phytoplankton, zooplankton, and zoobenthos, but ICES is only supporting the zoobenthos component. Several working groups have expressed an interest in handling data on phytoplankton and zooplankton, but this needs to be explored in terms of resource and other implications.

ACME has received components of an ICES Environmental Report, parts of which will be published in the 1998 ACME report. ACME has recommended that this report be published on the ICES Website, with links to contributing institute Websites, as appropriate. A decision may need to be taken on this by ICES.

Agenda Item 14 RECOMMENDATIONS BY ADVISORY AND SUBJECT AREA COMMITTEES

Item 14.1 Recommendations

Fisheries Technology Committee: The Committee rejected a Recommendation for the ICES Secretariat to host a database on Selectivity Data on the grounds that such a database is better hosted in a scientific institute.

Oceanography Committee: Concern was expressed about the appropriateness of the proposed *TIMES* report on "Flow Cytometry", but it was decided that a final decision on its publication should be left to the Committee Chair and the Editor of the series, as noted in the Recommendation.

The Chair of the Oceanography Committee drew attention to the difficulty that the Study Group on GOOS was facing in soliciting the support of the Working Groups of the Living Resources and Marine Habitat Committees. The Committee decided to include an additional Term of Reference in an attempt to solve this difficulty.

The Chair of the Oceanography Committee referred to a Committee discussion on the issue of participation of university scientists within the Working Groups. It was considered that many academics could contribute to the work of ICES but are unable to join Working Groups because of the prohibitive costs of travel. It was hoped that Delegates could consider ways of encouraging their participation in ICES activities. It was noted that this issue had also been raised by the CGADV.

The Chair of the Oceanography Committee also informed the Committee that if the Science Committees were to function as intended, then better attendance was required at the meetings. The Chair had received signals from a member stating that ICES work has low priority at their institute. He considered that at least one committee member per country should be in attendance at the ASC. He asked that Delegates be made aware of this and appoint only those scientists who are committed and willing to attend.

Resource Management Committee: A Recommendation for ICES to collaborate with OECD was changed to an enquiry about the work programme of the OECD Fisheries Committee on the project entitled "Transition to Responsible Fishing" in order to, initially, establish the desirability of collaboration.

Marine Habitat Committee: The large number of Terms of Reference for the Marine Chemistry Working Group was questioned. However, it was pointed out that this group works in three sub-groups and thus can handle a large work load. With regard to the Terms of Reference concerning oxygen measurements, it was queried as to whether this included CTD measurements; this request was included in the final Terms of Reference.

The WGEXT Terms of Reference were noted, and it was questioned whether this group was conducting the work really expected of it. The Chair of MHC pointed out that there is now a new Chair, so the focus of the group may now move in the preferred direction. This will be reviewed next year.

The Working Groups on marine mammals were discussed and it was noted that the Harp and Hooded Seals Working Group should work closely with the two groups, WGMMPD and WGMMHA, established last year, by overlapping all the dates if possible.

The Committee rejected a proposed Workshop on Environmental Risk Evaluation and Monitoring as its

Terms of Reference were too broad, and its purpose was unclear. The Committee requested the proposing Working Group (WGEAMS) to provide more specific justification.

The Terms of Reference for a new Study Group on Marine Biodiversity were broadened to cover the interests of the Living Resources and Resource Management Committees.

Mariculture Committee: The issue of the chairship of the Working Group on Environmental Interactions of Mariculture was considered; it was noted that the 1999 meeting will be Co-Chaired by the present Chair and the next Chair, who was elected for the period after 1999. There was some discussion concerning when the change of Chairs should take place, whether before the 1999 or the 2000 meeting. It was noted that the problem of changing long-term Chairs has been compounded by the way in which the Chairs affected were notified. The Committee ultimately agreed that WGEIM should be Co-Chaired for its 1999 meeting and the new Chair should take over after the 2000 ASC.

It was commented that material from this report was supposed to be presented to ACFM at its May 1998 meeting, but the material required was not contained in the report. The topics that should be covered by WGEIM are very important and a group is needed to handle them, whether it be a new group or this group revised. The Chair of ACME stated that ACME had reviewed a statement on coastal zone management from the 1998 WGEIM report, but could not accept it for the ACME report because it focused too much on mariculture and did not adequately represent other uses of the coastal zone. After much discussion, the Committee agreed that items a) to k) should be deleted from the Terms of Reference and replaced with a general term to develop a programme of work related to the objectives of the four interested committees, along with a term of reference to cover the specific interest of ACME in coastal zone management. The term of reference concerning the HELCOM request would remain as originally drafted.

The WGPDMO Recommendation was amended to include reporting to ACFM before its May 1999 meeting.

Living Resources Committee: There were very minor changes to details of these Recommendations. The Chair explained the purpose of the proposed Planning Group on the Census of Fishes, and the rationale behind the Terms of Reference and the choice of Chairs.

Baltic Committee: All Recommendations were accepted as drafted. The Committee noted that the proposed activities concerning the Baltic Regional Project had already been discussed by Delegates.

ACFM: The Study Group on the Assessment of Other Fish and Shellfish Species (SGASSO) has had poor

attendance. This has frustrated the development of assessment tools regarding fish and shellfish stocks not included in the routine assessment work. Furthermore, the EC request that initiated this group has now been understood to be rather a simple and pragmatic evaluation of these stocks. It was decided that this understanding should be verified via the CGADV procedure to find out precisely what the client, in this case the EC, wants. For the time being it was decided that the two groups in question should be merged.

It was decided that the proposed Study Group on Market Sampling Methodology (SGMSM) should not meet but only work by correspondence, because some countries would have difficulties spending the resources needed to send members.

ACME: The Terms of Reference for SGQAE were amended to take into account the work of the new Study Group on an ICES/IOC Checklist of Phytoplankton (SGPHYT) in its review of progress in the development of taxonomic lists.

It was agreed that the WGECO should also report to the Living Resources and the Resource Management Committees.

In the discussion on the proposed Study Group on Collecting and Reporting Discard Data, it was agreed that this is an important task, but it was felt that the wording of the term of reference was not adequate, the time frame was not long enough, nor could this task best be done by correspondence. The Committee agreed to amend the term of reference proposed so that it was more specific concerning the work to be conducted, and added a second term of reference requesting the Study Group to propose further steps that would advance the ICES treatment of the discard issue. It was pointed out that there are a number of problems concerning discard data, including that some countries report data and others do not, and there needs to be a requirement for all countries to report these data; this could be the subject of a Recommendation to Council. The Committee decided to see what this Study Group produces and then determine the next steps to be taken.

The Committee felt that the limited time available at the ASC to consider draft Terms of Reference and Resolutions meant that the review process was not functioning adequately. In order to improve matters it was felt that the majority of recurrent Resolutions could be drafted early in the year and reviewed at the mid-term meeting of the Consultative Committee. This would allow more for consideration and provide more scope for careful review of new proposals brought forward at the ASC. Such a process could also help the Council by preparing a near final draft of the Resolutions well in advance of the Council meetings during the ASC. The Committee agreed to try to implement such a procedure during 1999.

Item 14.2

Lists of the various Study/Working Groups, and other Groups, and Workshops that were dissolved, established, or renamed by virtue of Council Resolutions at the 1998 Annual Science Conference.

Type of Action	Name
Dissolved	<p>Working Group Methods of Fish Stock Assessment</p> <p>Study Group Precautionary Approach to Fishery Management Management Strategies for Baltic Fish Stocks Monitoring Programmes for Contaminants in Sediments Use of Selectivity and Effort Measurements in Stock Assessment Grid (Grate) Sorting Systems in Trawls, Beam Trawls and Seine Nets Echo Trace Classification Evaluation of the Quarterly IBTS Surveys Stock-Recruitment Relationships for North Sea Autumn-Spawning Herring The Stock Structure of Baltic Spring-Spawning Herring</p>
Established/Re-established	<p>Working Groups Working Group on Beam Trawl Surveys [WGBEAM] (formerly Study Group on Beam Trawl Surveys [SGBEAM])</p> <p>Study Groups Effects of Sandeel Fishing [SGESF] Market Sampling Methodology [SGMSM] IIIa Herring [SG3AH] Baltic Herring Maturity [SGBHM] Methods for Measuring the Selectivity of Static Gear [SGMMG] An ICES/IOC Checklist of Phytoplankton [SGPHYT] Marine Habitat Mapping [SGMHM] Marine Biodiversity [SGMB]</p> <p>Workshops Biological Effects Methods to be applied to detect 'Combined Effects' in Marine Ecosystems [WKCEME] Second ICES/HELCOM Workshop on Quality Assurance of Chemical Procedures for the Baltic Monitoring Programme [WKQAC] ICES/HELCOM Workshop on Baltic Sea Sediments: Conditions and Contaminants [WKBSED] Gadoid Stocks in the North Sea during the 1960s and 1970s, the Fourth ICES/GLOBEC Backward-Facing Workshop [WK6070] GOOS [WKGOOS] Workshop on Otolith Ageing of North Sea Whiting [WKOAW] Baltic Trawl Experiments [WKBTE] The Usefulness of Scale Growth Analyses and Other Measures of Condition in Salmon (WKUS) Evaluation of the Plaice Box [WKEPB]</p>

Item 14.3 New Study/Working Group Chairs

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

Chair	Group
	Working Group
Dr T. Pakarinen (Finland)	Baltic Salmon and Trout Assessment [WGBAST]
Jesper Boje (Denmark)	North-Western [NWWG]
A. Biseau (France)	Assessment of Southern Shelf Demersal Stocks [WGSSDS]
Prof. T. Haug (Norway)	Joint ICES/NAFO Working Group on Harp and Hooded Seals [WGHARP]
Dr F. Redant (Belgium)	<i>Nephrops</i> Stocks [WGNEPH]
Prof. J.T. Carlton (USA)*	Introductions and Transfers of Marine Organisms [WGITMO]
Dr M. Tasker (UK)	Seabird Ecology [WGSE]
Dr D. Mills (UK)	Phytoplankton Ecology [WGPE]
Dr P. Gentien (France)*	Harmful Algal Bloom Dynamics [WGHABD]
Dr B. Sjöberg (Sweden)	Shelf Seas Oceanography [WGSSO]
R. Gelfeld (USA)	Marine Data Management [WGMDM]
A. Newton (UK)	International Bottom Trawl Survey [IBTSWG]
L. Føyn (Norway)	Environmental Assessment and Monitoring Strategies [WGEAMS]
Dr J. Side (UK)	Effects of Extraction of Marine Sediments on the Marine Ecosystem [WGEEXT]
Dr S. Uhlig (Germany)	Statistical Aspects of Environmental Monitoring [WGSAM]
Prof. J. Mork (Norway)*	The Application of Genetics in Fisheries and Mariculture [WGAGFM]
Dr I.M. Davies (UK)	Environmental Interactions of Mariculture [WGEIM]
Dr B. Howell (UK)*	Marine Fish Culture [WGMAFC]
Prof. A. Temming (Germany)	<i>Crangon</i> Fisheries and Life History [WGCRAN]
Dr G. Pierce (UK)	Cephalopod Fisheries and Life History [WGCEPH]
	Study Group
S. Iversen (Norway)	Multiannual Assessment Procedures [SGMAP]
Dr J. Rice (Canada)	Effects of Sandeel Fishing [SGESF]
Dr T. Gröhsler (Germany)	IIIa Herring [SG3AH]
H. Müller (Germany)	Baltic Herring Maturity [SGBHM]
A. Carr (USA)	Methods for Measuring the Selectivity of Static Gear Experiments [SGMMG]
Dr O. Moestrup (Denmark)	An ICES/IOC Checklist of Phytoplankton [SGPHYT]
Dr E. Jagtman (Netherlands)	Marine Habitat Mapping [SGMHM]
Dr J.-H. Fosså (Norway)	Marine Biodiversity [SGMB]
Dr N. Daan (Netherlands)	Evaluate the Effects of Multispecies Interactions [SGEEMI]
	Joint Meeting
To be identified	Statistics Liaison Working Group [WGSTAL] and EUROSTAT Working Group on Fishery Statistics
Dr J. Massé (France)	Working Group on Fishing Technology and Fishing Behaviour [WGFTFB] and the Working Group on Fisheries Acoustics Science and Technology [WGFASST]
R. Fryer (UK)	Working Group on Biological Effects of Contaminants [WGBEC] and the Working Group on Statistical Aspects of Environmental Monitoring [WGSAM]
	Workshop
Dr M Krysell (Sweden)	AMAP/EEA/ICES Workshop on Biological Effects Methods to be applied to detect 'Combined effects' in Marine Ecosystems [WKCEME]
J.-J. Maguire (Canada)	Second ICES/HELCOM Workshop on Quality Assurance of Chemical Procedures for the Baltic Monitoring Programme [WKQAC]
Prof. M. Pertilä (Finland)	Peer Review of ICES Salmon Model [WKPRISM]
Dr B. Winterhalter (Finland)	ICES/HELCOM Workshop on Baltic Sea Sediments: Conditions and Contaminants [WKBSED]
Dr M. Heath (UK)	Gadoid Stocks in the North Sea during the 1960s and 1970s, the Fourth ICES/GLOBEC Backward-Facing Workshop [WK6070]
Dr J. Alheit (Germany)	

Dr M. St. John (Denmark)	
R. Sætre (Norway)	GOOS [WKGOOS]
Prof. C.N.K Moores (USA)	
Dr H. Dahlin (Sweden)	
A. Newton (UK)	Otolith Ageing of North Sea Whiting [WKOAW]
Dr H. Hovgård (Denmark)	Baltic Trawl Experiments [WKBTE]
Dr P. Ernst (Germany)	
Dr J. C. Maclean (UK)	The Usefulness of Scale Growth Analyses and Other Measures of Condition in
Dr K Friedland (USA)	Salmon [WKUS]
Dr A. Rijnsdorp (Netherlands)	Evaluation of the Plaice Box [WKEPB]

The following Table compares the number of scheduled meetings and correspondence activities of Council Groups, Workshops and Advisory Committees in 1997–1999.

Meetings and correspondence	1997			1998			1999		
	T ²	M ²	C ²	T ²	M ²	C ²	T ²	M ²	C ²
Working Group	44	40	4	46	40	6	50	15	4
Sub-Group	0	0	0	0	0	0	0	0	0
Study Group	23	12	11	26	18	8	22	4	9
Planning Group	3	3	0	4	3	1	5	1	1
Workshop	8	8	0	7	7		11	1	0
Advisory Committee	3	3	0	3	3		3	3	0
Others	6	6	0	7	6	1	6	3	2
Total	87	72	15	93	77	16	97	27	16

²T = total number, M = meeting, C = working by correspondence

Agenda Item 15 MATTERS REFERRED TO THE COMMITTEE BY THE BUREAU OR COUNCIL

There were no additional items referred to the Committee.

Agenda Item 16 TERMS OF REFERENCE FOR 1999 MID-TERM MEETING OF CONSULTATIVE COMMITTEE

The Committee proposed seven Terms of Reference for its 1999 Mid-Term Meeting. These include routine items such as the final planning of the 1999 ASC and the need to further develop the ICES Five-Year Plan (to be undertaken in conjunction with BWGSTRAT). The Committee also recognised the need to streamline its procedures and the format of the ASC. These needs are reflected in the Terms of References proposed by the Committee.

Documents

- A:1 Agenda for Consultative Committee
- A:2 Minutes from ACFM Meeting, 22–31 October 1997
- A:3 Minutes from ACFM Meeting, 18–21 May 1998
- A:4 Minutes from ACME Meeting, 8–13 June 1998
- A:5 Report of Mid-Term Consultative Committee Meeting and the ASC Programme Planning 4–6 June 1998
- A:6 Compendium of Draft Recommendations

Agenda Item 17 ANY OTHER BUSINESS

The Chair of ACME questioned whether ICES contacts with EC DG XIV and EC DG XII were adequate. It was noted that both of these DGs were represented at this meeting, and that in the case of DG XIV ICES is currently negotiating a revised Memorandum of Understanding Agreement. The Chair of the Oceanography Committee drew attention to the report of his Committee which refers to a presentation to the Committee by Dr K.-G. Barthel of the EC (DG XII, Marine Science and Technology Programme). He informed the Committee on the relationship between DG XII, which coordinates EU marine research programmes, and ICES. There are several areas in which the two groups are presently coordinating their activities, but he considered that communications were not optimal. Dr Barthel outlined several ways in which DG XII and ICES could foster further cooperation.

In closing the meeting, the Chair acknowledged the contributions made by the two outgoing Chairs, P. Stewart and E. Aro.

FISHERIES TECHNOLOGY COMMITTEE (B)

Chair: Dr P. A. M. Stewart (UK)
Rapporteur: Dr P. G. Fernandes (UK)

The Committee met for two Business Sessions, from 11:00–13:00 hrs on Wednesday 16 September, and from 16:00–18:00 on Friday 18 September 1998. The meeting was opened by the Chair, Dr P.A.M. Stewart. Dr. P. G. Fernandes was appointed as Rapporteur. The proposed agenda was adopted without amendment.

The Chair drew attention to the imminent election for a successor to his post due to take place at the start of the second session. Members were advised to give due consideration to suitable candidates.

Committee Business

ICES Strategic Plan. Following the presentation at the General Assembly, the Chair drew the attention of the Committee to the report of the Bureau Working Group on Strategic Planning (BWGSTRAT, Doc. Gen:4) highlighting the features of most interest to the Committee and its working groups. He encouraged members to study the report and to submit comments, as ICES wishes to receive a broad range of opinion. The Chair emphasised that the future priorities for ICES are scientific work, relevant advice and wider dissemination of information regarding its activities. It was agreed that the Strategic Plan was well-structured which should facilitate the integration of the objectives and work of the Committee.

The Terms of Reference of the Committee have not been changed and still define the scope of its scientific activities. During 1997/98 the WGFAST and WGFTFB considered their scientific objectives and formulated agreed priority subject areas and specific topics within these, to be related to the emerging ICES strategic plan. The strategic goals presented in Section 6 of BWGSTRAT however, encompass a wider range of activities than previously addressed by the Committee. The Committee considered how its activities relate to these goals. As this was the first opportunity to discuss the matter, the following comments regarding Section 6 must therefore be considered as initial reactions which will be subject to amendment.

The Committee noted its relevant inputs to the plan as follows:

Section 6.1. Proposing a forward programme of Theme Sessions for the Annual Science Conference (ASC); commitment of WGFAST to the five-yearly programme of Acoustic Symposia; continued collaboration with non-governmental

scientists to maintain diverse scientific expertise.

Section 6.2 Continuing to develop joint programmes which attract external resources.

Section 6.3 Reviewing the aforementioned scientific objectives to fulfil the Committee's Terms of Reference; maintaining awareness of emerging issues and technologies which might relate to the advisory function of ICES; continuing the Committee's interdisciplinary activities.

Section 6.4 Treating requests for advice as a high priority; ensuring that the quality of the scientific investigations is satisfactory for the provision of advice; advising other committees on methodology.

Section 6.6 Maintaining expertise in information technology; establishing databases; maintaining eminence in new technology.

Section 6.7 Improving dissemination of information to the fishing industry and public.

Topic Groups

It has been suggested that new ideas will develop more easily within ICES by encouraging Committee and Working Group members to form Topic Groups to deal with minority interests. These groups will have an informal status but can claim ICES identity. The Committee thought that this presented a good opportunity to expand its interests in new technologies and highly specialised fields.

Terms of Office

The Chair informed the Committee of changes to ICES rules. Working Group Chairs now have their Term of Office limited to three years, after which an election will take place. Chairs may be re-elected.

Annual Science Conference

The Committee expressed support for the new conference format. However, there were a number of comments. Members felt that there was less opportunity to attend other sessions of interest. In some cases the content of Theme Sessions did not

reflect their titles. One convener noted that he had not received the abstracts for his Theme Session in time for judicious selection and this may explain the previous point. It was felt that group interests are not necessarily met by the ASC unless Theme Sessions are planned well in advance. Poster Sessions, though valuable, need a more suitable venue than at this meeting. Strong support was voiced for the continuation of "Open Sessions".

The Chair pointed to certain deficiencies in the present format of the Business Session. The Committee meets formally only once a year and has the responsibilities of steering the research programme and reviewing reports. This is never a satisfactory exercise and should be improved, possibly by conducting the bulk of the business by correspondence and using external review. The annual business meeting could then be shorter and devoted to discussing strategic matters.

Symposia

The WGFASST Chair reported satisfactory progress in planning the Acoustics Symposium scheduled for 10-14 June, 2002 in Montpellier, France. The Committee agreed that the title of the Symposium should be changed from "Fisheries and Plankton Acoustics", as stated in (C.Res. 1997/1:3) to "Acoustics in Fisheries and Aquatic Ecology". To date three sponsors have been secured. A meeting of the Steering Committee has taken place. A preliminary announcement has been drafted which will be submitted to the Secretariat.

The Chair informed the Committee that future proposals for symposia would require more information on the plans than hitherto, in particular sponsorship agreements.

Publications

As noted below the report of the Study Group on Echo Trace Classification is recommended for publication as an ICES *Cooperative Research Report*.

The Committee discussed the long delay in publishing the *Cooperative Research Report* on Target Strength. It was agreed that the Chair would write to the author asking for submission of the final version of text and diagrams by 31 October 1998. If this is not received the Chair will inform ICES that the report should be removed from their current publication plans. Such material as is available will then be passed on to WGFASST for assessment and possible further action.

The Committee was informed that it is acceptable for an ICES body to set up a web site hosted by a member institute and linked to the ICES web site. Dr P. Munro (The University of Seattle, USA) has offered to establish an FTFB website, with the support of Dr S. Walsh (Canada).

Election of Chair

The election of a new Chair for the Fisheries Technology Committee was conducted by the General Secretary of ICES, Prof. C. Hopkins. Dr O. Misund (Norway) was elected. On behalf of the Committee the new Chair expressed his gratitude to the retiring Chair for his exceptional work.

Study/Working Group Reports

The report of the Working Group on Fishing Technology and Fish Behaviour (WGFTFB, Doc. B:3) was presented by Dr A. Engås (Norway). WGFTFB was attended by 43 participants from 16 countries. The work was focussed on reviews and evaluations of a number of selectivity studies regarding various gear types. A total of 11 presentations were given on the special topic of selectivity studies conducted in the North Sea, including a comprehensive review given by the keynote speaker, N. Graham (UK), which included behavioural, engineering and regulatory aspects. The Chair concluded that more could be done to involve the fishing industry in research programmes; that more attention should be given to static gear; and that other conservation measures such as closed seasons and closed areas should be used in addition to gear regulations. There was a review of the 2nd Workshop on Standard Trawls for Baltic International Fish Surveys (WKBIFS, Doc. H:1); a presentation on survey gear studies; seven papers on unaccounted mortality; and seven on static and mobile gears. In the Committee discussion that followed, attention was drawn to the importance of the selectivity database and also to the wider dissemination of information to interested parties such as the fishing industry.

Dr A. Engås also presented the report of the Study Group on Grid (Grate) Sorting Systems in Trawls, Beam Trawls and Seine Nets (SGGRID, Doc. B:2). Sorting grids were developed to separate species, and there are many reports of their successful use for reducing bycatch. Grids are also being used to sort fish by size, but the Study Group found few data on the size selectivity of sorting grids. Many examples worldwide of the use of grids are cited, with information contained in a significant array of mostly grey literature. The discussion drew attention to the paucity of data on size selectivity and the need for some form of brief publication of the report.

The report of the Working Group on Fisheries Acoustics Science and Technology (WGFASST, Doc. B:4) was presented by Dr F. Gerlotto (France). There were a total of 36 participants from 12 countries. The meeting consisted of two thematic sessions. In the first, the progress of the Study Group on Echo Trace Classification (SGETC) was considered, as well as 11 contributions on miscellaneous research in acoustic stock assessment. It was evident from these that a

number of new tools and facilities had emerged, including multibeam sonar, digital transducers and new research vessels. Amongst other general improvements, these should allow for a greater understanding of spatial structure in fish distributions. In the second session, the uncertainties related to acoustic surveys were examined on the basis of 11 contributions and, most significantly, the results of a questionnaire completed by participants prior to the meeting. Many of the outstanding problems could be related to insufficient knowledge of fish behaviour and, therefore, it was proposed that a greater understanding of the topic should become a major focus of the group. In the Committee discussion that followed, publication of the results of the uncertainty questionnaire was considered, but members felt that this may be inappropriate as the data would require extensive validation to avoid misinterpretation.

The report of the Joint Session of the WGFTFB and WGFASST was presented by Dr J. Massé (France). The group consisted of 38 members from 14 countries. Six presentations were given related to the use of biological data from trawling in the (acoustic) estimation of biomass. In addition, the results of the questionnaire on trawling methods were presented and discussed. The group concluded that the principal objective should be to improve the accuracy of the information obtained on fish species and fish size composition, which ultimately allows for a more confident qualification of acoustic targets.

The report of the Study Group on Echo Trace Classification (SGETC, Doc. B:1) was presented by Dr D. Reid (UK). The group has identified a number of methods which are essential for the classification of acoustic targets. The group proposed publication of their review in ICES *Cooperative Research Report* series, the final draft of which will be edited at the next meeting in St. Johns. The Committee supported this proposal.

The Study Group on the Use of Selectivity and Effort Measurements in Stock Assessment (SGSEL, Doc. B:6) was presented by B. van Marlen (the Netherlands). There were nine participants from five countries. The group compared selectivity estimates obtained from experimental work and analysis of fleet catch data; it also considered catchability of research

vessel gears and aspects of mortality, especially escape mortality. The Committee recognised that useful progress had been made in this important field. The recommendation of the group was accepted; that the Fisheries Technology and Resource Management Committees should engage in a dialogue to identify the most appropriate and productive forum for continuing this work.

Recommendations

It was noted from Working Group discussions that new work on fish behaviour is essential if investigations of gear selectivity and (acoustic) survey techniques are to progress. The Committee included this subject in the terms of references of both Working Groups.

Recommendations dealing with the terms of reference of Working Group and Study Group meetings in 1999 were discussed, revised and agreed. The recommendation proposing that the report of the Study Group on Echo Trace Classification be published in ICES *Cooperative Research Report* series was also supported.

The Committee also approved a recommendation promoted by B. van Marlen for a Selectivity Database to be established in the ICES Secretariat. Preparatory work for this database was undertaken in the framework of the EC (FAIR) SELDAT Project [The Consultative Committee later rejected this recommendation on the grounds that it considered that it was at present impractical for the Secretariat to run such databases, as they needed to be controlled by someone active in the field. It requested that WGFTFB should find a volunteer host and take responsibility for continuing to find a host].

The Committee noted that there is at present only one Theme Session of direct interest for the FTC planned for the 1999 ASC ("Smart Tags in the Study of Marine Life"). An additional Theme Session was proposed for 1999 ("Application of Acoustic Techniques to Bottom Trawl Surveys") and two sessions for 2000 ("Efficiency, Selectivity and Impacts of Passive Fishing Gears" and "Evaluation of the Impact and Incorporation of External Factors in Marine Resource Surveys").

Documents

B:1	Study Group on Echo Trace Classification
B:2	Study Group on Grid (Grate) Sorting Systems in Trawls, Beam Trawls and Seine Nets
B:3	Working Group on Fishing Technology and Fish Behaviour
B:4	Working Group on Fisheries Acoustics Science and Technology
B:5	Joint Session of the Working Group on Fishing Technology and Fishing Behaviour and the Working Group on Fisheries Acoustics Science and Technology
B:6	Study Group on the Use of Selectivity and Effort Measurements in Stock Assessment

REFERENCE PAPER: H:1

OCEANOGRAPHY COMMITTEE (C)

Chair: Harald Loeng (Norway)

Rapporteurs: Dr Kenneth Drinkwater (Canada) and Roald Sætre (Norway)

The Oceanography Committee met on Wednesday, September 16 (12:00-13:30), Friday, September 18 (16:00-18:00) and Saturday, September 19 (16:00-17:30). Thirteen out of the 37 Committee members representing 10 different countries attended the meetings. One additional country appointed a replacement member. A further 30 or so scientists participated in the Committee meeting. The Committee Chair welcomed the participants. The Chair's proposal for rapporteurs and agenda was adopted.

Report from Consultative Committee and ACME matters

The Committee Chair referred to the following issues from discussions at the mid-term meeting of the Consultative Committee:

- In future ASCs there will be only theme sessions. Open sessions will not be held.
- New rules for election of Working Group Chairs.
- Formation of Topic Groups.

From the ACME consultations, the Committee Chair reported briefly on discussions on:

- GOOS
- ICES Environmental Status Report

Working Group Reports

Working Group on Shelf Seas Oceanography

Doc. C:2 was presented by Dr Einar Svendsen. Highlights included:

- a) discussions on the effectiveness of environmental monitoring programmes in determining possible trends;
- b) examination of the sensitivity of numerical models of the North Sea to open boundary conditions;
- c) compilation of environmental time series in the Skagerrak area; and
- d) agreement to assist the convener of the March 1999 CCC-sponsored Workshop on the Gadoid Outburst in the North Sea during the 1960s and 1970s (Backward-Facing IV) by assembling time series of environmental data in time for the Workshop.

Working Group on Phytoplankton Ecology

Doc. C:3 was presented by Prof. Fransicus Colijn. Highlights included:

- a) progress in the preparation of a practical check-list of all phytoplankton occurring in the ICES area;
- b) proposed standards and a manual for phytoplankton measurements;
- c) discussion of effects of anthropogenic inputs of nutrients on phytoplankton communities; and
- d) assessment of the monitoring strategies of the pelagic ecosystems.

Working Group on Harmful Algal Bloom Dynamics

Doc. C:4 was presented by Dr Patrick Gentien. Highlights included:

- a) collation of national reports;
- b) further development of a database on harmful algae (HAEDAT); and
- c) discussions on the problems associated with taxonomic coding systems.

A problem of obtaining reports from some Member Countries was noted as well as the fact that the IOC is taking a more active role than ICES in the production of the national reports.

The Committee was informed that some national reports were difficult to obtain and their submission was often dependant on the good will of individuals. It was further noted that the IOC Algal Bloom Communication Center in Vigo, Spain had appointed a person to gather in quasi-real time harmful events data. These data will shortly become available in near-real time via the HAEDAT database.

Working Group on Marine Data Management

Doc. C:7 was presented by Dr Lesley Rickards. Highlights included:

- a) progress in the development of quality control procedures for nutrients and plankton;
- b) promotion of data exchange and data services information through improved access on the World Wide Web; and
- c) promoting uniformity of parameter coding systems between data centres.

Working Group on Oceanic Hydrography

Doc. C:8 was presented by Dr S. Narayanan. Highlights included:

- a) publication on the 1997 State of the Ocean from results at standard sections and stations including a new summary report;
- b) discussions on the units for oxygen and nutrients; and
- c) further planning of the decadal Symposium in 2001 which is to review events during the 1990s.

Working Group on Zooplankton Ecology

Doc. C:6 was presented by Dr Luis Valdés. Highlights included:

- a) agreement has been reached with Academic Press to publish the Zooplankton Methodology Manual;
- b) discussion of a comparison of CPR data with other data-sets; and
- c) review of national zooplankton monitoring activities.

Working Group on Seabird Ecology

Doc. C:5) was presented by Dr Mark Tasker. Highlights included:

- a) documentation of cases where seabirds were good indicators of fish recruitment;
- b) a review of the causes of variability in species and size of prey fish; and
- c) an examination of the relationship between the large-scale climate variability (no evidence of a link with the North Atlantic Oscillation was found).

The Working Group requested that its 1997 and 1998 reports be published in the ICES *Cooperative Research Report* series.

Working Group on Cod and Climate Change

Doc. C:10 was presented by Dr Kenneth Drinkwater. Highlights included:

- a) the results from the ICES/GLOBEC Workshop on Application of Environmental Data in Stock Assessment held in March 1998, in Bergen (Doc. C:1);
- b) the results from the ICES/GLOBEC Workshop on Ocean Climate of the NW Atlantic During the 1960s and 70s and Consequences for Gadoid Populations (Backward-Facing III) held in May 1998, in Woods Hole (Doc. C:9);
- c) the results from the ICES/GLOBEC Workshop on Prediction and Decadal-Scale Ocean Climate

Fluctuations of the North Atlantic (Doc. C:14) held in Copenhagen in September 1997; and

- d) planning for Backward-Facing IV on the Gadoid Outburst in the North Sea to be held in March, 1999.

ICES/GLOBEC North Atlantic Regional Coordination Group

Doc. C:13 was presented by Dr Keith Brander, Co-ordinator for GLOBEC within the ICES Secretariat. The Group recommends publishing the Backward-Facing III Workshop in the ICES *Cooperative Research Report* series.

Steering Group on Global Ocean Observing System

Doc. C:12 was presented by Dr Roald Sætre. Highlights included:

- a) the results of a survey on whether ICES should have a global or regional approach to GOOS. Unfortunately only 7 out of 20 Working Groups responded. Those that did respond suggested that ICES should take an active and leading role in the development and implementation of a regional GOOS by establishing a centre for operational fisheries oceanography working on non-meteorological time-scales (weeks to months).
- b) The group proposes that an ICES workshop on GOOS be planned for Bergen in March 1999.

In discussion it was suggested that ICES needs to become involved in the IOC planning of GOOS as soon as possible as their planning is already underway. The Steering Group Chair (Roald Sætre), considered that ICES should first decide what its response to GOOS needs to be. Another concern was the financial costs associated with the establishment of a GOOS Centre. This was not considered by the Steering Group, but it needs to be addressed at some stage.

Each Working Group report was reviewed by one or more Committee members and their reviews were presented to the Committee. In general, reviewers were satisfied with the reports although some suggestions for additional emphasis and future considerations were provided. It was pointed out that too short time was allocated to discuss the Working Group reports and reviewers comments to these. The handling of Working Group reports within the Committee has to be changed at next year's meeting, to allow more time for the review part. Ideally, the review should be handed over to the Working Group Chair before the meeting in order to have a good discussion of the Working Group report.

The recommendations of the Working Groups, the Regional Coordination Group for ICES/GLOBEC and the Steering Group on GOOS were discussed and adopted by the Committee.

Election of WG Chairs

The Committee elected the following Working Group Chairs for a 3-year term:

Björn Sjöberg (Sweden)

- Working Group on Shelf Seas Oceanography

Patrick Gentien (France) (re-election)

- Working Group on Harmful Algal Blooms

David Mills (UK)

- Working Group on Phytoplankton Ecology

Mark Tasker (UK)

- Working Group on Seabird Ecology

Robert Gelfeld (USA)

- Working Group on Marine Data Management

ICES Strategic Plan

Prior to the meeting, the Committee Chair circulated a working paper outlining possible objectives for the Committee's Strategic 5-year Plan. Following initial discussions, a small group was formed under the leadership of Drs P. Pepin and D. Mountain to modify the objectives and draft justifications and possible activities. The Committee adopted the following objectives:

Objective 1: To describe and quantify the variability and state of the marine environment in terms of its biological, physical and chemical components.

Objective 2: To identify and understand the physical processes in the North Atlantic.

Objective 3: To understand and quantify the impacts of climatic variability on the dynamics of marine ecosystems.

Objective 4: To understand and quantify the impact of human activities on marine ecosystems, in relation to natural variability.

Objective 5: To determine the possibilities and its limitations of forecasting ocean climate variability and its impacts on marine ecosystems.

Objective 6: To promote the development of tools for the incorporation of environmental information into fisheries and ecosystem management.

Objective 7: To develop avenues for the general dissemination of oceanographic information to other Science Committees and the Advisory Committees, and to the general public.

A draft paper describing these objectives, together with justifications tactics and activities was prepared for submission to the Consultative Committee. This will be further refined and combined with similar documents produced by the other Committees with the aim of submitting an overall document to the Bureau early in 1999.

Over the coming year, the Working Groups will identify specific activities and products in relation to these objectives that are relevant to their terms of reference.

Theme Sessions/Mini-Symposium for 1999

The Committee agreed to propose the following theme sessions for consideration at the 1999 ASC:

- 1) *Nordic Seas Exchanges*: Co-conveners: Harald Loeng (Norway) and Prof. Jens Meincke (Germany)
- 2) *Global Change Aspects*: Co-conveners: Dr R. Hendry (Canada) and Dr S. Jonsson (Iceland)
- 3) *On Management and Mitigation of Harmful Algae*: Co-conveners: Hans Dahlin and Lars Edler (Sweden) and Henrik Enevoldsen (IOC)
- 4) *Application of Coupled Bio-physical Models in Studies of Zooplankton and Ichthyoplankton Advection and Dispersion*: Co-conveners: Dr Einar Svendsen (Norway), Dr F. Werner (USA) and Dr Kenneth Drinkwater (Canada)
- 5) *4-D Sampling of the Ocean at Micro-to-Meso Scales*: Co-conveners: Dr Mike Heath (UK), Dr John Steele (USA) and Harald Loeng (Norway).

In addition, the Committee suggests the theme for a possible Mini-Symposium in 1999:

Plans for Major International Programmes in the North Atlantic Region Over the Next Decade: Should ICES Be Involved? Co-conveners: Dr Mike Reeves and Prof. Peter Liss (UK).

A request from Dr Ken Sherman for ICES to co-sponsor the Symposium on "The Changing State of Large Marine Ecosystems of the North Atlantic and Global Environmental Trends" was supported by the Committee.

Any Other Business

Under other business, K.-G. Barthel of the European Commission (DG XII, Marine Science and Technology Programme) informed the Committee on the relationship between DG XII and ICES. The DG XII coordinates EU research programmes. Although there are presently several areas in which the two groups are presently co-ordinating their activities, communications could be improved. Dr Barthel outlined several ways in which DG XII and ICES could foster further cooperation. The Committee thanked the EU for their financial support of the GLOBEC office within the Secretariat and will work to improve communications with DG XII. Committee members noted that there should be greater acknowledgement of EU support for research within the ICES community.

The problem of participation of university scientists within the Working Groups was raised. Many academics

could contribute to the work of ICES but are unable to join Working Groups because of the prohibitive costs of travel. It was suggested that the Consultative Committee be made aware of this and request that Committee to come up with a way to insure that funds be made available to such participants. While some members felt that this may set the wrong precedent, the Committee agreed with the idea of bringing up the issue with the Consultative Committee.

The Chair felt that if the Committee was to function as it was set out to, then better attendance was required at the

meetings. The Chair has received signals from a member stating that ICES work has low priority at their institute. He recommended that at least one Committee member per country should be in attendance at ASC. Delegates should be made aware of this and appoint only those scientists who are committed and willing to attend. This was felt to be a serious issue and the Chair was asked to ask other Committees of their experience.

The Chair thanked all participants for being active in the discussion, especially on the Strategic Planning, and closed the meeting.

Documents

C:1 Ref. D, ACFM	ICES/GLOBEC Workshop on Applications of Environmental Data in Stock Assessment
C:2 Ref. ACME	Working Group on Shelf Seas Oceanography
C:3 Ref. ACME	Working Group on Phytoplankton Ecology
C:4	Working Group on Harmful Algal Bloom Dynamics
C:5 Ref. E	Working Group on Seabird Ecology
C:6	Working Group on Zooplankton Ecology
C:7	Working Group on Marine Data Management
C:8	Working Group on Oceanic Hydrography
C:9	Third ICES/GLOBEC Backward-Facing Workshop
C:10	ICES/GLOBEC Working Group on Cod and Climate Change
C:11	ICES/GLOBEC North Atlantic Regional Coordination Group, September 1997
C:12 Ref. G, E	Steering Group on Global Ocean Observing System
C:13	ICES/GLOBEC North Atlantic Regional Coordination Group, May 1998
C:14	ICES/GLOBEC Workshop on Prediction and Decadal-Scale Ocean Climate Fluctuations of the North Atlantic

REFERENCE PAPERS: E:1, E:2, ACME:1, ACME:2, ACME:3, ACME:9

RESOURCE MANAGEMENT COMMITTEE (D)

Chair: Dr Robert L. Stephenson
Rapporteur: Dr Gunnar Stefánsson

The Chair opened the session, welcomed the participants present and appointed Dr Gunnar Stefánsson as Rapporteur. The Chair presented the agenda of the week, indicating the three sessions of the Committee and pointing out the Theme Sessions, particularly those Theme Sessions which arose from suggestions by the RMC meeting in 1997.

Reports and feedback

The various reports or pieces of information that need to be considered by the RMC can be broadly classified into three groups: (1) those which reports to the RMC, given as the D-series of ICES ASC papers, (2) those which have an impact on the RMC, notably information from the Consultative and Advisory Committees, and (3) general information of relevance to the group, including feedback from conferences and meetings.

Reports of Working Groups which report directly to RMC

Doc. D:1 Report of the Study Group on the Stock Structure of Baltic Spring-Spawning Herring.

Doc. D:2 Report of the Study Group on Stock-Recruitment Relationships for North Sea Autumn-Spawning Herring. Report addresses important issues in the stock and recruitment relationships. This report should be considered by WGCOMP in their work on models of recruitment.

Doc. D:3 Report of the Planning Group on Surveys on Pelagic Fish in the Norwegian Sea. Presented by Jens Christian Holst who gave an overview of the survey results as well as proposed future surveys and several suggestions for improvements in the conduct of the survey and data analysis.

Doc. D:4 Report of the Study Group on the Evaluation of the Quarterly IBTS Surveys. The chair noted the importance of the work undertaken by the group and it is not clear where this report should be vetted.

Doc. D:5 Report of the Comprehensive Fishery Evaluation Working Group. This group is scheduled to meet in January 1999 in accordance with Council Resolution at the 1997 ASC, and no meeting was scheduled for 1998.

Doc. D:6 Report of the International Bottom Trawl Survey in the North Sea, Skagerrak and Kattegat in 1997: Quarter 1.

Doc. D:7 Report of the Study Group on the Management Performance of Fisheries Systems. Which recommended continued work, including collaboration with an OECD project.

The remaining papers were read by title:

Doc. D:8 Report of the International Bottom Trawl Survey in the North Sea, Skagerrak and Kattegat in 1991: Quarter 2, 3 and 4.

Doc. D:9 Report of the International Bottom Trawl Survey in the North Sea, Skagerrak and Kattegat in 1992: Quarter 2, 3 and 4.

Doc. D:10 Report of the International Bottom Trawl Survey in the North Sea, Skagerrak and Kattegat in 1993: Quarter 2, 3 and 4.

Doc. D:11 Report of the International Bottom Trawl Survey in the North Sea, Skagerrak and Kattegat in 1994: Quarter 2, 3 and 4.

Doc. D:12 Report of the International Bottom Trawl Survey in the North Sea, Skagerrak and Kattegat in 1995: Quarter 2, 3 and 4.

Doc. D:13 Report of the International Bottom Trawl Survey Working Group.

It was the consensus of the Committee that there is a need for a more formal mechanism for processing these reports. There are several aspects of this processing: *Peer review* needs to be undertaken for some reports, particularly those likely to be included in the assessment process. Such reports could be picked up by a group such as WGCOMP or ACFM, but there is at present no formal path for this migration. *Dissemination* of the information in these reports also needs to be considered. It was pointed out that there is a need to keep in mind the principles of the "old" committee structure when discussing how to handle these reports as well as when designing theme sessions. The former structure corresponded to certain groupings of topics, which could usefully form a basis for theme sessions in some cases. The basic research on a topic such as herring or assessment methodology was then carried forward towards being applicable in the advisory process and the theme was then eventually picked up by ACFM or its Working Groups. In addition to the concerns of peer review and dissemination of information there is the decision on the *continuation of the group*, which needs to be taken, depending on the perceived need for more work on the topic.

Information from groups which impact RMC

The Consultative Committee has asked Science Committees to develop objectives consistent with the document Gen:4 - Bureau Working Group on Strategic Planning. This planning process will continue throughout the coming year.

The ACFM Chair made note of moves within ICES towards making advice conform to quality management procedures, to coordinate ICES advice (currently from ACFM and ACME), and in general to improve the procedures for generating. A specific request has been made to ICES to provide advice on describing fishing effort as a function of measurable parameters, such as horse power, vessel length *etc.*

The Chair of ACME noted that there are EU requests for information on the effect of fishing on fish habitat. These requests are handled by a joint ACFM/ACME group, the Working Group on Ecosystem Effects of Fishing, and output from this group is of considerable interest to RMC.

Groups and topics of interest to RMC

Committee members noted several meetings that had taken place which were of relevance to the work of the RMC. The RMC should be increasing its linkages with other organizations to increase representation at relevant meetings, and to encourage involvement of scientists of a variety of disciplines in the work of the RMC.

Strategic planning

Considerable time was devoted to defining the objectives of the RMC.

Resource Management Committee mandate: The Committee's scientific area of responsibility should provide a bridge between fisheries and environmental issues, and between science and management. It should therefore be responsible for stimulating and coordinating research with the main focus on developing methods to:

- assess the status of impacted living resources;
- evaluate the effects of alternative management strategies on the resources, and economic and social aspects of exploitation and management;
- and, in consultation with the Marine Habitat and Oceanographic Committees, take into account natural environmental effects and anthropogenic effects other than fishing, in resource management decisions.

Four main goals, derived from the mandate statements of the RMC and the ICES Science Committees generally, have been identified for the Committee:

- A) Keep abreast of the state of the art of the science "Resource Management".
- B) Stimulate the development of methods to i) assess the status of impacted living resources, ii) evaluate the effects of alternative management strategies on the resources, and economic and social aspects of exploitation and management, and iii) take into account natural environmental effects and anthropogenic effects other than fishing in resource management decisions.
- C) Plan, coordinate and oversee the implementation of scientific studies within the area of "Resource Management".
- D) Communicate effectively scientific information throughout the ICES community, to the broader scientific community and interested parties, and to the general public.

These are seen as ongoing and long-term goals. Work on these will be undertaken through completion of a succession of more focused *objectives*, with particular emphasis during the next 3-5 years on those listed below:

1. Improve the scientific basis for the Precautionary Approach (including methods of implementation, evaluation of loss of diversity, short-term and long-term costs and benefits of implementation).
2. Define and develop the scientific basis for an "ecosystem approach to management" to the point that it may become operational (including anthropogenic effects).
3. Establish and maintain links and dialogues with scientists in other disciplines and fishery management agencies and other interested parties.
4. Establish a framework for evaluation of management regimes and alternative management strategies (including property rights, capacity or effort reductions and taking into account biological, economic and social concerns).
5. Promote the development of methods for resource evaluations and forecasts.

Small teams of Committee members will work interessionally to draft a strategy for Committee progress in each area. Each of these objectives will be amplified in a narrative, priority tasks/issues will be identified, and a plan of action will be drafted.

Recommendations

Recommendations were put forward on the following topics:

Comprehensive Fisheries Evaluation Working Group

Study Group on the Management Performance of Fisheries Systems

IBTS Working Group

Planning Group on Surveys of Pelagic Fish in the Norwegian Sea

Study Group to Evaluate the Effects of Multispecies Interactions

Workshop on Evaluation of the Plaice Box

Survey of *Sebastes* in ICES Sub-Area I and II.

Documents

D:1 Ref. H	Study Group on the Stock Structure of Baltic Spring-Spawning Herring
D:2 Ref. ACFM	Study Group on Stock-Recruitment Relationships for North Sea Autumn-Spawning Herring
D:3	Planning Group on Surveys on Pelagic Fish in the Norwegian Sea
D:4 Ref. ACFM	Study Group on the Evaluation of the Quarterly IBTS Surveys
D:5 Ref. ACFM	Comprehensive Fishery Evaluation Working Group
D:6 Ref. G	International Bottom Trawl Survey in the North Sea, Skagerrak and Kattegat in 1997: Quarter 1
D:7	Study Group on the Management Performance of Fisheries Systems
D:8 Ref. G	International Bottom Trawl Survey in the North Sea, Skagerrak and Kattegat in 1991: Quarter 2, 3, and 4
D:9 Ref. G	International Bottom Trawl Survey in the North Sea, Skagerrak and Kattegat in 1992: Quarter 2, 3 and 4
D:10 Ref. G	International Bottom Trawl Survey in the North Sea, Skagerrak and Kattegat in 1993: Quarter 2, 3 and 4
D:11 Ref. G	International Bottom Trawl Survey in the North Sea, Skagerrak and Kattegat in 1994: Quarter 2,3 and 4
D:12 Ref. G	International Bottom Trawl Survey in the North Sea, Skagerrak and Kattegat in 1995: Quarter 2,3 and 4
D:13	International Bottom Trawl Survey Working Group

REFERENCE PAPERS; C:1, E:1, E:2, G:2, G:4, H:3, ACFM:10, ACFM:13

MARINE HABITAT COMMITTEE (E)

Chair: Dr Astrid Jarre-Teichmann

Rapporteurs: Dr Adriaan D. Rijnsdorp, Dr. P. Roose

The Marine Habitat Committee met from 12.00–14.15 on 16 September, from 16.00–18.20 on 18 September, and from 16.00–17.45 on 19 September 1998. The meetings were attended by 15 members of the MHC and 10–15 outside participants.

ICES Strategic Planning

Building on the presentation in the Opening Session, the Chair explained the task for the MHC to develop a detailed science plan as a contribution to the overall ICES Strategic Plan. The remit of the MHC and its relation to the role of ICES, as well as the relationship of the MHC with the ICES Advisory Committees and the Commissions such as OSPAR, HELCOM and the EU were outlined. Recalling intersessional work, the challenge was put forward to the members of the MHC to develop the objectives and tactics needed to achieve the objectives for a time scale of about 5–7 years. The details of the planning process needed to accomplish this were explained and extensively discussed.

The question was raised concerning how to implement the conclusions of the MHC in practice. It was explained that members of the ICES Science Committees determine to some extent their own science plan. As such it is expected that this plan will match with the actual research carried out in the national laboratories. The Committees should also be a forum to initiate new internationally funded research programmes. The Committees can take initiatives for organising Theme Sessions, and make recommendations for mini-symposia or symposia. It was further discussed that, given the present funding situation of ICES and national laboratories, increased use could be made of sponsors (such as, but not limited to, the Commission of the European Communities) for funding workshops and symposia, also with a view to include experts from outside the inner ICES community who would not normally receive national funding to attend ICES activities. An ICES policy would need to be defined in this respect. The operation of the Society for Ecotoxicology and Chemistry (SETAC) may serve as an example of an organisation that receives money from sponsors without affecting its independence. Dr P. Matthiessen agreed to find SETAC's criteria and communicate them to the MHC, to be brought to the attention of the ICES Secretariat.

The need for the MHC as a Science Committee in relation to the other Science Committees, the Advisory Committee on the Marine Environment (ACME) and the needs of the potential client Commissions were discussed. It was emphasised that the input of ICES is needed in its scientific field, despite parallel activities in OSPAR and HELCOM. ICES needs to quickly develop

the capacity for and a role in providing scientific advice on marine habitat issues, both within and beyond the territorial waters of Member Countries, in order not to miss a boat that is already departing. The MHC will also develop to provide a scientific home for the various disciplines contributing to its remit, a role which an Advisory Committee cannot fulfil, despite its present possibility of publishing advice based on the results of working groups in the ACME Report.

Concern was raised that the representation of the environmental disciplines within ICES was waning. It was noted that the environmental side is vaguely defined, although chemistry and pollution are often named. Efficient communication between the MHC and its working groups was seen as of crucial importance because many environmental scientists are linked to ICES through their participation in working groups, but not through the ASC. The MHC has a role in the review of many working groups, as only a few working groups report directly to ACME. In order to foster communications, it was suggested that more Working Group members should interact at MHC meetings. Further, the need for more active intersessional communication on the actual work in the Working Groups/Study Groups was emphasised.

The question was raised as to whether the MHC really is a Committee and not merely a list with names of persons. It was noted that only about half of the members of the Committee were present. It was stressed that in order to fulfil the new, more active role of the Science Committees within ICES, active scientists, interested in linking basic research and scientific advice, were needed as Committee members. Given the restriction of two members per country, the Committee members would also function as facilitators in their own country to provide links to the national scientific communities, also beyond their own specific field of work. Multiple membership in ICES Science Committees and/or concurrent functions as national Delegates and Committee Members were regarded as less desirable, because of the parallel meeting schedule of the Science Committees, and the fear of a work overload intersessionally.

It was also noted that there is a lack of mechanisms for reviewing reports of Working Groups, and that there is asynchrony of timing of the MHC and ACME meetings in that work of MHC working groups is taken up in ACME before having been reviewed in the Science Committee. In addition, there is the challenge for ICES to more directly incorporate North American issues, as criticism was expressed that the focus at present is too much on European matters.

Brief reports of the task leaders regarding the intersessional work done prior to the present ASC were presented. From the six task groups formed, corresponding to the six objectives of the MHC, only three had actually prepared a contribution. The task groups were revived and were requested to continue work on their tasks in preparation for the second and third meetings of the MHC during the 1998 ASC.

The general need for an introductory text was agreed; details with bullet points (tactics with examples of activities) are illustrations only at this stage to stimulate discussion with MHC Working Groups and Study Groups.

During the subsequent discussion of the (re-)formulated objectives and proposed tactics, editorial comments were included in Objective 1 (Habitat classification/mapping). Potential overlaps between Objectives 2 (Habitat quality toolbox) and 6 (Monitoring methodology) were discussed: for the design of the toolbox under Objective 2, already available tools should be used, whereas new tools should be developed under Objective 6. With respect to Objective 3 (Biodiversity), it was agreed that it is useful to look at criteria for protection of the marine environment, because the existing criteria are often formulated by terrestrial ecologists and not necessarily adequate to marine ecosystems. A Biodiversity Working Group would be the natural place to develop criteria for identifying species and habitats that require special attention. Editorial remarks, and a bullet pointing at the relevance of alterations in freshwater systems (canalisation, freshwater extraction) to marine ecosystems were incorporated in the reformulated Objective 4 (Anthropogenic impacts other than contaminant-related). It was emphasised that the time scales given along with the list of potential tactics and activities under Objective 5 (Anthropogenic impacts related to pollutants/contaminants) and Objective 6 are rough estimates only, but it was noted that several of them are likely to extend beyond the present five-year planning period. Under Objective 6 (Monitoring methodology), one more activity related to 6.7 will be included, possibly related to a workshop (H.S. Jenke). Eutrophication and production-related issues need to be incorporated. It was further recommended that the report of the Working Group on the use of Genetics in Mariculture and Fisheries also be referred to the MHC.

The need for prioritisation was emphasised, but it was agreed that this should await the discussion in and the input of the Working and Study Groups.

Report of the Working Groups/Study Groups

The MHC agreed to add a term of reference for all working groups to assist in the strategic planning process.

Benthos Ecology Working Group (BEWG)

Dr H. Rees, as a member of the Working Group, presented the work and the results of the 1998 meeting. He emphasised the change of the group's focus from a more method-oriented approach to a more holistic environmental/habitat-oriented one. He also mentioned the importance of QA/QC procedures for benthos studies.

In terms of the future work of the group, the need for lists of species (as from the last North Sea Benthos survey) was agreed, but it was suggested to elaborate this with life-history characteristics that relate in a broader sense to habitats as a whole, at least for the more common species. The Working Group could generate a list of necessary life-history, key information data that would be helpful in evaluating the quality of benthic habitats.

Working Group on Biological Effects of Contaminants (WGBEC)

The Chair of the group, Dr P. Matthiessen, emphasised the importance of QA/QC procedures and the BEQUALM project as a result of this. He further emphasised the continued need for a more integrated approach (e.g., the combination of biological effects with chemistry, histopathology, etc.).

In reviewing the terms of reference (TORs) for the 1999 WGBEC meeting, a small comment to change the term 'estuaries' into 'brackish waters' for item g) of the TORs was adopted. The ICES Environment Adviser notified the MHC of a workshop in November 1998 spearheaded by AMAP to review methods to determine combined effects of contaminants. WGBEC should review the outcome of this workshop as part of their 1999 agenda.

Working Group on Environmental Assessment and Monitoring Strategies (WGEAMS)

As no representative of WGEAMS was present at the meeting, the Chair of the Marine Habitat Committee introduced the report of the 1998 WGEAMS meeting. The ICES Environment Adviser commented that this is a small group that has previously been very active but now is at the edge of being viable due to the small number of participants. Nevertheless, the work and the topics that have been dealt with by this group are important. It was suggested that the Chair of the Marine Habitat Committee should write a letter to all Committee members for them to encourage participation in this Working Group from their home countries.

The recommendation for the terms of reference for the 1999 meeting of WGEAMS was adopted without further comment.

Marine Chemistry Working Group (MCWG)

Stig Carlberg, a member of MCWG, presented the report of the 1998 MCWG meeting. He informed the MHC about the structure of MCWG, which essentially consists of three subgroups dealing with topics relating to heavy metals, organic contaminants, and chemical oceanography. As Chair of ACME, he reported that ACME relies heavily on the work of this group for its report.

In reviewing the draft terms of reference for the 1999 meeting of MCWG, the Chair of WGBEC commented that the request of WGBEC to the MCWG to look at the methodology for measuring PAH metabolites had not been added to the 1999 terms of reference of the MCWG. MHC agreed to add this to the terms of reference.

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

The report of the 1998 meeting of WGEXT was presented by the Chair of MHC. No comments were made. The draft terms of reference for the 1999 meeting were adopted without comment.

Working Group on Marine Mammal Habitats (WGMMHA)

Dr A. Bjørge, the Chair of WGMMHA, presented the report of the 1998 meeting. He emphasised special topics of interest such as the effects of planar PCBs and acoustic disturbance on marine mammals. In view of the complexity of these matters, he further stressed the need for a close collaboration with other ICES working groups such as WGBEC, but also WGMMPD.

In considering the draft terms of reference for the 1999 meeting of WGMMHA, the Chair of WGBEC commented that topic b) cannot be carried out without incorporating the study of biomarkers. The latter was, however, understood by WGMMHA to be part of the work. On topic a), it was questioned as to whether the work would deal only with contaminants and not anthropogenic disturbances on a broader scale. MHC was informed that the group would deal with this, although it was not specifically stated. Another comment was made on the focus on chlorinated compounds alone and whether compounds such as brominated compounds will also be considered. The terms of reference were adopted with small editorial amendments.

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

The report of this Working Group was reviewed without comment.

Working Group on Statistical Aspects of Environmental Monitoring (WGSAEM)

The report of the 1998 meeting was introduced by the Chair of MHC. The ICES Environment Adviser commented that this is a very productive group that deals with a number of interesting topics and is, therefore, much in demand.

One term of reference was to be added to the draft list for the 1999 WGSAEM meeting that arose from ACME; this was accepted without further comment.

Joint WGBEC/WGSAEM Meeting

The report of this meeting was introduced by the Chair of WGBEC. The meeting had proved extremely useful and mainly dealt with techniques to handle integrated data sets (chemical, biological effects data) and sampling strategies for biological effects monitoring. A question was raised about further joint meetings of these groups. The latter was not considered to be a necessity for further work, but was useful in the start-up phase.

The recommendation for a 1999 joint meeting of these two groups was adopted without further comment.

Workshop on Environmental Risk Evaluation and Monitoring (WKEREM)

The Chair of the MHC introduced the terms of reference for this proposed workshop. Some members of MHC expressed their concern about possible overlaps with work that is already being done in other fora. The members of MHC concluded that there was insufficient information in the terms of reference and justification to properly evaluate the planned work. Another question was raised concerning the driving force behind this group. MHC decided to postpone the adoption to the Consultative Committee, to be made dependent on additional information coming in from the designated Chair of the Workshop by the time of the CONC meeting.

Advisory Committee on the Marine Environment (ACME)

Stig Carlberg, the Chair of ACME, commented briefly on the 1998 report. He emphasised the importance of the work that was done by the Working Group on Ecosystem Effects of Fishing Activities. To date, this group was under the joint parentage of ACFM and ACME, but the work was carried out in parallel. However, in the future, the main responsibility of this Working Group will lie with ACME.

Two proposals for a new **Study Group on Marine Habitat Mapping** and a **Study Group on Marine**

Biodiversity were adopted in order to efficiently start up these new areas of work.

The Committee noted the nomination of three new Working Group Chairs. Lars Føyn (Norway) will succeed Dr Ian Davies (UK) as Chair of the Working Group on Environmental Assessment and Monitoring Strategies (WGEAMS); Dr Jonathan Side (UK) will succeed Dr Bas de Groot (The Netherlands) as Chair of the Working Group on the Effects of Extraction of Marine Sediments on the Marine Ecosystem (WGEXT); and Dr Stephan Uhlig (Germany) will succeed Mike Nicholson (UK) as Chair of the Working Group on Statistical Aspects of Environmental Monitoring. The Committee was aware of the recommendation of the Consultative Committee to adopt the procedure of the ACFM for election of new Study Group or Working Group Chairs following their nomination from the respective Study or Working Group, but as this recommendation had not been discussed by the Council at the time of the Marine Habitat Committee meeting, it was decided to accept the nominations. The members of the Marine Habitat Committee wished the new Chairs good luck and success with their work.

Documents

E:1 Ref. ACME, C	Benthos Ecology Working Group
E:2 Ref. ACME, C	Marine Chemistry Working Group
E:3 Ref. ACME	Working Group on Biological Effects of Contaminants
E:4 Ref. ACME	Working Group on Environmental Assessment and Monitoring Strategies
E:5 Ref. ACME	Working Group on the Effects of Extraction of Marine Sediments on the Marine Ecosystem
E:6 Ref. ACME, G	Working Group on Marine Mammal Habitats
E:7 Ref. ACME	Working Group on Marine Sediments in Relation to Pollution
E:8 Ref. ACME	Working Group on Statistical Aspects of Environmental Monitoring
E:9 Ref. ACME	Joint Session of the Working Group on Biological Effects of Contaminants and the Working Group on Statistical Aspects of Environmental Monitoring

REFERENCE PAPERS: C:5, C:12, F:2, F:4, G:6, ACFM/ACME:1, ACME:1, ACME:2, ACME:3, ACME:4, ACME:5, ACME:6, ACME:7, ACME:8

Theme Session Proposals

A Theme Session for 1999 on M-74 and related syndromes, to be proposed in collaboration with the Mariculture Committee, was endorsed. North American participation was expected.

A theme session or mini-symposium for 2000 on 'Temporal and spatial trends in contaminants and their biological effects in the North Sea' was endorsed. It was agreed to invite OSPAR as a co-sponsor.

A theme session for 2000 on 'Sustaining biodiversity in the North Atlantic and adjacent seas in view of exploitation of marine living resources' was endorsed in principle. It was agreed that the title and justification may need to be adjusted pending input from the Study Group on Marine Biodiversity.

The Chair of the Marine Habitat Committee thanked all participants for their efforts and input to the work of the Committee during the 1998 ASC.

MARICULTURE COMMITTEE (F)

Chair: Dr Maurice Héral (France)
Rapporteur: Anthony Calabrese (USA)

The Chair of the Mariculture Committee, Maurice Héral, opened the meeting and proposed the name of Anthony Calabrese as Rapporteur. This was accepted by the fourteen official members and eleven observers present. The agenda for the meeting was reviewed and agreed upon.

In 1998 the task of developing a five-year strategic plan for the Mariculture Committee was discussed during two sessions. The Committee noted that overfishing on a worldwide scale will result in further development of marine aquaculture (both intensive and extensive) contributing to human consumption and nutrition. Therefore, the Committee decided that the main goal in its five-year strategic plan should be 'the development of mariculture products of high quality in an environmentally sound manner'.

The objectives to meet this goal should be:

- The development of sustainable mariculture through diversification of species, and improvement of breeding and reproductive techniques, nutrition, and genetic approaches;
- The consideration of ecological, social, and economic interactions associated with the introduction and transfer of non-indigenous species, environmental interactions of mariculture, competition with other users, economic feasibility, and the development of industry partners;
- The development of intensive and extensive mariculture systems to operate in an environmentally sound manner, with consideration of best animal welfare practices and disease prevention.

The Committee then proposed a number of activities to carry out its five-year strategic plan, including Working Group meetings, providing material to ACME to serve as the basis for advice on environmental impacts of mariculture, and topics for Theme Sessions at Annual Science Conferences. The Committee also requested that a page be made available on the ICES website so that information could be made readily available to Committee members. A number of products were proposed for the results of activities coordinated by the Committee. Finally, it was proposed that increased cooperation be sought with relevant organisations dealing with mariculture including the European Aquaculture Society and the World Aquaculture Society.

The recommendation for the 1999 meeting of the Working Group on the Application of Genetics in Fisheries and Mariculture (WGAGFM) were presented

by its Chair, Prof. Jarle Mork. The discussion centred mainly on a term of reference requesting the Working Group to define the information required to be able to evaluate the genetic effects of releases of cultured fish in the Baltic Sea. It was pointed out that this could involve a great deal of work and require special research. WGAGFM was requested to take an approach to this task that would provide the Helsinki Commission with a general idea of the scale of the effect or would explain the scope of the studies required to answer this question in a scientifically defensible manner, as appropriate. The recommendation was then approved.

Prof. Hans Ackefors presented the draft recommendation for the next meeting of the Working Group on Environmental Interactions of Mariculture (WGEIM). It was noted that Prof. Harald Rosenthal, who has served as Chair of WGEIM since its inception, would be considered the outgoing Chair at the next meeting, with Dr Ian Davies stepping in as the incoming Chair. A number of questions were raised concerning several of the terms of reference as to handle them fully would require the expertise of physical oceanographers. It was anticipated that the Chairs would ensure that the required expertise would be available to be able to handle the terms of reference, and the recommendation was agreed as proposed.

The recommendation for the next meeting of the Working Group on Marine Fish Culture (WGMAFC) was presented by its Chair, Dr B. Howell. It was adopted without significant comment.

The Chair of the Working Group on Pathology and Diseases of Marine Organisms (WGPDMO) presented the recommendation for the 1999 meeting of this group. Several comments were made and the recommendation was adopted.

Prof. Hans Ackefors proposed that closer cooperation with EIFAC be sought through inviting that organisation to send a representative to future meetings of WGEIM and WGPDMO. The Committee agreed to this proposal and the relevant recommendations were amended to include this.

In completing the discussion of the Working Group reports, the concern was voiced by several Committee members that sufficient copies of the Working Group reports were not available for distribution to the Committee.

Documents

- F:1 Working Group on the Application of Genetics in Fisheries and Mariculture
F:2 Working Group on Environmental Interactions of Mariculture
Ref. ACFM,
ACME, E
F:3 Working Group on Marine Fish Culture
F:4 Working Group on Pathology and Diseases of Marine Organisms
Ref. ACME, E

REFERENCE PAPERS: ACME:4, ACME:6

LIVING RESOURCES COMMITTEE (G)

Chair: Dr R.C.A. Bannister (UK)
Rapporteur: Dr E.D. Houde (USA)

The Committee met for Business Sessions on Wednesday 16 September 1998 (11.30–13.30 hrs), Friday 18 September 1998 (16.00–18.00 hrs) and on Saturday 19 September 1998 (16.00–17.30 hrs). Attendance varied from 20 to 35.

The Chair welcomed participants, and Dr E.D. Houde (USA) was appointed rapporteur. The agenda was adopted without amendment. A roll call showed that Committee Members numbered 17 out of a possible total 38. It was noted that Prof. Schnack (Germany) had been replaced by Dr N. Mergart, who attended the meeting. There were no questions about the Scientific Programme.

Committee Business

The Chair explained that the main purpose of the Business Sessions was to approve the Reports of the Working, Study, and Planning Groups and Workshops held during the year; assess, review and approve their recommendations, and any additional ones proposed by the Committee; make proposals for Theme and other sessions at the next Annual Science Conferences; and to prepare a draft outline of the Committee Work Plan for inclusion in the ICES 5-Year Plan. 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 Chair explained that under the terms of the Report of WGBSTRAT the Science Committees had to fulfil ICES scientific goals by defining Objectives, Tasks and Activities for the Committee for the next five years. An initial draft would be discussed at the Consultative Committee at this ASC, and then after further intersessional discussion it would be presented to the Bureau in January 1999. The Objectives and Tasks should correspond to the scientific work required under the remit of the Committee. The activities were the means of achieving these Tasks, and their implications for the Secretariat and national scientists would ultimately be costed in order to assist in the resolution of ICES priorities. Present and future Working Groups etc. would be assigned to the appropriate Task and Activity.

The Committee agreed that the word Organism should replace the word Resources in the Committee remit in order to give it wider application.

The Chair proposed an outline framework of possible objectives, identifying the main features of the biology

and ecology of living marine organisms. There was significant discussion about whether there should be a few rather wide and general objectives, with the many interests of member scientists set out as activities, or whether the current activities should be objectives in their own right. Following numerous points of detail from the floor, which were developed by a sub-group, the Chair proposed a draft merged version of general Objectives and detailed Tasks and Activities, for discussion at the Consultative Committee, and subsequent circulation to members not present, and to Working Groups and Study Groups. This proposal was fairly complete in terms of Objectives, but the Tasks and Activities were not complete. The proposal contained a catch-all objective to enable it to respond as required to the needs of the advisory committees, and it emphasised the importance of studies on life history, population dynamics, recruitment, growth and trophic interactions in the context of an ecosystem approach, stock structure, abundance estimation and surveys. The proposal was approved by the Committee as a working draft, subject to further reflection and elaboration by correspondence on the detail of the Tasks and Activities.

Research or Topic Groups

The Committee discussed briefly the problem of maintaining the opportunity for scientists from the various disciplines and species groups to meet at the ASC to discuss their specific interests outwith the themes of that year, and the business of the Committee as a whole. This discussion was not completed, but it was clear from the uneven representation of members and interest groups present this year that the opportunity should be taken to create intersessionally a set of research groups based on a combination of the Tasks and Activities in the Five-Year Plan, as well as the species groups.

Reports

Because of time pressures the Committee had very little time to review the various Working Group, Study Group and Workshop reports, but no questions or scientific criticisms were made, and the following reports were accepted without dissent: Doc. G:1 (WKOAW); Doc. G:2 (PGPAS); Doc. G:3 (SGRS); Doc. G:4 (PGHERS); Doc. G:5 (WKHMO); Doc. G:6 (WGMMPD); Doc. G:7 (WGCEPH); Doc. G:8 (WGCRAN); Doc. G:9 (SGNEPH); Doc. G:10 (SGCRAB); Doc. G:11 (PGC); Doc. G:12 (SGEF); Doc. G:13 (SGBEAM); Doc. G:14 (WGMEGS); Doc. G:16 (SIMWG); Doc. G:17 (SGOSTE); Doc. G:18 (WGEEL). No report was available for G:15 (SGSTR). Replacement Chairs were proposed and agreed for WGCEPH (Dr G. Pierce, UK

in place of Dr U. Piatkowski, Germany) and for WGCAN (Prof. A. Temming, Germany in place of Dr T. Neudecker, Germany). The Chair recorded his thanks to the outgoing chairs for their valuable work. Prof. Temming made a short presentation outlining the new information becoming available on *Crangon*, and the intended increased focus on stock assessment, and this was endorsed.

The Committee discussed the difficulty of reviewing reports adequately in the limited time, and without necessarily having adequate representation at the meeting. It was agreed that this could be expedited if draft reports were peer reviewed before the Annual Science Conference, either by the relevant parent assessment working group, or by a member of the Committee, so that this review was available at the meeting.

Recommendations

The Committee reviewed the Recommendations proposed by the various Working Groups and Study Groups listed in the previous section. As WGEEL has been removed to ACFM it was not considered by this Committee. Modified recommendations were received from SGSTR (Dr Euzenat, France) by fax, WGEF (Dr P. Walker, Netherlands), PGHERS (E. Torstensen, Norway), PGPAS (Dr Carrera, Spain), and SGRS (T. Sigurdsson, Iceland). Terms of reference were also amended for WGCAN, whilst SGOSTE made no recommendation to meet again. The Chair explained the detailed rationale behind the proposals from PGC on the Census of the Fishes. One new proposal was received for a Workshop on Scale Growth Analysis in Salmon. A recommendation for a Horse Mackerel Workshop, not funded by EU last year, was renewed. Two Terms of Reference were added to all the Groups where relevant, firstly in relation to peer review, as discussed above, and secondly asking the groups to comment on the draft Objectives. Working and Study Groups were also asked to indicate how their activities fit in with the Objective, but beyond that, there was insufficient time to discuss how they should assess their performance or their need to meet again. With the addition of minor editorial modifications, and adjustments to bring the Justification sections more into line with the draft Objectives, the Recommendations were approved.

Theme Session

The Chair explained that in order to attract scientists from the wide diversity of species groups and expertise lodged under the remit of the Living Resources Committee it was essential to have as wide a range of theme sessions as possible, and that the Consultative Committee had already agreed that it would be appropriate to have more smaller themes. This was endorsed by Dr Smaal (Netherlands) who made a plea that shellfish work should be given more prominence in

the new Committee, and by concerns raised by Dr Reddin at the end of Theme Session N at this Conference. Given the rather uneven representation of members and interest groups present this year it has not been possible to react effectively to this, but the following proposals were made:

Firm proposals for 1999

Cod and Haddock Recruitment Processes—Integrating Stock and Environmental Effects (Conveners: Heath, Mackenzie and Marteinsdottir)

Ecosystem Management – Can We Make It Operational? (Conveners: Pope and Rice)

Microprocessors and Things that Swim in the Ocean: Smart Tags in the Study of Marine Life (Conveners: Friedland, Arnold, Stenson, and Karlsson)

Size-Based Processes in the Sea (Poster Session: Convener: Pope)

Life History Studies in Living Marine Organisms: Recent Achievements and Methodological Developments (Conveners: Haug, Bannister, and A N Other)

Firm proposals for 2000

Population Dynamics, Exploitation and Management of Shellfish (Conveners: Smaal, Addison, Gonzalez-Gurriaran, and Dufour)

Spatial and Temporal Patterns in Recruitment Processes (Conveners: Houde, Pepin and Munk)

Evaluation of the Impact and Incorporation of External Factors in Marine Resource Surveys (Conveners: Simmonds, Petigas, and Walsh)

Preliminary proposals for 2000

Trophic Dynamics of Top Predators: Foraging Strategies and requirements, and Consumption Models (Conveners: Gislason, Nilssen, and Tasker)

Experimental Fisheries Biology (Convener: J. Schou Christianson)

Firm proposal for Mini-Symposium, 2001

The Response of Cephalopod Stocks in Changing Environments and Ecosystems in the Face of Increased Fishing Pressure (Conveners: Brogues, O'Dor, and Piatkowski)

Other business

The Committee was informed that EU funding had been obtained for the compilation and production of an Atlas of North Sea Fishes.

Closure

After recording thanks to the members and the rapporteur the Living Resources Committee Chair closed the sessions on Saturday September 19, 1998, at 17.45.

Documents

G:1	Workshop on Otolith Ageing of North Sea Whiting (Preliminary report)
G:2 Ref. D	Planning Group for Pelagic Acoustic Surveys in ICES Sub-Areas VIII and IX
G:3 Ref. H	Study Group on Redfish Stocks
G:4 Ref. D	Planning Group for Herring Surveys
G:5	Horse Mackerel Otolith Workshop - no meeting held
G:6 Ref. E, ACME, ACFM	Working Group on Marine Mammal Population Dynamics and Trophic Interactions
G:7 Ref. ACFM	Working Group on Cephalopod Fisheries and Life History
G:8	Working Group on <i>Crangon</i> Fisheries and Life History
G:9	Study Group on Life Histories of <i>Nephrops</i>
G:10	Study Group on the Biology and Life History of Crabs
G:11	Planning Group on the Census of the Fishes
G:12 Ref. ACFM	Study Group on Elasmobranch Fishes
G:13 Ref. ACFM	Study Group on Beam Trawl Surveys
G:14 Ref. ACFM	Working Group on Mackerel and Horse Mackerel Egg Surveys
G:15	Study Group on Sea Trout
G:16	Stock Identification Methods Working Group
G:17	Study Group on Ocean Salmon Tagging Experiments with Data Logging Tags
G:18 Ref. ACFM	EIFAC/ICES Working Group on Eels

REFERENCE PAPERS: C:12, D:6, D:8, D:9, D:10, D:11, D:12, ACFM:12, E:6, ASSESS:5

BALTIC COMMITTEE (H)

Chair: E. Aro (Finland)

Rapporteurs: M. Plikshs (Latvia) and H. Ojaveer (Estonia)

Committee Sessions

The Baltic Committee held Sessions on 16, 18 and 19 September. The Chair opened the meeting and M. Plikshs and H. Ojaveer were appointed rapporteurs. The agenda was adopted. The Chair informed the Committee about practical arrangements for the ASC.

Remits of the Baltic Committee

The Chair presented a draft list of remits and justifications for the Baltic Committee. The main areas of work that had been agreed intersessionally and during the current Sessions were:

- oceanography,
- ecosystem monitoring,
- fish and shellfish resources,
- marine mammals,
- habitats of Baltic Sea,
- sustainable exploitation of fish and shellfish resources.

The Chair drew attention to the future tasks for the Committee. A request for suggestions on future activities was distributed before the ASC. Responses were received from only the Danish Institute for Fisheries Research (DIFRES) and the Baltic Sea Fisheries Research Institute in Rostock (IOR).

Development of the Baltic Committee strategic plan, objectives and tactics

The Chair summarised the contents of the report of the ICES Bureau Working Group on Strategic Planning (BWGSTRAT). Attention was drawn to the ICES Vision, the ICES Mission and Strategic Goals. It was stressed that the Committee is primarily ecosystem-based. Future activities relating to the Strategic Plan of the Committee are likely to be very closely related to activities in support of the World Bank financed Baltic Sea Regional Project. ICES is expected to have a leading role in this Project. The Committee was introduced to the background to this Project and the state of its current plans. The Project was first discussed in 1995 and has been agreed in principle with the World Bank and other funders. An important objective of the Project is to encourage much closer

links between ICES, HELCOM and IBSFC. The Project includes two basic components:

- 1) Interrelationship of living marine resources to the Baltic Sea environment and ecosystem;
- 2) reduction of non-point source pollution from agriculture.

It was stressed that the Baltic Committee should play an important role in developing and building up the final project application.

It was also stressed that, in developing the Project Proposal, close cooperation with the Oceanography and Habitat Committees in particular was essential. Proposed Baltic Committee activities by DIFRES and IOR fit well with the goals of the Project. It was therefore decided that the Five-Year Strategic Plan of the Committee should be in close accord with the objectives of the Baltic Sea Regional Project.

Concerning the future tasks of the Baltic Committee the Chair referred to the recent NAFO Symposium "Variation in maturation, growth, condition and spawning stock biomass production in groundfishes" which had been held during the preceding week in Lisbon. He explained that the main items of the Symposium applicable for the Baltic were:

- 1) fish growth,
- 2) maturation, fecundity, egg production and condition,
- 3) stock and fisheries,
- 4) spawning stock biomass, and
- 5) climate.

Reports of the Working Groups, Study Groups and Workshops

The Co-Chairs of the Study Group on Baltic Cod Age-Reading informed the Committee that the Study Group will meet in Charlottenlund, Denmark from 16–20 November 1998 (C.Res 1997/2:42). He reminded the Committee that its Terms of Reference include the summarising of the results of the otolith exchange programme. The Group will also establish a digitized video image otolith collection and prepare a manual providing guidelines for cod age reading procedures and the interpretation of otoliths.

The Committee was also reminded that the Study Group on Multispecies Model Implementation in the Baltic will have their meeting in ICES Headquarters from 2-8 December 1998 (C.Res 1997/2:39). The Committee was also informed about the ongoing work of the Study Group and possible tasks for future multispecies activities in the Baltic.

The Study Group on Baltic Acoustic Data (Doc. H:3) held their meeting in April 1998 in order to prepare a report for the Baltic Fisheries Assessment Working Group and to plan acoustic surveys for 1998. The Group has compiled and analysed results from surveys in 1997, prepared the first draft of the manual for the Baltic International Acoustic Surveys and established an acoustic database.

The Baltic International Fish Survey Working Group (Doc. H:4) continues to plan intercalibration programmes of new standard gears, and have continued the work to optimise the sampling procedures. They have also finalised the Manual for Baltic International Acoustic Surveys and evaluated the progress made in the acoustic databases. The Working Group has proposed a workshop on Baltic Trawl Experiments in order to organise experiments in 1999. These experiments have the objective to optimise rigging and gear protocols. It also plans an intercalibration of survey trawls and commence standard survey trawl experiments.

The Chair of the Baltic Herring Age-Reading Study Group informed the Committee that the Study Group met in Riga in February 1998 (Doc. H:2). It was reported that there is considerable disagreement amongst readers between herring age-readings.

The Workshop on Standard Trawls for Baltic International Fish Surveys (Doc. H:1) was held in Gdynia. The tasks of this group have been fulfilled.

The Chair of the Baltic Fisheries Assessment Working Group informed the Committee that work during the

last meeting was not so complicated as in 1997. Terms of references for the 1998 meeting included some new points (exploration of possibilities of re-establishment, at least in the northern Baltic, the management system of herring used prior to 1990). The Working Group concluded that international acoustic surveys are needed every year. It was also decided that herring maturity ogives should be compiled in order to use them in herring assessment.

The Committee was reminded that The Second Scale Reading Workshop on Baltic Salmon will have their meeting in November 1998 (C.Res 1997/2:43)

Recommendations

The Committee adopted the draft recommendations of Working and Study Groups and Workshops. The strategic plan of the Baltic Committee also was adopted with minor changes.

It was suggested that the Chair of the Baltic Committee should be included in the Steering Group on the Baltic Sea Regional Project.

Election of Baltic Committee Chair

P.-O. Larsson, W. Matthäus, T. Osborn, B. MacKenzie, M. Plikshs and H. Ojaveer were nominated as candidates. In election T. Osborn was elected as Chair.

Election of Baltic International Fish Survey Working Group Chair

E. Aro was nominated and elected as Chair for the Baltic International Fish Survey Working Group

Other business

The Committee expressed their highest gratitude towards the outgoing Chair. The Chair thanked the Committee for their fruitful work and good cooperation.

Documents

H:1 Ref. B	Workshop on Standard Trawls for Baltic International Fish Surveys
H:2	Baltic Herring Age-Reading Study Group
H:3 Ref. D	Study Group on Baltic Acoustic Data
H:4	Baltic International Fish Survey Working Group

REFERENCE PAPERS: D:1, G:3, ACFM:11, ACME:1, ACME:2, ACME:3

Supplement 2: Reports of Mini-Symposium and Theme Sessions

MINI-SYMPOSIUM ON COASTAL EUTROPHICATION, SYSTEM PRODUCTIVITY, AND (HARMFUL) ALGAL BLOOMS: WHAT DO WE LEARN FROM MESOCOSMS?

Co-Conveners: Prof. Y. Olsen (Norway) and Dr A. Smaal (Netherlands)
Rapporteur: Prof. F. Colijn (Germany)

Background

In many areas, coastal waters receive excessive amounts of nutrients, leading to eutrophication effects such as increased productivity, increased risk of oxygen depletion and the occurrence of harmful algal blooms. Reduction of nutrient loads may have positive effects in reducing the risk of harmful blooms, but may also reduce the productivity of the ecosystem. The question is therefore to what extent measures have to be taken in order to prevent the risk of harmful blooms and oxygen depletion, meanwhile maintaining a productive ecosystem.

In some coastal areas, nutrient reduction measures have proven to be successful for phosphate; nitrogen reduction is more difficult to achieve. As a consequence, eutrophication effects still exist and the increased N:P ratio may even enhance risks of harmful blooms.

Mesocosm research projects have been set up to study ecosystem effects of various nutrient loadings in relation to other factors influencing ecosystem processes. These studies may help in understanding the role of top-down versus bottom-up control, the influence of mixing and stratification, and the role of internal feed-back mechanisms in the responses of the system to nutrient loads. On the other hand mesocosms are model ecosystems and the question is how to extrapolate results to field conditions.

The intent of the Mini-Symposium was to focus on mesocosm results and their contribution to understanding nutrient impacts and resolving eutrophication problems.

Presentations

Six of the originally nine scheduled papers were presented. Mini:1, 2 and 5 had been withdrawn.

The Session was opened by a short address from the co-conveners. They explained that the main aim of the Session was to focus on mesocosm results and their contribution to our understanding of nutrient impacts and related eutrophication problems.

Dame *et al.* (Doc. Mini:8, no document) presented results of ongoing experiments along the Virginia coast in the USA on the effects of removal of oysters on salt marsh metabolism. These demonstrated that the role of nutrients was restricted, as nutrient limitations were not observed. Instead grazing reduces phytoplankton biomass.

Mills and Sanders (Doc. Mini:3) presented preliminary results on nutrient gradients in the Thames plume. These appeared to influence the size structure of the phytoplankton. The results were supported by shipborne nutrient bioassays, which clearly showed the importance of silicate. Foodweb implications could not be derived.

Mykkestad *et al.* (Doc. Mini:4) documented the production of soluble cellular carbohydrates and DOC in relation to nutrient levels in mesocosms. The results were obtained in the EU/MAST funded project COMWEB. A main conclusion of their studies is that up to 40% goes into the dissolved fraction and that monosaccharides are quickly metabolised by bacteria. The N-additions stimulated algal production, and subsequent nutrient limitation led to a high production of soluble compounds.

Olsen *et al.* (Doc. Mini:6) also presented results of the MAST COMWEB Project. Comparisons were made on nutrient additions in mesocosms in different water bodies (Baltic, Atlantic and Mediterranean). The responses of the phytoplankton proved to be different for communities from the Mediterranean. This was one of the most interesting first conclusions from this project. The complete biotic composition in the different mesocosm experiments has not yet been made, but so far indications of different grazing strategies could be observed. Time lags in mesocosms proved to be an important aspect, setting limits to the duration of the experiments.

Prins *et al.* (Doc. Mini:9) showed a large set of results from both short (3 weeks) and long-term (several months) mesocosm experiments in the Netherlands. These experiments were conducted to predict effects of reduction of nutrient inputs and of altering nutrient ratios (N/P). Several effects were studied, *inter alia* changing size structure, and grazer impact. Both top-down and bottom-up eutrophication effects were observed. Indications for the occurrence of harmful algal species were not observed, but dominant and recurring bloom species from the Dutch coast were present in the mesocosms. A direct comparison to the field station proved to be difficult.

The final presentation by Jöborn *et al.* (Doc. Mini:7) addressed eutrophication but was somewhat outside the scope of the Session. The document first attempts to combat blooms in strongly eutrophied water overgrown with macroalgae using a specially constructed boat.

Discussion

In the final discussion the potential for mesocosms was underlined. However a series of constraints needs to be taken care of:

- the scale in space and time (when mesocosm experiments are performed in the field),
- the problem of reproducibility and replication (replication versus gradients),
- extrapolation of the results: it was suggested to combine where possible field, experimental and modelling studies: (“Holy Triad”),
- the incorporation of different trophic levels: only when systems are scaled up can higher trophic levels such as fish larvae be incorporated),

- the use of closed or open systems,
- control of mixing and turbulence regime,
- impact of the starting conditions.

Although many possible questions and applications can be studied in mesocosms, scientists should be aware of the large infrastructural support and finances required.

Even under optimal conditions questions concerning phenomena which occur only occasionally (e.g. harmful algal blooms) can not be adequately studied in mesocosms. This underlines the lack of reliable relations between nutrient concentrations, nutrient fluxes and the growth of particular (harmful) algal blooms.

Documents presented

Mini:3	D.K. Mills and R. Sanders	Ecosystem response to nutrient input: preliminary analysis of results from Thames plume
Mini:4	S.M. Mykkestad, K.Y. Børsheim, S. Kirkvold, and H. Reinertsen	The production of soluble cellular carbohydrates and the release of dissolved organic carbon (DOC) including carbohydrates, in relation to nutrient supply in a mesocosm experiment
Mini:6	Y. Olsen <i>et al.</i>	Studies of ecological response versus nutrient dose relationship using experimental mesocosms - Comparison of short-term response in chlorophyll- <i>a</i> following nutrient additions to European coastal waters
Mini:7	A. Jöborn, H. Oscarsson, and L. Phil	A new approach to combat blooms of ephemeral opportunistic macroalgae in Scandinavian coastal waters
Mini:9	T.C. Prins, V. Escaravage, L.P.M.J. Wetsteyn, and J.C.H. Peeters	Effects of N and P enrichment on phytoplankton composition, primary and secondary production in an experimental marine ecosystem

THEME SESSION ON VARIATION IN THE PATTERN OF FISH AGGREGATION: MEASUREMENT AND ANALYSIS AT DIFFERENT SPATIAL AND TEMPORAL SCALES AND IMPLICATIONS (J)

Co-Conveners: Dr F. Gerlotto (France) and Dr D.G. Reid (UK)

Rapporteurs: Dr F. Gerlotto (France) and Dr D.G. Reid (UK)

Background

The pattern of fish aggregation has a strong impact on both stock evaluation surveys and on the strategy of commercial fishing operations, particularly in the case of small pelagics. It has an implication in both space and time at several scales. Three main scales can be defined:

- small scale (individual behaviour) - relationships between fish within aggregations, and the dynamics of those aggregations.
- meso scale - relationships between aggregations, e.g. collecting into clusters, and also the relationship between aggregation patterns and variability in the environment, both natural and anthropogenic.
- macro (population) scale - relationships between aggregation mechanisms, the stock level and environmental and fisheries conditions.

It is vital to obtain knowledge of the behavioural characteristics at all three scales in order to evaluate the precision of stock assessment surveys and the suitability of their design, and to foresee the impact of environmental and exploitation changes on the fish stock.

Opening and Structure of the Session

The Theme Session was opened by Dr D. Reid and the main rationale for the Theme Session was presented. The principal question to be addressed was: what are the impacts on fisheries of the aggregative patterns, at several scales (school, cluster of schools, stock), and how are those patterns affected by external influences, particularly environmental?

Four sessions were defined, according to the way the authors considered the question and to the type of information their presentations contained. The sessions were:

- aggregative behaviour
- spatial and temporal effects
- aggregation and fisheries acoustics
- modelling taking into account aggregation

Session 1. Aggregative Behaviour

This session considered the mechanisms of aggregative behaviour and their potential impact on fish stock assessment and fisheries. Six papers were presented at this session. One concerned demersal fish and the others were on pelagics, mainly herring (4 papers).

MacLennan and Simmonds (Doc. J:4): "Fish aggregations near the seabed". This paper considered the way the scientist could take advantage of the aggregative characteristics of demersal fish to discriminate their concentrations from the bottom echoes. This has been difficult in the past because of the so-called "dead zone". Encouraging results allow one to consider that using proper tools and methods (such as phase analysis of the echoes through split beam), and due to the fact that fish echoes are more heterogeneous than bottom echo, an accurate discrimination may be possible.

Mackinson *et al.* (Doc. J:12): "Distribution and behavioural dynamics of ocean feeding Norwegian spring spawning herring: observations across spatio-temporal scales". This paper presented a detailed observation on the distribution of herring schools and their patchiness, using nearest neighbour distance (NND) for evaluating the aggregative characteristics of the schools. The authors conclude that schools were tightly clustered and the clusters patchily distributed. Small schools present a larger NND than large schools. The changes in the distribution according to time are likely due to diurnal variation and feeding behaviour.

Axelsen *et al.* (Doc. J:19): "Awaiting in the pelagic: herring compromising reproduction and survival within a vertically split school". The authors presented a series of observations on a single spawning herring school. The school presented a complex spatio-temporal behaviour, with the lower part of the school spawning while the upper part was formed of fish before and after spawning activity. The behavioural mechanism of the school was presented, and a set of hypotheses on the evolutionary advantages of such a mechanism suggested.

Nøttestad (Doc. J:20): "Extensive gas bubble release in Norwegian spring spawning herring during predator avoidance". This paper presented evidence of bubble release by herring under predator pressure with three case studies. The possible mechanisms for herring to maintain gas in the swim bladder were discussed and some classical hypotheses were disproved, particularly the possibility of producing gas through intestinal fermentation or at the surface. The possibility of direct

gas production from the blood during rapid ascent was suggested. The effect on predation and on acoustic surveys was considered.

Misund *et al.* (Doc. J:30): "School dynamics, swimming behaviour and surface appearance of sardinella in Angolan waters". A particular aggregative behaviour of sardinella was presented: fish form fast and active schools very close to the surface where they actively avoid the vessel, and are almost invulnerable to fishing gears. These schools are subject to diurnal changes, being numerous mainly during the morning and dusk, as observed through visual counting. This school behaviour seems to be extremely efficient against predator attack.

Slotte (Doc. J:32): "Patterns of aggregation in Norwegian spring spawning herring during the spawning season". This paper presented a set of observations on the structure and vertical distribution of spring spawning herring aggregations, related to diurnal effects and area. A general pattern was suggested and the unexpected variability of cases within this pattern was presented. The author showed that the general pattern is liable to changes under a variety of external stimuli.

Synthesis

The observation and measurement of aggregative behaviour (Docs. J:4, J:12, and J:32) allowed the development of new hypotheses on the causes (Docs. J:30, J:19, and J:20) and on the mechanisms (Docs. J:19 and J:30) of aggregation. The intrinsic variability of the aggregative behaviour illustrated the importance of understanding the reasons for aggregation and the impact of external factors on this. A major influence on aggregative behaviour seems to be predators.

Session 2. Spatio-Temporal Aspects and Fisheries

Eight papers were presented. Most of them dealt with the variability in aggregative behaviour: in space, time and in relationship to the stock biomass. Other papers presented examples of the effect of environment on the aggregative characteristics. Several types of stocks (pelagic and demersal fish and molluscs) were considered, and in a variety of ecosystems (North Sea, English Channel, Mediterranean, Venezuela, and Angola).

Aukland and Reid (Doc. J:2): "The impact of changing stock size on the aggregative behaviour of North Sea herring". The paper documented the impact of the change in the stock level on the school morphology and distribution. It appears that, in the case of herring, the number of schools is independent from the stock biomass; the school morphology parameters are generally related to the biomass and the number of schools together (except for school length). NND is apparently independent of the number of schools, although clustering is not.

Wieland *et al.* (Doc. J:7): "Spatial distribution and variability of abundance estimates of juvenile whiting and cod in the North Sea". The paper considered the great variability and contradictory results on the biomass estimates and in relation to ICES assessments. One of the reasons for this is the effect of the variation of ecological parameters on the catch (temperature, bottom depth). Other parameters have no significant impact (salinity, bottom type). One conclusion of the paper is that a correct observation of the aggregative characteristics would help to improve dramatically the results of assessment.

Soria *et al.* (Doc. J:8): "On the size of fish schools and clusters of schools: a spatial analysis of multi-beam sonar images of schools in the Mediterranean Sea". This work is a comparative analysis between two areas of the school distribution - shape and inter-school distances. The main conclusion was that the observed schools were part of a dynamic range of school shapes, regularly changing from solitary big schools to homogeneously distributed smaller schools, through a rapid transition period of heterogeneously shaped schools.

Gonzalez *et al.* (Doc. J:13): "Pelagic fish populations in Eastern Venezuela: impact of the environmental characteristics on the morphology, aggregation and spatio-temporal distribution of *Sardinella aurita* schools". The paper presented an analysis of the school types and proportions in the Eastern Venezuela, with comparative observation with a similar stock in Senegal. The main results are that a general typology of fish schools is usable in every area for this species, and gives comparable global results. The school proportions by type are related to hydrology and species distribution.

Tsontos (Doc. J:15): "Spatial abundance distribution patterns and scaling properties within an exploited bivalve population". The main question was to define the existence and the characteristics of the spatial pattern for a bivalve population. Fractal dimensions were used as a descriptor. The author shows that there is clear evidence of a Power law of distribution, which is scale invariant. This suggests that oyster larvae modulate their settlement in relation to the existing distribution of the adults. It was proposed that this fractal scaling is likely to exist in many groups.

Kuyeye and Misund (Doc. J:17): "Seasonal changes in distribution and aggregation characteristics of *Sardinella* species in Angolan waters". Important migrations of these species can be observed through acoustic surveys. They are related to seasonal changes in the biomass and correspond to a spawning migration. Correlations were shown between the biomass and several acoustically derived parameters from partition of the biomass into different density structures. But the structure of sardinella aggregations is independent of the stock biomass.

Petitgas *et al.* (Doc. J:23): "Sensitivity analysis of school parameters to compare schools from different surveys: a review of the standardisation task for the EC-FAIR programme CLUSTER". The main parameters of aggregative structures derived from echograms were studied through PCA and simulation in order to determine the validity of comparisons between platforms and species. This work demonstrated that this was possible using appropriate standardisation criteria.

Ehrich *et al.* (Doc. J:25): "Variation of mesoscale fish distribution in the North Sea". The paper described the variability of catch rates within selected areas over several days for different species representative of different patterns of aggregation. The effect of environment and behaviour was described, and the results show that environment (e.g. a storm which changed the catch rates for pelagic and demersal) and predation have to be taken into account. Aggregation behaviour is a key factor for the understanding of trawl data results.

Synthesis

An important conclusion is that aggregative structures are consistently present in all stocks: pelagic, demersal, cold and tropical. The study of these structures is made possible through the acquisition of data using modern tools, especially acoustics data. Structures can be classified and their dimensions measured. Aggregation behaviour has a strong influence on practically all other characteristics of fish stocks (biology, behaviour, surveys, fisheries). It is likely that ignoring spatial patterns of fish aggregations will lead to a misinterpretation of survey results and a misunderstanding of the general functioning of the stock.

Session 3. Aggregation and Fisheries Acoustics

Acoustics is the best adapted tool for observing the spatio-temporal characteristics of the stocks. However, results may be strongly affected by aggregative behaviour if an adapted methodology is not used. Nine papers dealt with this problem. One presented new techniques, six focused on methodology and analysis of the effects of aggregation to acoustic survey precision, two related acoustics and fishing data. All dealt with pelagic stocks.

Reid *et al.* (Doc. J:3): "On visual scrutiny of echograms for acoustic stock estimation". This paper examined the robustness of the visual scrutiny of echograms. The current methodology is robust across a wide range of situations for herring, provided fishing data is available. The conclusion of the paper is to favour fishing samples when possible, and to request an increased scientific effort in automatic fish (and fish school) identification.

Fernandes (Doc. J:6): "A spatial analysis of trawl variability in the 1995 North Sea herring acoustic survey". These herring surveys are undertaken by several vessels. The statistical impact of the vessel on the results

of the catch were considered through geostatistical spatial analysis. The spatial variability for a single vessel was not found to be significantly different from the variability between vessels. The conclusion is that the catch data are usable and comparable from one vessel to the other.

Lebarbier *et al.* (Doc. J:10): "Relating trawl catches to aggregation variability to improve identification of echo-traces during acoustic surveys". This paper considered the possibility of using acoustic data in relation to trawl data for improving the characterisation of species assemblages. All the variables extracted from the school and cluster images are used for classification and compared to the trawl data on the same geographical location. Significant results show that such a method is able to help the interpolation of fishing data to a complete acoustic survey area.

Pedersen and Holst (Doc. J:22): "Description of fish layers using the three-dimensional information obtained by a split-beam echo-sounder". The methodology proposed consists in splitting the acoustic data into two layers (pelagic and demersal) and to collect the spatial data on single targets, extract the spatial parameters and relate these data to biological parameters. The authors showed that 3D patterns can be obtained from split-beam vertical echo-sounders and be used for the identification of scattering layers.

Goss and Everson (Doc. J:27): "Acoustic sampling intensity and vertical distribution of targets, with special reference to Antarctic krill". An important point is to define the influence of the acoustic equipment parameters and methods on the observed spatial structures of krill swarms. The comparison of spatial characteristics of krill swarms as observed by two different vessels and echo-sounders demonstrates that this point is critical and misunderstanding can occur if this fact is not taken into account. In this case, it may be necessary to go back to older data in order to understand bias in the more recent data.

Simmonds (Doc. J:29): "The implication of the distribution and mobility of North Sea herring on the evaluation of the stock". Temporal variability may affect the results of stock abundance estimates as well as the measured spatial characteristics of a stock. The author presented a simulation of the spatio-temporal behaviour of a herring stock and then used this to test the variability from surveys, depending on survey strategy. It was concluded that random local movements have no effect, but that migration is important. Some sampling strategies were proposed for correcting the effects of migrations.

Coetzee *et al.* (Doc. J:31): "Variability in the spatial structure of three schooling pelagic species off Namibia". This paper demonstrated that the results of an acoustic survey may be strongly affected by the aggregative and dynamic behaviour of the fish. The authors presented an interesting example of three different species with

different behaviour and the results on acoustic surveys. Geostatistics were applied in order to demonstrate that a homogeneous and stable fish population gives the best result.

Fernandez *et al.* (Doc. J:33): "Into the next dimension: three-dimensional acoustic observations of fish school aggregations". The authors presented a new tool (multibeam sonar) to exhaustively observe the water volume on one side of the vessel. This method dramatically increases the sampled volume, which permits a description of the 3D characteristics of fish schools, and also to evaluate fish avoidance of the vessel. This new technology is now well enough developed to provide new information on school and cluster structures.

Ostrowski and Huse (Doc. J:18): "Variation in acoustically measured abundance from repeated surveys of herring". The variability of abundance was demonstrated by the way of repeated transects over 3 days. The variability over the daily cycle was quantified and this allowed the definition of correction factors to be applied to a complete survey. The variability is correlated to school behaviour and daily migrations.

Synthesis

Acoustics are now able to give extremely precise information on the spatial structure of fish schools as well as on the dynamics of the structures. Some weak points are still present, mainly related to fish identification. However, new tools will enhance the capability of acoustics. Not all the capabilities of the usual acoustic tools are used. Furthermore, a proper statistical use of all the parameters that can be extracted from acoustic surveys can help to better identify the fish species and assemblages. Nevertheless, acoustics is not (and will never be) free of bias and it is not recommended for completely inexperienced teams, who may misinterpret the results.

Session 4. Modelling taking account of Fish Aggregation Behaviour

The improvements in our capability to observe the spatial and dynamic behaviour of fish aggregation would be of little use to fisheries management if tools for including these models were not developed as well. This session presented some promising ways of incorporating an understanding of spatial aggregation into models. Five papers were presented.

Petitgas and Samb (Doc. J:5): "On the clustered occurrence of fish schools along acoustic survey transects and its relation to population abundance". This paper dealt with the three dimensions of aggregation: micro-scale (schools), meso-scale (clusters) and macro-scale (stock). The spatial parameters of these different scales are used for evaluating the effect of different variables of the aggregation structure through PCA. It was shown that

the number of schools per unit length was related to abundance, but that the number and lengths of cluster were not.

Mackinson and Newlands (Doc. J:11): "Using local and scientific knowledge to predict distribution and structure of herring shoals". Fishers and fisheries managers are not often used as sources of data for fisheries models, although they have considerable experience in observation of fish stocks. The authors presented an expert system which is able to combine "hard (scientific) data" with "practical data" and gives original results, taking advantage of this "interdisciplinary" approach.

Millischer and Gascuel (Doc. J:14): "Individual-based modelling (IBM) of fishing tactics". The simple question: where to go to optimise the expected catch? depends on three constraints: informative component, cognitive component and directive component. The work deals with the first component. The approach through IBM allows the combination of the spatio-temporal characteristics of fish distribution and the spatial strategy of fishers. A simulation is presented, with three case studies: fishers with no strategy (random approach), belonging to a limited list sharing some knowledge on the fish distribution, or sharing this knowledge with the whole fishery.

Huse and Giske (Doc. J:16): "Individual-based spatial models with evolved behaviour". This is another use of IBM, combined with neural networks, allowing us to simulate several biological and behavioural constraints leading to spatial distribution characteristics. An example was given for predator-prey relationship. It is clear that such methods are able to model life history strategies and migrations in fish, as presented in the paper.

Rothschild and Cai (Doc. J:26): "Spatially explicit theory of recruitment-and-stock and plankton interactions". This paper demonstrated the interest for workers on spatial aggregations of fish for research done in plankton ecology, which shares most of the problems pointed out during the sessions. The paper gives examples of a model based on stochastic geometry formalisms on the relationships of plankton, food and predators as explained by a 3D spatially explicit model. Consideration on the interest of these results to be introduced into the stock-recruitment models was presented.

Synthesis

Several approaches were presented and existing tools were detailed: multivariate analyses, IBM models and stochastic models. Although the links between the spatial observation of fish aggregation and fish stock assessment models is not yet achieved, this session showed that several approaches are being explored. Moreover, understanding of variability in the spatio-temporal domain is considered essential by the whole community, and the general conclusion was that there is no doubt that

in the near future specific tools for introducing spatial behaviour characteristics into the stock assessment methods will arise.

Poster Session

Three posters were presented as part of the Theme Session. Doc. J:36 documented the aggregation patterns of Argentine mackerel in relation to environment and showed different school structures in different areas. J:38 described the relationship between distribution and hydrographic parameters in the Cusk Eel in the south Atlantic. A third poster described a study of the *in situ* target strength for Argentinian hake. Studies suggest a TS coefficient of -66.5dB as opposed to the standard for gadoids of -67.4 dB.

General Conclusion

The session demonstrated the wide interest in the aggregation patterns of marine organisms. Key conclusions include:

- a) Studies are being conducted at a variety of spatial scales from single animals, through schools and clusters to the population, and temporal scales from days to years.
- b) A common theme was the enormous variability in the aggregative behaviour at whatever scale.

Documents presented:

J:2	R. Aukland and D. Reid	The impact of changing stock size on the aggregative behaviour of North Sea herring
J:3	D.G. Reid, P.G. Fernandez, E. Bethke, A. Couperus, E. Goetze, N. Håkansson, J. Pedersen, K.-J. Stæhr, E.J. Simmonds, R. Toresen and E. Torstensen	On visual scrutiny of echograms for acoustic stock estimation
J:4	D.N. MacLennan and E.J. Simmonds	Fish aggregations near the seabed
J:5	P. Petitgas and B. Samb	On the clustered occurrence of fish schools along acoustic survey transects and its relation to population abundance
J:6	P.G. Fernandes	A spatial analysis of trawl variability in the 1995 North Sea herring acoustic survey
J:7	K. Wieland, L. Foldager, R. Holst, and A. Jarre-Teichmann	Spatial distribution and variability of abundance estimates of juvenile (age 1 and 2) whiting and cod in the North Sea
J:8	M. Soria, P. Petitgas, T. Bahri, and T. Lafont	On the size of fish schools and clusters of schools: a spatial analysis of multibeam sonar images of schools in the Mediterranean sea
J:9	U. Böttcher, R. Oeberst, and B. Mieske	Daily vertical migration patterns of Baltic 0-group cod
J:10	E. Lebarbier, J. Massé, and P. Petitgas	Relating trawl catches to aggregation variability to improve identification of echo-traces during acoustic surveys
J:11	S. Mackinson and N. Newlands	Using local and scientific knowledge to predict distribution and structure of herring shoals

Notwithstanding this, researchers demonstrated considerable success at analysing the causes of some of this variability and its relationship to external factors.

- c) A particularly promising line of study for the future is the spatial relationships of schools (e.g. NND), and this type of work should be encouraged.
- d) The value of multi-beam sonar to acquire data and to validate echo-sounder data was recognised, and continued work on this new technology should also be encouraged.
- e) It was recognised that in essence the ultimate aim of this work is to understand the behavioural ecology of marine organisms and to successfully apply that knowledge to fisheries management.
- f) A number of presentations showed how this might be done, in the context of more appropriate handling of bottom trawl survey data and in understanding the results of acoustic surveys in the presence of stock movement. This type of synthesis; combining an understanding of how marine organisms organise themselves in time and space, together with the appropriate collection of stock assessment data (surveys, etc.) should be regarded as a paradigm for future work in fisheries ecology.

J:12	S. Mackinson, L. Nøttestad, S. Guénette, T. Pitcher, O.A. Misund and A. Fernö	Distribution and behavioural dynamics of ocean feeding Norwegian spring spawning herring: observations across spatio-temporal scales
J:13	L. Gonzalez, F. Gerlotto, and J. J. Cardenas	Pelagic fish populations in Eastern Venezuela: impact of the environmental characteristics on the morphology, aggregation and spatio-temporal distribution of <i>Sardinella aurita</i>
J:14	L. Millischer and D. Gascuel	Individual-based modelling of fishing tactics
J:15	V.M. Tsontos	Spatial abundance distribution patterns and scaling properties within an exploited bivalve population
J:16	G. Huse and J. Giske	Individual based spatial models with evolved fish behaviour
J:17	N. Kuyeye and O.A. Misund	Seasonal changes in distribution and aggregation characteristics of <i>Sardinella</i> species in Angolan waters
J:18	M. Ostrowski and I.J. Huse	Variation in acoustically measured abundance from repeated surveys of herring
J:19	B.E. Axelsen, L. Nøttestad, A. Fernö, A. Johannessen, and O.A. Misund	Await in the pelagic: herring compromising reproduction and survival within a vertically split school
J:20	L. Nøttestad	Extensive gas bubble release in Norwegian spring spawning herring (<i>Clupea harengus</i>) during predator avoidance
J:22	J. Pedersen and R. Holst	Description of fish layers using the three-dimensional information obtained by a split-beam echo sounder
J:23	P. Petitgas, N. Diner, S. Georgakarakos, D. Reid, R. Aukland, J. Massé, C. Scalabrin, M. Iglesias, R. Muino, and P. Carrera	Sensitivity analysis of school parameters to compare schools from different surveys: A review of the standardisation task for the EC-FAIR programme CLUSTER
J:25	S. Ehrich, S. Adlerstein, S. Götz, N. Mergardt and A. Temming	Variation of mesoscale fish distribution in the North Sea
J:26	B. Rothschild and D. Cai	Spatially explicit theory of recruitment-and-stock and plankton interactions
J:27	C. Goss and I. Everson	Acoustic sampling intensity and vertical distribution of targets, with special reference to Antarctic krill
J:29	E.J. Simmonds	The implications of the distribution and mobility of North Sea herring on the evaluation of the stock
J:30	O.A. Misund, N'Kosi Luyeye, D. Boyer, J. Coetzee, R. Cloete, J. Dalen, and G Oechslin	School dynamics, swimming behaviour and surface appearance of <i>Sardinella</i> in Angolan waters
J:31	J. Coetzee, N'Kosi Luyeye, G. Oechslin, and O.A. Misund	Variability in the spatial structure of three schooling pelagic species off Namibia
J:32	A. Slotte	Patterns of aggregation in Norwegian spring spawning herring (<i>Clupea harengus</i> L.) during the spawning season
J:33	P. Fernandez, M. Soria, and F. Gerlotto	Into the next dimension: three-dimensional acoustic observations of fish school aggregation
J:35	J. Santos and L. Krag	Comparative study of density estimation of marine species in bottom trawl surveys and acoustic surveys
Poster		
J:36	R.G. Perrotta, A. Madirolas, and M. Delia Viñas	Aggregation patterns of mackerel (<i>Scomber japonicus</i>) schools in relation to the environmental conditions for two different fishing areas off the Argentine coast
J:38	A.R.G. Tomas	Environment on population structure of the cusk-eel, <i>Ophidion holbrooki</i> , from the Southeastern Brazil
Poster		
J:39	A. Madirolas and F.C. Machado	<i>In situ</i> target strength measurements of Argentine hake (<i>Merluccius hubbsi</i>)
Poster		

THEME SESSION ON THE USE OF GENETICS IN AQUACULTURE (K)

Co-Conveners: Prof. J. Mork (Norway) and Dr R. Devlin (Canada)

The Theme Session was divided into three sub-sessions, dealing with:

1. the application of novel molecular as well as traditional quantitative techniques to improve practices in aquaculture genetics;
2. the application of genetic markers in marine resource management;
3. the potentials, benefits and risks of the use of genetically modified organisms (GMO) in aquaculture.

The keynote address for topic 1 very clearly set the stage for the first sub-session, and was very nicely followed up by Docs. K:7 and K:8. In essence, these papers showed new and powerful applications of the range of novel molecular techniques in traditional aquaculture genetics. In addition, they showed ways to fuse qualitative and quantitative genetics to the benefit of both fields. The obvious usefulness of the techniques described indicates that they will rapidly find practical use.

Doc. K:1 addressed the well-known problem of inbreeding in cultured populations, and reported on a well-designed study to estimate the effects of different

inbreeding levels on important production traits such as fertilisation, fry size, and juvenile growth in rainbow trout.

Topic 2 covered several studies on the use of novel as well as traditional genetic markers in the study of genetic characteristics and population structures in a range of marine organisms. This field is well established in ICES member countries, and Docs. K:5, K:4, K:9, K:2, and K:3 showed that the workers in this field are well updated regarding the novel techniques developed in molecular genetics.

Topic 3 was very clearly introduced by the keynote address, which was presented by one of the pioneers in this area. Doc. K:11 thus gave a well-balanced account of the benefits and risks involved, and pointed at potential uses of this technically advanced novel technique in aquaculture.

The question rounds and discussion after each presentation and at the end of the session were generally concerned with clarifying specific points and details in the studies presented. A specific point was made by several attendees that it is important to increase and secure the participation of quantitative geneticists in the genetics work in ICES.

Documents presented

K:1	P. Eskelinen and J. Piironen	Effects of inbreeding on fertilization, fry size and juvenile growth of rainbow trout
K:2	M. Pempera, R. Wenne, and D.O.F. Skibinski	Length heteroplasmy of mitochondrial DNA and population differentiation of the mussel <i>Mytilus trossulus</i> from the Southern Baltic
K:3	S.-E. Fevolden, J. Solvang, and E. Berg	Population divergence of Atlantic cod at the synaptophysin locus; microgeographic variation within fjords
K:4	E. Wlodarczyk and R. Wenne	Genetic differentiation of Polish sea trout, <i>Salmo trutta m. trutta</i> , populations based on RFLP analysis of PCR-amplified mtDNA segments
K:5	I. Martinez and L.A. Pastene	RAPD-typing of North Atlantic and Western North Pacific minke whales, <i>Balaenoptera acutorostrata</i>
K:6	T.F. Cross, P. Galvin and E. Dillane	The use of molecular markers in aquaculture genetics
K:7	P. Boudry, B. Collet, G. Kotoulas, A. Magoulas, V. Hervouet, F. Bonhomme, and A. Gérard	The use of microsatellite markers for parentage analysis in the Pacific cupped oyster, <i>Crassostrea gigas</i> (Thunberg)
K:8	T. Aho, J. Piironen, E. Ranta, and C.R. Primmer	Microsatellites for assessment of genetic variation and improvement of hatchery practices in salmonid populations
K:9	O. Vasin	First finding of polymorphism at esterase D loci in the Baltic salmon (<i>Salmo salar</i> L.)
K:11	R.H. Devlin	Benefits, limitations, and risks of transgenic fish for aquaculture
K:13	P. Bossier, G. Vanderstappen, G.V. Triantaphyllidis and P. Sorgeloos	Long-primer RAPD for authentication of <i>Artemia</i> species
Poster		

K:14 Poster	S.-E. Fevolden, K.H. Røed and K. Fjalestad	Selective breeding for post-stress levels of lysozyme and cortisol in rainbow trout (<i>Oncorhynchus mykiss</i>)
K:15 Poster	M. De Lourdes Sardinha and G. Nævdal	Population genetics studies of the Angolan horse mackerels; <i>Trachurus trecae cadenat</i> , 1949 and <i>Trachurus capensis castelnua</i> , 1861
K:16 Poster	E. Gagicas, and G. Blanco E. Vázquez, and J.A. Sánchez Prado	The use of allozyme, microsatellite and RAPDs markers in the identification of brown trout (<i>Salmo trutta</i>) populations
K:17 Poster	T. Johansen, A.K. Danielsdottir, N.R. Hareide, and G. Nævdal	Progress report on the genetic characterisation of Giant <i>Sebastes</i> along the Reykjanes Ridge
K:18 Poster	T. Johansen, A.K. Danielsdottir, K. Meland, and G. Nævdal	Progress report on the studies of the genetic relationship of deep-sea and oceanic <i>Sebastes mentella</i> in the Irminger Sea
K:19 Poster	O.D.B. Jonsdottir, A.K. Imsland, A.K. Danielsdottir, V. Thorsteinsson, and G. Nævdal	Genetic differentiation among Atlantic cod in south and southeast Icelandic waters: Synaptophysin (Syp I) and haemoglobin (HbI) variation
K:20 Poster	A.K. Danielsdottir, S. Gudlaugsdottir, and S. Gudjonsson	Genetic variation in Icelandic brown trout (<i>Salmo trutta</i>) populations
K:21 Poster	G. Blanco, H. Pineda, I. Mc Carthy, E. Vázquez, and J.A. Sánchez	Genetic variability, timing of first feeding and life history strategy in Atlantic salmon

THEME SESSION ON FARMING MARINE FISH BEYOND THE YEAR 2000: TECHNOLOGICAL SOLUTIONS FOR BIOLOGICAL CHALLENGES (L)

Convener: Dr B. R. Howell (UK)
Rapporteur: Prof. Victor Øiestad (Norway)

Background

It is now widely predicted that fish supplies from traditional fisheries are unlikely to increase above current levels. In contrast, aquaculture production is currently increasing exponentially and is already contributing significantly to global fish supplies. The industry is, however, becoming increasingly constrained by the availability of sites for farming systems, climatic limitations on the choice of species, and the need to minimise environmental impacts and to conform to impending animal welfare legislation. Thus, the maintenance of the current rate of growth of what has already become a major international industry may depend on the development of novel approaches that alleviate these constraints. Papers were invited that addressed these issues and suggested ways in which the longer-term sustainability and competitiveness of the industry may be assured.

Presentations

The session comprised 18 papers and 2 posters. Six of these concerned improvements in juvenile production methodology for established and novel species, nine were related to the development of intensive on-growing systems, and the remaining five to a consideration of extensive methods of cultivation, in particular stock enhancement.

Juvenile production

This group of papers demonstrated that, whereas rearing techniques are now well established for a large number of species, there remains considerable scope for improved performance with regard to both survival and the quality of the juveniles produced. Techniques continue to produce unpredictable results and the causes of variability remain poorly understood. Two papers identified some contributory factors to poor performance in turbot. Evidence was presented of a link between egg quality (as indicated by early cleavage characteristics) not only with the performance of the egg and early larval stages but with that of later juvenile stages (Doc. L:19). Thus, it was suggested that measures of egg quality might prove to be valuable quality criteria for later developmental stages. Deterioration of live food quality in rearing tanks without algae was also shown to adversely affect larval performance, a problem exacerbated by low larval densities leading to increasing residence time of the food in the tanks (Doc. L:9). Other papers demonstrated the progress that is being made in developing rearing techniques for relatively novel species. Halibut survival during the pre-feeding stages

was shown to be improved by the establishment of salinity gradients and the injection of oxygen (Doc. L:14), while techniques for wolffish (Doc. L:5), a promising species for farming in cold water, and blackspot bream (Doc. L:21), a warmer water species, appear to be well advanced.

Intensive systems

Raceway systems, novel with respect to their shallow depth and ease of stacking, may increase cost-effectiveness and reduce the level of interaction between individuals. They have provided encouraging results with a number of flatfish species and other demersal fish such as wolffish (Doc. L:2). A separate contribution described the successful early weaning of halibut in such a system in which the water depth was limited to 1–2 cm (Doc. L:17). The use of recirculation technology in conjunction with these and other tank systems may greatly facilitate the expansion of marine fish farming (Doc. L:8). Recirculation technology is already widely used for freshwater fish (e.g. eels), but commercial success is now being realised with several species of marine fish, such as turbot, sea bass and sea bream. There is considerable scope for improving the cost effectiveness of such systems, both with regard to production (e.g. density, feed type, water quality) and technical (e.g. increased automation, types of biofilters, denitrification systems, phosphorus removal, power consumption) parameters.

Evidence was also presented of the considerable development in cage systems, which has largely accompanied the growth of the salmon industry (Doc. L:7). The main change has been a progression from small wooden structures to considerably larger units resembling oil platforms. Many of the technological improvements have been driven by environmental, feeding, health and farm management considerations and have led to lower production costs and greater control of environmental factors. Additional developments include the design of flat-bottomed net cages suitable for rearing and storage of aquatic organisms and the development of transportation systems to meet the growing demand for live fishery products (Doc. L:15).

Any on-growing system must be evaluated with regard to the performance of the fish, and it was shown that certain behavioural criteria might be of value in this respect (Doc. L:4). In halibut, levels of off-bottom swimming activity in combination with changes in coloration were used to assess the effects of stocking density, light and temperature levels. Stocking density is a major determinant of economic viability, and several papers showed that the nature and extent of interactions between

individuals within communal populations varied both with developmental stage (Doc. L:1) and between species (Docs. L:1 and L:10). The importance of understanding the nature and extent of these interactions relates not only to the need to maximise productivity but also to the current concern over animal welfare issues. The development and imposition of ethically acceptable production standards is inevitable in the future (Doc. L:18). The view was expressed that the adoption of a positive approach from the industry to these requirements is more likely to produce good results in this respect than any restrictions imposed on companies as a result of public exposure to malpractice.

Extensive systems

Four contributions described attempts to increase yield from natural stocks, three by the release of reared juveniles of cod (Doc. L:11), turbot (Doc. L:3) and sea bream (Doc. L:20), and one by increasing the availability of food for cod (Doc. L:6). Enhancement of cod populations by the release of reared fish in Norway did not appear feasible. In fjordic situations, natural recruitment did not appear to be limiting, whereas in more productive coastal locations predation rates were unacceptably high. In Icelandic fjords, food also appeared to be limiting and it was proposed that enhanced yield may be obtained through the provision of relatively cheap food (capelin) with the additional benefit of reducing predatory pressure on other important commercial species. In contrast, the numerical enhancement of turbot and sea beam populations appeared to be feasible, but success would be dependent

on a variety of factors, including the behavioural and physiological attributes of the reared fish.

A further paper described the use of algal ponds to remove waste products from the effluent of sea bass production units (Doc. L:16).

Conclusions

1. Juvenile production methods for even established species remain unpredictable in terms of survival and the quality of the product, but progress is being made towards the reduction of this variability and the development of rearing methods for novel species.
2. Advances in the development of cages, tank systems and recirculation systems will undoubtedly support the continued expansion of the fish farming industry, relieving both geographic and climatic constraints.
3. The use of reared fish to enhance natural stocks may often be limited by excessive natural recruitment or predation, but where opportunities do exist, the behavioural and physiological characteristics of the fish may be major determinants of success.
4. The future success of this rapidly expanding industry will be dependent on a continuation of well-targeted research programmes in the areas covered by this session.

Documents presented

L:1	H.K. Strand	Social interactions; a comparative study of pre- and post-metamorphosed halibut and turbot fry
L:2	V. Øiestad	Shallow raceway as a solution to compact resource-maximizing farming procedure for marine fish species
L:3	J.G. Støttrup and H. Paulsen	Stocking of marine fish - a growing market for aquaculture
L:4	J.C. Holm, S.A. Tuene and J.E. Fosseidengen	Halibut behaviour as a means of assessing suitability of ongrowth systems
L:5	I-B Falk-Petersen, T.K. Hansen, R. Fieler, and L.M. Sunde	Cultivation of the spotted wolffish (<i>Anarhichas minor</i> Olafsen) - A new candidate for cold-water fish farming
L:6	B. Björnsson	Can fisheries yield be enhanced by large-scale feeding of a predatory fish stock? A case study of the Icelandic cod stock
L:7	A. Kittelsen	The modern cage culture in fish farming
L:8	P. Bovbjerg Pedersen	Status of recirculation technology in Denmark
L:9	Y. Olsen, G. Øie, K.I. Reitan, O. Vadstein and J. Rainuzzo	Cultivation of turbot (<i>Scophthalmus maximus</i>) juveniles. Effects of larval stocking density during first feeding
L:10	B.R. Howell	The effect of stocking density on growth and size variation in cultured turbot, <i>Scophthalmus maximus</i> , and sole, <i>Solea solea</i>
L:11	T. Pedersen, T.S. Kristiansen, and T. Svåsand	Possibilities and limitations of extensive aquaculture of marine fish - evaluation of current results with Atlantic cod and further prospects

- L:13 T. van der Meeren, T. Harboe, J.C. Holm, and R. Solbakken A new cleaning system for rearing tanks in larval fish culture
- L:14 T. Harboe, S.Å. Skår, K.E. Naas, and J.C. Holm Incubation of halibut yolk sac larvae improved by addition of freshwater and oxygen
- L:15 K.Ø Midling, K. Aas, B. Isaksen, J. Pettersen, and S.H. Jørgensen A new design in transport and net cage technology for live seafood and aquacultural purposes
- L:16 P. Pagand, J.-P. Blancheton, J. Lemoalle, and C. Casellas High rate algal pond for the treatment of marine effluent from a semi-closed fish rearing system
- L:17 T. Næss, K. Hamre, and J.Chr. Holm Successful early weaning of Atlantic halibut (*Hippoglossus, hippoglossus*) in small shallow raceway systems
- L:18 G. Bæverfjord Ethics and animal welfare in intensive aquaculture production
- L:19 E. Kjørsvik, K. Hoehne, K-I Reitan, and J. Rainuzzo Evaluation of egg and larval quality criteria as predictive measures for juvenile production in turbot (*Scophthalmus maximus* L.)
- L:20 A. Sanchez-Lamadrid Stock enhancement of gilthead sea bream, *Sparus aurata* L., in the Bay of Cádiz: growths, movements and survivals
- L:21 M. Olmedo, J.P. Peleteiro, B. Alvarez-Blázquez, and C Gómez First experiences of larval culture of blackspot sea bream (*Pagellus bogaraveo*)
- Poster

THEME SESSION ON IMPACT OF CEPHALOPODS IN THE FOOD CHAIN AND THEIR INTERACTION WITH THE ENVIRONMENT (M)

Co-Conveners: Dr U. Piatkowski (Germany) and M. Morais da Cunha (Portugal)

Rapporteurs: Dr G.J. Pierce (UK), Prof. P.R. Boyle (UK), and Dr E.M.C. Hatfield (USA)

The Theme Session was held on Wednesday 16 September 1998 from 14:00–18:00, on Thursday 17 September 1998 from 13:30–18:00, and on Friday 18 September 1998 from 11:00–12:30. Twenty-nine oral presentations were given to an audience of 65–80 people. Additionally, fourteen posters were presented at the Poster Session.

Background

World-wide traditional fish stocks are presently decreasing due to overfishing and/or environmental changes. Fisheries on cephalopod stocks, however, are significantly increasing and will probably gain a much larger importance in the future to supply mankind with marine living resources. Detailed information on biology and life cycle is only available for a very small portion of cephalopods that are exploited today. For the majority of species, there exists only poor information. Accordingly, there is a great demand to better understand their biology, ecology and their interlinking with environmental factors before a sustainable fishery can be started.

This Theme Session has been developed from the tasks handled within the ICES Working Group on Cephalopod Fisheries and Life History during the past years. The topics that had been proposed for the session included all aspects of cephalopod feeding ecology which have impact on the marine food chain, the importance of predators on cephalopod stocks, in particular marine mammals, and the interactions between cephalopod stocks and in the physical environment. These included environmental influences on distribution, migration, recruitment, maturation and time of spawning, the alteration of critical habitats such as breeding and nursery grounds, and the response of cephalopod early life stages to varying environmental factors. An important subject was also the man-made influence on cephalopod stocks by fishing or pollution.

Scientific Contributions

According to the topics addressed by the various contributions, the session was grouped into two parts. The first part, 'Cephalopods in the Food Chain', dealt with direct biotic interrelationships of cephalopods. It included all papers on predators and prey of cephalopods. The second part, 'Environmental Influences', emphasised the contributions that considered various aspects of the influence of abiotic factors on the distribution and biology of cephalopods. Four keynote presentations were given in order to review the main topics of the session.

Cephalopods in the Food Chain

A number of contributions reported on the role of cephalopods as predators in the sea. Key conclusions were that adult oceanic squid take substantial numbers of midwater fishes such as myctophids, whereas coastal squid rely more on invertebrate prey such as euphausiids. Oceanic squid are supposed to feed mainly during the night, whereas there is information that coastal squid feed mainly during the day. Seasonal effects seem have to a great impact on the prey spectrum (Docs. M:28 and M:31). Of particular interest was the feeding behaviour of early life stages (Docs. M:1, M:2, and M:36). Experiments on the prey capture of hatching squid demonstrate how prey type and density control the attacks on zooplankton undertaken by the hatchlings. There seems to be a substantial difficulty for catching copepods effectively. Further information highlighted the poor knowledge that we have on the feeding of early life stages in the field. In conclusion, knowledge on the feeding ecology of adult cephalopods has grown substantially in recent years, whereas there are still major gaps regarding the early life stages.

The bulk of papers and posters on cephalopods in the food chain were on the importance of cephalopods as prey of various top predators such as demersal fish, blue shark, tuna, fur seals, dolphins and whales (Docs. M:7, M:8, M:10, M:23, M:25, M:26, M:35, and M:38). The presentations documented that cephalopods form a major part of the marine mammal diet. Of particular importance is the sperm whale, which was highlighted in the keynote presentation by Prof. M. Clarke (Doc. M:8). It is believed that the world sperm whale population takes larger quantities of cephalopods than the amount of the present total world fishery catch. However, the major prey are squid species which are of no importance in the cephalopod fishery. Two papers reported on the low abundance of cephalopod prey within the stomachs of demersal and economically important fish. Discussions on this matter revealed that it is not yet clear whether these fish do not like cephalopod prey, whether cephalopods are not abundant within their direct habitat, or whether there are significant seasonal changes. It was concluded that more studies are needed on this subject. In turn, coastal cephalopods prey on early life stages of economically important finfish, which shows that there is an apparent linkage in the feeding ecology of cephalopods and fish. Further discussion noted the well-known problem of accumulation of squid beaks in predator stomachs. As these beaks are used to estimate the size and mass of the cephalopod prey, overestimates of cephalopod prey are more likely to occur for various predators.

Another presentation analysed the suitability of cephalopods for hosting parasites, which emphasised an important subject of recent food web studies (Doc. M:19). New techniques in studying food chains were introduced such as the analysis of carbon and nitrogen isotopes in squid. The studies show that isotope ratios relate to latitude and vary within sampled species from different regions (Doc. M:12).

Environmental Influences

Various contributions addressed new measurement techniques and environmental influences on the growth of cephalopods. Measuring aspartate transcarbamylase activity has become a new methodology to estimate growth in early-life cephalopods. It shows a greater precision than RNA/DNA ratios that are often measured in fish larvae (Doc. M:13). Changes of growth expressed by variations in biochemical indices were tested with starvation and re-feeding experiments in *Sepia officinalis* (Doc. M:41), also.

Temperature has a major impact on the development and growth of cephalopods. Several contributions demonstrated this relationship in field and experimental studies on early-life cephalopods (Docs. M:15, M:37, M:40, M:45, and M:47). Field samples on *Loligo gahi* nicely documented that late broods may succeed best if they hatch into raising environmental temperatures. This was tested by three growth models fitted to age-at-length data (Doc. M:14). Exploratory analysis using catch index and environmental variables such as NAO, ice, and SST showed significant correlations by multiple regressions of squid (*Illex illecebrosus*) abundance depending on these variables (Doc. M:32).

An important presentation, followed by a long discussion, addressed the modelling of squid growth as a fit to the von Bertalanffy curve (Doc. M:9). This subject is a key issue in current cephalopod biology. The study was based on measuring the surface area and suggests that squid are growing by increasing their surface area substantially, which is in contrast to most fish which do not change surface area much during growth. A major output of this contribution is that squid probably do not live long enough to use all the growth curve sections of the von Bertalanffy model.

A number of contributions addressed and reviewed the very direct abiotic influence that the fishery has on cephalopod stocks. Fine examples were given for the European cuttlefish fishery in France, the western European fishery on loliginids and ommastrephids, which has been investigated during several transnational European projects, and first results of the ommastrephid fishery around South Georgia (Docs. M:5, M:21, M:22, M:24, M:29, and M:43). The Spanish Saharan Bank fishery was reviewed and it was emphasised that, with the decrease of finfish catches, an increase of cephalopod landings was apparent. New estimations of discards in

this region amount to ca. 100 000 tonnes annually. These discards most probably allow an increase of benthos biomass which uses these discards as food resources and, thus, represents an increasing potential diet for *Sepia* and *Octopus* (Doc. M:33). Response to the social need to increase participation has required evaluation of the South African chokka squid resource. The suggestion that jig fishery has 'taken' from trawl fishery has not been substantiated quantitatively. There is a political need to increase participation without increasing effort (Doc. M:16). Squid reaction to towed gears was another subject during this session and was documented by video recordings (Doc. M:4). It was emphasised that the use of directly observed behaviour in relation to gear leads to meaningful modifications of the gear, greatly resolving by-catch of non-target species.

A further keynote presentation, given by Dr G. Pierce, described GIS techniques that have been developed in a recent transnational European project to overlay squid CPUE from surveys and LPUE from commercial fisheries mainly with SST and bathymetry data. Initial results show that the data link LPUE with the influx of Atlantic water into the northern North Sea. The talk described in detail the powerful applications which can be derived from GIS techniques (Doc. M:20).

In situ observations have become increasingly important to investigate the behaviour of ommastrephid squid in the field (Doc. M:3). The discussion on this subject pointed out the problems of light effects, etc., of the underwater vehicles that are used. Nevertheless, these techniques will become major instruments to understand various aspects of cephalopod biology in the sea (e.g. feeding, mating, spawning). An integration of observations on laboratory spawning in Japanese squid *Todarodes pacificus* with environmental fluctuations has provided tremendous new interpretations of the fluctuations of the *T. pacificus* fishery in Japan. These fluctuations are a key issue in one of the world's most important cephalopod fisheries and have been illustrated in another keynote paper of this session, given by Dr Y. Sakurai (Doc. M:18), and in a poster contribution (Doc. M:39) which presented information on the variability of the Neon flying squid abundance. Preliminary analyses of new samples of *Todarodes sagittatus* from Icelandic waters with large pelagic trawls were presented in Doc. M:48. This is a first insight into the population that historically contributed an important fishery in northern waters. New approaches to the S/N ratio in flesh and the Ca/Sr ratio in statolith of ommastrephid squids suggest that ecological grouping in Japanese squid is based on feeding ecology rather than on temperature history (Doc. M:11). These new approaches, together with the more traditional investigations on squid distribution related to environmental factors, have demonstrated the great progress cephalopod fishery biology has made in recent years. Further contributions gave new results on the distribution of early life cephalopods in Iberian Atlantic waters (Doc. M:42) and on the distribution of octopods (*Eledone moschata*) in the South Aegean Sea (Doc.

M:44). Both studies contribute to the increasingly detailed analysis of cephalopod distribution in European waters.

The last presentation of the session was a keynote entitled 'A global perspective on environmental research in squid fisheries' and was given by Dr M. Roberts (Doc. M:27). This talk emphasised that variability in abundance is a key issue in cephalopod fisheries biology. The interactions with the environment are extremely complex. A literature review on papers published in peer-reviewed journals shows that studies on squid distribution in relation to environmental factors are still very insufficient. There is not enough work being done on this subject, and only shelf and shelf/slope species have been investigated to a greater extent. The discussion clearly pointed out that more information on these matters is necessary in order to better integrate future research into management procedures. It was outlined, however, that in

oceanic cephalopods, biotic interactions might be more important than interactions with the physical environment.

After this last presentation, there was time for a short discussion on the results of this session. It was the general view that all topics addressed in the Theme Session had been tackled. New ideas, in particular new techniques, had been discussed. The session had also approached many of the gaps that cephalopod fishery biologists are still facing, which have to be overcome as soon as possible. The participants felt that this session was a major contribution to cephalopod ecology and fisheries, and looked forward to seeing the written contributions published in the near future.

The co-conveners closed the Theme Session by thanking the speakers for their presentations and the audience for their active participation in the discussion.

Documents presented

M:1	E.A.G. Vidal, H. Herb, F.P. DiMarco, J.H. Wormuth, and P.G. Lee	Prey capture by hatchling loliginid squid
M:2	M. Vecchione	The role of young cephalopods in food webs and their environment: a major gap in our knowledge
M:3	M. Vecchione, F.E. Clyde, C.F.E. Roper and M. Sweeney	In-situ observations on ommastrephid squids in the western North Atlantic
M:4	C.W. Glass, B. Sano, H.O. Milliken, G.D. Morris, and H.A. Carr	Squid (<i>Loligo pealei</i>) reactions to towed fishing gears; the role of behaviour in bycatch reduction
M:5	P. Rodhouse	The South Georgia squid fishery
M:7	R. Macnaughton, E. Rogan, V. Hernández-García, and C. Lordan	The importance of cephalopods in the diet of blue shark (<i>Prionace glauca</i>) south and west of Ireland
M:8	M.R. Clarke, M.B. Santos, and G.J. Pierce	The importance of cephalopods in the diets of marine mammals and other top predators
M:9	R.K. O'Dor and J.A. Hoar	Does geometry limit squid growth?
M:10	H. Bjørke and H. Gjørseter	Who eats the larger <i>Gonatus fabricii</i> (Lichtenstein) in the Norwegian Sea?
M:11	Y. Ikeda, S. Onaka, N. Takai, H. Kidokoro, N. Arai, and W. Sakamoto	Migratory routes of the Japanese common squid (<i>Todarodes pacificus</i>) inferred from analyses of statolith trace elements, and nitrogen and carbon stable isotopes
M:12	N. Takai, S. Onaka, Y. Ikeda, A. Yatsu, H. Kidokoro, and W. Sakamoto	Biological and geographical variations of carbon and nitrogen stable isotope ratios of squid
M:13	N. Koueta, B.B. Castro, and E. Boucaud-Camou	Biological indices for instantaneous growth estimation in young cephalopod <i>Sepia officinalis</i> L.
M:14	E. Hatfield	Seasonal temperature change affects the growth of the squid <i>Loligo gahi</i> (Cephalopoda: Loliginidae): I. The length-at-age relationship
M:15	E. Hatfield, S. Cadrin, and D. Mountain	Factors influencing the abundance of the longfin inshore squid, <i>Loligo pealeii</i>
M:16	B.A. Roel and A.I.L. Payne	Management of the South African chokka squid jig fishery under uncertainty regarding trends in resource abundance
M:18	Y. Sakuari, J.R. Bower, H. Kiofuji, S. Saitoh, T. Goto, Y. Hiyama, K. Mori, and Y. Nakamura	Changes in inferred spawning sites of <i>Todarodes pacificus</i> (Cephalopoda: Ommastrephidae) due to changing environmental conditions

M:19	A.F. González, S. Pascual, C. Gestal, E. Abollo, and A. Guerra	What makes a cephalopod a suitable host for parasites? The case of Galician waters
M:20	G.J. Pierce, J. Wang, J.M. Bellido, C.M. Waluda, J.-P. Robin, V. Denis, D. Koutsoubas, V. Valavanis, and P.R. Boyle	Relationships between cephalopod abundance and environmental conditions in the Northeast Atlantic and Mediterranean as revealed by GIS
M:21 Poster	H.I. Daly, G.J. Pierce and S.K. Cho	Stock assessment for squid in Scottish waters
M:22	J.-P. Robin, V. Denis, and A. Carpentier	Distribution and abundance indexes of East English Channel squid populations: comparison of commercial trawlers LPUE and CGFS research cruise data
M:23	J. Royer, M.B. Santos, S.K. Cho, G.J. Pierce, G. Stowasser, H.I. Daly, and J.-P. Robin	Cephalopod consumption by fish in English Channel and Scottish waters
M:24 Poster	K. Henry, V. Denis, and J.-P. Robin	Ommastraphid squids exploited by French trawlers: preliminary analysis of stock structure based on Southern Brittany landings
M:25	R. Abbes and F. X. Bard	La part des Céphalopodes dans la nutrition des thons tropicaux profonds de l'Océan Pacifique
M:26	F. Velasco, I. Olaso, and F. Sánchez	The role of cephalopods as forage for the demersal fish community in the southern Bay of Biscay
M:27	M.J. Roberts, P. Rodhouse, R. O'Dor, and Y. Sakurai	A global perspective of environmental research on squid
M:28	M. Parry	Feeding ecology of <i>Ommastrephes bartramii</i> in the Central North Pacific
M:29	J.M.F. Pereira, A. Moreno, and M.M. da Cunha	Western European squid distribution: a review
M:31	J.M. Portela and M. Rasero	Daily feeding pattern of Patagonian squid <i>Loligo gahi</i> in Falkland/Malvinas Islands waters
M:32	E.G. Dawe, E.B. Colbourne, and K.F. Drinkwater	Environmental effects on recruitment of short-finned squid (<i>Illex illecebrosus</i>)
M:33	E. Balguerías and M.E. Quintero	The origin of the Saharan fishery for cephalopods
M:35 Poster	R. A. Santos and M. Haimovici	Cephalopods in the diet of marine mammals stranded or incidentally caught along Southeast and Southern Brazil (21° to 34° S)
M:36	E.K. Shea and M. Vecchione	Quantitative analysis of morphology to determine developmental discontinuities in cephalopod life cycles
M:37 Poster	H. Kidokoro	How do environmental variables affect growth and feeding of the Japanese common squid (<i>Todarodes pacificus</i>)?
M:38 Poster	J. Mori, T. Kubodera, and N. Baba	Squids in the diet of northern fur seals, <i>Callorhinus ursinus</i> , caught in the western and central North Pacific
M:39 Poster	A. Yatsu, J. Mori, T. Watanabe, T. Meguro, Y. Komei, and Y. Sakuari	Interannual variability in the neon flying squid abundance and oceanographic conditions in the Central North Pacific Ocean during 1979-1997
M:40 Poster	S. Craig, K.D. Black, and P.R. Boyle	The effects of temperature on development and hatching of squid <i>Loligo forbesi</i> (Cephalopoda, Liliiginidae) embryos
M:41 Poster	V. Bettencourt, B.G. Castro, L. Fuentes, and A. Guerra	Changes on biochemical indices of growth of <i>Sepia officinalis</i> with starvation and refeeding
M:42 Poster	A. Moreno and J.M.F Pereira	Cephalopod paralarval distribution in Iberian Atlantic waters
M:43	V. Denis and J.-P. Robin	Present status of the French Atlantic fishery for cuttlefish (<i>Sepia officinalis</i>)
M:44 Poster	E. Lefkaditou, A. Siapatis, and C. Papaconstantinou	Seasonal and spatial changes in the abundance and distribution of <i>Eledone Moschata</i> (Cephalopoda: Octopoda), in the South Aegean Sea (Eastern Mediterranean)

M:45 Poster	A. Caveriviere, F. Domain, and A. Diallo	Observations about the influence of temperature on the length of the <i>Octopus vulgaris</i> embryonic development (Senegal, West Africa)
M:47 Poster	F.J. Sánchez, J. Iglesias, C. Moxica, and J.J. Otero	Growth of octopus (<i>Octopus vulgaris</i>) males and females under culture conditions
M:48 Poster	E. Jónsson	Study of the biology of European flying squid, <i>Todarodes sagittatus</i> , occurring in deep waters south of Iceland

THEME SESSION ON ECOLOGY OF DIADROMOUS FISHES DURING THE EARLY MARINE PHASE (N)

Co-Conveners: D.G. Reddin (Canada), Dr E. Rochard (France), and Dr L. P. Hansen (Sweden)
Rapporteur: Dr A. Moore (UK)

Background

The early marine phase of many diadromous species has frequently been referred to as a 'black box' in recognition of our lack of understanding and knowledge of this important life stage. However, it is surprising, considering the importance of fisheries for various diadromous species, that there is a scarcity of information on life history in the sea. Recent downturns in the abundance of several diadromous species underscore the importance of focusing our attention on the early marine life of diadromous fish. Information on sea life and sources and magnitude of mortality is necessary to make forecasts of the abundance prior to fisheries so that adequate spawners can be provided for and benefits to fisheries maximized. This Theme Session is aimed at opening the black box. The early marine phase includes the transition between inland and marine environment (brackish water), the migration from estuary to feeding area (or spawning area for catadromous species), and the feeding phase in coastal and open sea.

Presentations

The 16 oral presentations focused predominantly upon the commercially important salmonids, although papers were presented describing the ecology of other diadromous species such as coregonids, eels, striped bass and sturgeons. The keynote talk highlighted the fragility of diadromous species in general and noted that many populations were considered to be in decline. The complex life cycles of many species and their diverse habitat requirements may increase their susceptibility to anthropogenic and climatic changes.

In general, the presentations highlighted the importance of links between distribution, abundance and behaviour of diadromous species and the environment. Four papers examined the environmental conditions influencing the distribution and migration of salmonids, eels and sturgeon in estuaries and brackish waters. A model describing selective tidal stream migration in glass eels highlighted the importance of environmental cues in controlling estuarine behaviour. This was reinforced by a study where tidal cues were utilised by juvenile salmonids to migrate rapidly into coastal waters. Factors modifying the conditions controlling migration (e.g. barrage schemes) were shown to delay and possibly reduce survival of salmonids in the marine environment. Such behaviour studies have implications for the management of many stocks inhabiting the estuarine environment. Differences in the spatial distribution of juvenile sturgeon in a French estuary have been used to reduce the possible impacts of gravel extraction.

Spatial and temporal distribution of diadromous species in the marine environment was demonstrated by a number of presentations to be closely correlated with oceanographic conditions and productivity. The patterns of movement and migration routes of salmon smolts in coastal waters were regulated by shelf edge currents and wind direction. Two papers dealing with the application of Data Storage Tag technology indicated the usefulness of such an approach in describing the distribution and behaviour of salmon in relation to temperature and salinity. Other methods utilising scale growth patterns suggested differences in the distribution of stocks of salmon during the early period of their marine lifecycle, but mixing of stocks in specific nursery areas when the feeding and thermal conditions were suitable.

Conclusions

1. It was agreed that a workshop should be proposed to the Living Resources Committee to evaluate the usefulness of scale growth analyses, and other measures of condition, to be used in the interpretation of ocean effects on salmon.
2. With the demise of commercial fisheries at sea for Atlantic salmon, an important source of information on the sea life of salmon has been lost. It is recommended that research be conducted into all aspects of salmon marine life history, including growth, survival, migration and distribution. This research should include the limited use of research vessels, expanded use of data storage or data logging tags, acoustic tracking studies and environmental data collected by earth observation satellites.
3. Concern arose during the session that the spatial and temporal overlap of postsmolts of Atlantic salmon and commercial pelagic fisheries could result in the bycatch of salmon. There is an urgent need for information on the level of this bycatch as well as other diadromous fishes if taken. It is recommended that ICES consider developing sampling protocols for assessing the by-catch of diadromous species through the placement of observers on commercial fishing vessels.
4. North American and European eel stocks have been declining markedly since the 1980s. Considering that eels have not been reared successfully through the leptocephalus stage, both species, which are considered particularly vulnerable cannot be enhanced through aquaculture programmes.

5. The EIFAC/ICES Working Group on Eels should consider the following issues as high priority:
- a) review the current status of eels in both North America and Europe, and the current knowledge and perceptions as to the factors having led to their present status;
 - b) propose strategies and actions to achieve adequate escapements of elvers to nursery habitats and sub-adults to marine spawning grounds;
 - c) identify index rivers, stations within freshwater and estuarine environments in both Europe and North America in order to monitor recruitment and abundance for both glass eels and juvenile eels.

Documents presented

N:2	E. Rochard, M. Lepage, S. Tremblay and C. Gazeau	Downstream migration evolution of the juvenile European sturgeon <i>Acipenser sturio</i> L. in the Gironde estuary
N:5	M. García-Gallego, A. Sánchez de Lamadrid, A. Sanz, J.L. Muñoz, J. Domezain, M.C. Soriguer, A. Domezain, and J.A. Hernando	Effect of age/weight on the process of seawater induced adaptation of the sturgeon <i>Acipenser naccarii</i> (Bonaparte 1836)
N:7	K.D. Friedland and D.G. Reddin	Growth patterns in post-smolts captured in the Labrador Sea and the temporal scale of recruitment coherence in North America
N:8	K.D. Friedland, J.-D. Dutil and T. Sadusky	Post-smolt growth in Atlantic salmon from North America and the nature of marine juvenile nurseries
N:9	M.-N. de Casamajor, N. Bru, and P. Prouzet	Influence of night brightness on the migratory behaviour of glass eels (<i>Anguilla anguilla</i> L.) in the Adour estuary
N:11	H. Westerberg	The migration of glass-eel and elvers in the Skagerrak and the Kattegat
N:12	N. Bru, M.-N. de Casamajor, E. Albert, P. Prouzet, F. Sanchez, and P. Lazure	Model of glass-eels (<i>Anguilla anguilla</i> L.) behaviour into the Adour estuary
N:13	A.V. Zubchenko, N.G. Popov, and M.A. Svenning	Salmon rivers on the Kola Peninsula. Some results from acclimation of pink salmon (<i>Oncorhynchus gorbusha</i> Walbaum)
N:15	M. Holm, J.C. Holst, and L.P. Hansen	Spatial and temporal distribution of Atlantic salmon post-smolts in the Norwegian Sea and adjacent areas - origin of fish, age structure and relation to hydrographical conditions in the sea
N:16	A. Moore, I.C. Russell, M. Ives, S. Ives, E.C.E. Potter and C.P. Waring	The riverine, estuarine and coastal migratory behaviour of wild Atlantic salmon (<i>Salmo salar</i> L.) smolts
N:18	M. Holm, O.T. Skilbrei, E. Ona, I. Huse, and K.E. Jørstad	Migratory behaviour of cultured Atlantic salmon smolts released during day or night
N:21	J.R. Waldman, D.J. Dunning, Q.E. Ross, and M.T. Mattson	Movements of young striped bass out of the Hudson River in relation to age, length, and abundance
N:24 Poster	M. Lepage, R. LeBarh, and E. Rochard	Accidental catches at sea of an endangered migratory species, the European sturgeon (<i>Acipenser sturio</i> L.), and connections with various types of fishing

THEME SESSION ON DEEPWATER FISH AND FISHERIES (O)

Co-Conveners: Dr J.D.M. Gordon and I. Figueiredo

Rapporteur: Dr P.L. Connolly and Dr O.A. Bergstad

The Theme Session was conducted over three scientific sessions held on Wednesday 16 September 1998 (14.30–18.30), Thursday 17 September 1998 (08.30–12.30) and 18 September 1998 (08.30–15.30). There were 47 oral presentations and 38 poster presentations.

The Theme Session invited papers on all aspects of deepwater fish and fisheries and was particularly targeted on the outputs of the EU FAIR project (95/655) entitled: "Developing deepwater fisheries: data for their assessment and for understanding their interaction with and impact on a fragile environment".

Scientific contributions commenced with a keynote address which presented an overview of the EU FAIR Deep-Fisheries Project. This presentation focused on the objectives and tasks of the project and outlined the work plan of each partner in each of the tasks. The major results achieved by each partner were also highlighted. This presentation was followed by one which focused on the deepwater fisheries of the Rockall Trough and Irish deepwater survey data. The paper presented some age estimation, discard and selectivity results and highlighted some missing life history stages in the catches. Two papers were presented on discarding from commercial fishing operations in the Rockall Trough area. One presented results from the monitoring of discards in the French and Scottish fleets and found that the marked differences in species composition of discards could be attributed to the different depth ranges fished by the two fleets. A second paper on discards examined discarding of roundnose grenadier in the French fishery in ICES Sub-areas VI and VII. In 1996, total discards were estimated at 12 000 t with roundnose grenadier accounting for 2 000 t.

CPUE abundance indices of the main target species of the French deep water fishery in ICES Sub-areas V, VI and VII were described. The CPUE, while not consistent between fleets, did indicate a strong declining trend suggesting a severe impact on the fishery. However, these results should be treated with caution given the problems associated with allocating effort to fleets and areas.

The Faroese quest for orange roughy in the North Atlantic outlined the experimental fishery for this species in Faroese waters, on the Hatton Bank and on the Mid Atlantic Ridge between Iceland and the Azores. Catches of orange roughy on deep sea banks can be reduced considerably by a few months fishing activity. Another presentation focused on the distribution and abundance of deepwater fish along the Mid-Atlantic Ridge. Data on 56 species from 27 families were presented in relation to temperature, geographical distribution and depth. The

Russian fishery and work carried out on the biology of alfonso (*Beryx splendens*) taken on the seamounts of the north Atlantic were described. The stocks appear to have declined due to heavy fishing pressure.

A group of papers described the various national deepwater fisheries in the north Atlantic area. An overview of the Spanish deep water fisheries in the north and north-east Atlantic was presented. The paper described the fishery in relation to gears, seasonal activity, target species and landings by port. Another paper gave information on the landings, description of the fisheries and research vessel survey results on deepwater species off the Portuguese coast. A paper on the gillnet fishery for anglerfish (*Lophius piscatorius* and *L. budegassa*) in the Cantabrian Sea described the fleets, the gear used and details the landed catch and discards from the fishery.

The second session opened with a paper which detailed the hake semi-pelagic longline fishery in southern Portugal. The paper described the interannual variability in the catch composition, catch rates, discards and hook selectivity in the fishery.

A paper on the results from exploratory deepsea fishing off the north-eastern US was read by title. Two papers focused on some deepwater fisheries in the US. The search for new resources lead to deepwater exploratory trawling off New England. The various cephalopod species captured during these surveys were described and discussed their potential in terms of new fisheries resources. Spatial differences in the maturity of female dover sole off Oregon were addressed in another paper. This paper indicated that females had a 50% probability of being mature at ages 7.3 and 9.5 depending on where and when the sampling was conducted.

Detailed results from monthly surveys in the deep waters off the west coast of Greece were presented. The monthly CPU (kg/hour) for fish, crustaceans and cephalopods in two depth zones were presented together with data on the main species compositions in the catch.

Data from the deepwater fisheries of Vanuatu (Oceania) were presented. The 10 year data set shows that there has been a decrease in the average length of the main catch species. The paper also addressed the management approaches for the deepwater demersal fishery in small island groups.

Two papers dealt with the data required for the management of commercial fisheries in rock habitats of

the Gulf of Alaska. One detailed the use of geophysical techniques to classify marine fish habitats for use in stock assessment of rockfish. A series of sidescan sonar surveys were conducted to improve the delineation of available habitat. The other detailed how a submersible was used to conduct line transects to estimate density and biomass of yelloweye rockfish. Prior to this study, no biomass estimates were available for the species as they inhabit complex rocky habitats, inaccessible to trawl surveys.

A variety of studies concerning biology and ecology of deepwater species from a wide range of environments and geographical areas provided added insight into population characteristics of many exploited fish species. New information on population structure, growth, age and size at maturity, and fecundity of several target species such as Greenland halibut, Macrourids, *Lophius* sp. and sharks was provided. New analyses, often based on data collected for many years, were presented for several non-target species and typical discard species. This new information may directly or indirectly benefit present and future assessment and management of many species already under heavy exploitation.

New methods were presented for assessing abundance and for determining age. A particularly original new development was the attempt to apply baited benthic landers to study abundance of Patagonian toothfish inhabiting rocky areas. Several studies on age determinations emphasised the need for further development of techniques, particularly for deepwater sharks, and the necessity of harmonisation of ageing practices among laboratories. Validation of age-readings is still lacking for many species, even for fishes currently being assessed based on age-structured models.

Studies of fish communities and predator-prey relationships were presented for several slope areas such

as the Azores and the eastern Norwegian Sea. There appears to be a need for community structure studies in both unexploited and exploited communities. This was also emphasised in a thought-provoking keynote address. Many deepwater species and communities have been extensively exploited (and sometimes apparently exhausted) without relevant and adequate knowledge of the biology and ecology of the resources and their habitats. It is unclear whether communities having been disturbed and possibly changed by intensive fishing can recover to their virgin states. Processes in the deep sea tend to be slower than in shallow water, and restoration of community structure and depleted populations may be slow and take long, possibly decades rather than years. Knowledge of basic processes and structural features of the deep-sea ecosystems may be particularly useful for developing responsible policies forming frameworks for management. Practical management decisions will, however, probably still require detailed information at the population level.

Experiences from the extensive orange roughy fishery off New Zealand were summarised in a second keynote address. Both the catches, catch per unit of effort and stock estimates have declined steadily since the fishery began in the late 1970s, but in recent years landings have corresponded well with limits set by management. The fishery has to some extent depended on the intermittent discovery of new fishing areas, but concentrations at individual seamounts seem to be depletable. In the most traditional areas, e.g. the Chatham Rise, there are some indications of a recent recovery of the stock. The orange roughy may have long periods of poor recruitment, and it is unclear to what extent interchange of juveniles among seamounts occurs. An aspect of particular concern in this and many other areas is the possible negative impacts of extensive deepwater bottom trawling on the habitat of the orange roughy and other members of the deep-sea communities.

Documents presented

O:1	K. Kilongo	Distribution, abundance, and feeding habits of hake (<i>Merluccius polli</i>) in Angolan waters
O:2	K. Erzini, J.M.S. Gonçalves, L. Bentes, P.G. Lino, and J. Ribeiro	The hake semi-pelagic ("pedra-boia") longline fishery in Algarve (southern Portugal) waters: catch composition, catch rates, discards, hook selectivity, and inter-annual variability
O:3	M. Vecchione and J. Galbraith	Cephalopod species captured by deepwater exploratory fishing off New England
O:4	V. Allain	Reproduction and fecundity of 3 species of deep-sea fish from the north-east Atlantic Ocean
O:7	T.M. Gomes, E. Sola, M.P. Grós, G. Menezes, and M.R. Pinho	Trophic relationships and feeding habits of demersal fishes from the Azores: importance to multispecies assessment
O:8	B. Morales-Nin	Mediterranean deep-water fish age determination and age validation: the state of the art
O:9 Poster	J.-M. Casas, C.G. Piñeiro, and R. Bañón	Results of experimental fishing surveys carried out in Galician Deep-waters
O:10	C.G. Piñeiro, M. Casas, and R. Bañón	Current situation of the deep-water fisheries exploited by Spanish fleets in the North and Northeast Atlantic: A review

O:11	T. Blasdale and A.W. Newton	Estimates of discards from two deep-water fleets in the Rockall Trough
O:12	S.P. Melnikov, V.S. Mamylov, V.N. Shibanov, and A.P. Pedchenko	Results from Russian trawl-acoustic survey on <i>Sebastes mentella</i> stock in the Irminger Sea in 1997
O:13	V.I. Vinnichenko	Alfonsino (<i>Beryx splendens</i>) biology and fishery on the seamounts in the open North Atlantic
O:14	M.R. Clark	Are deep-water fisheries sustainable? - the example of orange roughy in New Zealand
O:15	V.I. Vinnichenko	On conditions of formation of Greenland halibut (<i>Reinhardtius hippoglossoides</i>) concentrations in the open Northwest Atlantic
O:16	O.V. Smirnov	Dynamics of population fecundity of Greenland halibut (<i>Reinhardtius hippoglossoides</i>) of the Norwegian-Barents Sea stock by the data from 1984-1997 trawl surveys
O:18	J.D.M. Gordon	Deep-water fish and fisheries in the Northeastern Atlantic and Mediterranean: an overview of the EC Fair Deep Fisheries Project
O:19	P. Lorance and H. Dupouy	C.p.u.e. abundance indices of the main target species of the French deep-water fishery in ICES Sub-Areas V, VI and VII
O:20	H. Dupouy, V. Allain, and B. Kergoat	The discards in the French fishery of roundnose grenadier in ICES Sub-Areas VI and VII
O:21	J. Landa, , P. Pereda, R. Duarte, and M. Azevedo	Growth study of white and black anglerfish (<i>Lophius piscatorius</i> ; <i>L. budegassa</i> Spinola 1807) based on annual sampling in the southern stock (ICES Divisions VIIIc and IXa)
O:22	O.T. Albert, E.M. Nilssen, A. Stene , A.C. Gundersen, and K.H. Nedreaas	Spawning of the Barents Sea/Norwegian Sea Greenland halibut (<i>Reinhardtius hippoglossoides</i>)
O:23	R. Duarte, M. Azevedo, J. Landa, and P. Pereda	Reproduction of black and white anglerfish (<i>Lophius budegassa</i> Spinola, 1807; <i>L. piscatorius</i> Linnaeus, 1758) in the southern stock (ICES Divisions VIIIc and IXa)
O:24 Poster	P.A. Large, P. Lorance, and J.G. Pope	The survey estimates of the overall size composition of the deep-water fish species on the European continental slope, before and after exploitation
O:26	J.E. Rønneberg , A.C. Gundersen, and J. Boje	Fecundity of Greenland halibut (<i>Reinhardtius hippoglossoides</i> Walbaum) in East Greenlandic waters
O:27 Poster	A. Stene, A. Gundersen, O.T. Albert, P. Solemdal, and K.J. Nedreaas	Early development of Northeast Arctic Greenland halibut (<i>Reinhardtius hippoglossoides</i>)
O:28	A.K. Woll, J. Boje, R. Holst, and A.C. Gundersen	Catch rates and hook and bait selectivity in longline fishery for Greenland halibut at East Greenland
O:29	A.C. Gundersen, O.S. Kjesbu, A. Stene, and K.H. Nedreaas	Fecundity of Greenland halibut (<i>Reinhardtius hippoglossoides</i>) in the northeast Arctic
O:30	O.A. Bergstad , O. Bjelland, and J.D.M. Gordon	Fish communities on the slope of the Eastern Norwegian Sea
O:31	B. Thomsen	Faroese quest of orange roughy in the North Atlantic
O:32	J.V. Magnússon	Age, maturity and other biological parameters of two morid species <i>Lepidion eques</i> (Günther, 1887) and <i>Antimora rostrata</i> (Günther, 1878) in Icelandic waters
O:33	R.A. Coggan, J.D.M. Gordon, and N.R. Merrett	Reproduction, age and growth in the grenadier <i>Nezumia aequalis</i> (Günther, 1878) (Pisces: Macrouridae), a by-catch species of deep-water fisheries to the west of the British Isles
O:34	M.R. Pinho, J.M. Gonçalves, H.R. Martins and G.M. Meneses	Some aspects of the biology of the deep-water crab <i>Chaceon affinis</i> (A. Milne Edwards & Bouvier, 1894) off the Azores
O:35	K.B. Jakobsdóttir	Maturity and other biological aspects of two deep-water squaloid sharks, <i>Centroscyllium fabricii</i> (Reinhardt, 1825) and <i>Etmopterus princeps</i> (Collett, 1904), in Icelandic waters

O:36	W.W. Wakefield, V.M. O'Connell, H.G. Greene, D.W. Carlile, and J.E. McRea	The role of sidescan sonar in seafloor classification with a direct application to commercial fisheries management
O:37	R.L. Haedrich, N.R. Merrett and N. O'Dea	Can ecological knowledge catch up with deep-water fishing?
O:38 Poster	Ch. Mytilineou, G. Petrakis, and A. Fourtouni	Composition of the discarded catches from experimental bottom trawl surveys in Greek waters
O:39	N.R. Hareide and G. Garnes	The distribution and abundance of deep-water fish along the Mid-Atlantic Ridge from 43°N to 61°N
O:40	C.J. Kelly, P.L. Connolly, and M.W. Clarke	The deep water fisheries of the Rockall trough; some insights gleaned from Irish survey data
O:41	M. Clarke, P.L. Connolly, and J.J. Bracken	Age estimation of the squaliform shark <i>Centrophorus squamosus</i> (Bonnaterre, 1788) using the second dorsal spine
O:43	P.R. Crone	Spatial differences in maturity schedules of female Dover sole off Oregon
O:44	J.A. Moore and J.K. Galbraith	Results from exploratory deep-sea fishing off the northeastern US
O:45	G. Petrakis, A. Terrats, A. Plastiras, and C. Papaconstantinou	Some aspects on the reproduction of six deep-water fish species off the west coast of Greece (Ionian Sea)
O:46	P. Pereda, A. Punzón, and J. Landa	The "rasco" a gillnet fishery for anglerfish (<i>Lophius piscatorius</i> L., 1758 and <i>L. budegassa</i> Spinola, 1807) in the Cantabrian Sea (ICES Div. VIIIc)
O:47	I. Quincoces, P. Lucio, and M. Santurtún	Biology of the black anglerfish (<i>Lophius budegassa</i>) in the Bay of Biscay waters during 1996-1997
O:48	I. Quincoces M. Santurtún, and P. Lucio	Biological aspects of the white anglerfish (<i>Lophius piscatorius</i>) in the Bay of Biscay (ICES Divisions VIII a,b,d) in 1996-1997
O:49	B. Draganik, I. Psuty-Lipska, and J. Janusz	Ageing of roundnose grenadier (<i>Coryphaenoides rupestris</i> Gunn.) from otoliths
O:50	G. Petrakis	Catch per unit of effort fluctuations in deep waters off the west coast of Greece (Ionian Sea)
O:51	O. Bjelland and O.A. Bergstad	Trophic ecology of deep-water fishes associated with the continental slope off the eastern Norwegian Sea
O:53	E. Cillaurren and M. Simier	Deepwater fisheries in Vanuatu (Oceania): are usual tools adequate for the management of small insular artisanal fisheries?
O:54	C. Yau, M.A. Collins, I. Everson, and C.P. Nolan	A new method for estimating the abundance of Patagonian toothfish (<i>Dissostichus eleginoides</i>)
O:55	S. Mormede and I.M. Davies	Trace elements in deep-water fish species from the Rockall Trough
O:56	V.M. O'Connell, D.C. Carlile, and W.W. Wakefield	Using line transects and habitat-based assessment techniques to estimate the density of yelloweye rockfish (Scorpaenidae: <i>Sebastes</i>) in the Eastern Gulf of Alaska
O:57 Poster	J. Santos and T. Borges	Trophic relationships in deep-water fish communities off the Algarve coast, Portugal
O:58 Poster	J. Gordon	The EC FAIR Deep Fisheries Project
O:59 Poster	L. Carvalho and I. Figueiredo	Black scabbardfish fishery. Analysis of a pilot sampling
O:60 Poster	P. Lorance, H. Dupouy, and V. Allain	Assessment of the roundnose grenadier (<i>Coryphaenoides rupestris</i>) stock in the Rockall Trough and neighbouring areas (ICES Sub-Areas V, VI and VII)
O:63 Poster	L.W. Bullough, W.R. Turrell, J.D.M. Gordon, I.G. Priede, and J. Hislop	Hydrographic variability and deep-water fishery West of Shetland
O:66 Poster	J. Magnússon	Deep-water fisheries at Iceland
O:67 Paper	O. Moura, I. Figueiredo, P. Bordalo Machado, and V. Henriques	Research on deep-water species off the Portuguese continental coast

O:68 Poster	M.J. Figueiredo, I. Figueiredo, and P.B. Machado	Deep-water crustaceans off the Portuguese continental slope. Will they be an alternative in the future?
O:69 Poster	P.B. Machado, R. Martins, I. Figueiredo, and L. Gordo	Some notes on the biology of the black scabbardfish
O:70 Poster	I. Figueiredo and A. Moreira	Biological aspects of bluemouth off the Portuguese continental slope
O:72 Poster	O. Moura	Species density estimated by kriging and stratified random sampling estimators
O:75 Poster	T. Sigurdsson and P. Reynisson	Distribution of pelagic redfish (<i>S. mentella</i> Travin), at depths below 500 m, in the Irminger Sea and adjacent waters in May 1998
O:76 Poster	E. Katsarou and G. Nævdal	Population studies on roughhead grenadier, <i>Macrourus berglax</i> L., from the North Atlantic
O:77 Poster	R.L. Haedrich and N.R. Merrett	Changing size structure in exploited deep-sea fish communities
O:78 Poster	I. Quincoces, M. Santurtún, and P. Lucio	Histological study of the gonadal development of the white anglerfish, <i>Lophius piscatorius</i> (L.1758)
O:79 Poster	I. Quincoces, P. Lucio, and M. Santurtún	The gonadal development of the black anglerfish, <i>Lophius budegassa</i> (Spinola 1807): an histological study
O:80 Poster	G.M. Menezes, H.M. Silva, and M.R. Pinho	Demersal fish assemblages of the Azores Islands based on longline cruise surveys
O:81 Poster	O. Melo, G.M. Menezes, and M. Weber	Vertical distribution of catch and interspecific competition in bottom longline (Stone/Buoy)
O:83 Poster	A. Mendonça, S. Estácio, H. Krug, G.M. Menezes, J. Branco, and M.R. Pinho	Reproduction aspects of some demersal fishes captured in the Azores archipelago
O:84 Poster	H. Krug, D. Rosa, G.M. Menezes, and M.R. Pinho	Age and growth of some demersal species of the Azores
O:86 Poster	M. Girard and M.-H. Du Buit	Particularities of the reproductive cycle in two species of deep-water sharks: <i>Centrophorus squamosus</i> and <i>Centroscymnus coelolepis</i>

THEME SESSION ON DEVELOPMENT OF TOXICITY AND QUALITY STANDARDS FOR CONTAMINANTS IN THE MARINE ENVIRONMENT (P)

Co-Conveners: Dr R. Laane (Netherlands), Dr P. Matthiessen (UK),
Dr K. Cooreman (Belgium), and Dr M. NicholSEN (UK)
Rapporteur: Dr P. Matthiessen (UK)

Only about twenty people attended this Theme Session, although the papers were varied, interesting and of good quality. The subject matter ranged from new statistical procedures for the evaluation of contaminant and impact monitoring data, through a rapid screening method for contaminated marine sediments, to the derivation and application of marine environmental quality standards (EQS).

There is considerable interest in WGBEC and WGSaEM in the development of robust statistical procedures for evaluating and integrating complex chemical and biological monitoring data sets, and two presentations (Docs. P:1 and P:2) covered different aspects of this subject. The methods described show some promise, but it was emphasised in discussion that they will require substantial further validation with several different data sets before their outputs can be considered representative and sufficiently descriptive of the pollution and biological impact status of areas to which they are applied.

The presentation of Doc. P:3 described the development of a new sediment toxicity screening procedure which assays the exo-enzyme activity of natural microbial communities by means of added substrates whose degradation by these enzymes produces fluorescent metabolites which can easily be measured. The method has been tested successfully with several contaminants and sediment types, and is proposed for use (as part of a battery of other tests) in screening large numbers of samples (e.g. dredged materials prior to ocean disposal).

In response to questions, it was stated that the method is not diagnostic for particular contaminants and should not be used for comparing sites with very different sediment characteristics or microbial communities. It is also possible that non-contaminant stressors could induce responses. Nevertheless, the general view of the meeting was that the procedure appears to be a useful and novel addition to the existing battery of sediment toxicity screening tools.

The final paper (Doc. P:4) concerned the derivation of marine environmental quality standards (EQSs) in the Netherlands using ecotoxicological test data. The subject of EQS-setting is a difficult one because the various methods (including the statistical extrapolation approach adopted in the Netherlands) derive standards which are difficult to validate in terms of their over- or under-protectiveness for ecosystems. There is, in many cases, a tendency to apply large 'safety' factors in order to ensure that standards are sufficiently precautionary and also to account for the fact that environmental contaminants are almost always present as complex mixtures. This in turn can mean that a regulatory action that may be imposed when an EQS is exceeded, considered in isolation from any observations of biological impact, will be inappropriately strict. The view of most participants in the session was, therefore, that EQSs should generally be applied to marine waters in conjunction with bioassays, biomarkers, and other measures of biological effects in order to provide some independent assessment of the degree to which the contaminant in question is present at harmful concentrations.

Documents presented

P:1	M.D. Nicholson and R. Fryer	A note on using fuzzy sets to summarise and rank contaminant monitoring data
P:2 + Errata	B. Bjerkeng, N.W. Green, and K. Hylland	Sørfjorden, western Norway: a case for testing alternative monitoring strategies using accumulation in and effects on Atlantic cod (<i>Gadus morhua</i>)
P:3	K. Lee, K.-L. Tay, and C. Belanger	Development of a microscale biotest based on microbial exoenzyme activity in sediments
P:4	J.M. Lourens, T. Crommentuijn, B.J. Kater, T.C. Brummelsen, and D. Jonkers	Setting environmental quality standards with specific considerations to the marine environment

THEME SESSION ON SKILL ASSESSMENT OF ENVIRONMENTAL MODELLING (Q)

Co-Conveners: E. Svendsen (Norway) and B. Sjöberg (Sweden)

Rapporteur: B. Sjöberg (Sweden)

Background

Numerical models can be, and are, used for simulations of nature. The need for improved quantified knowledge (within reasonable costs) of the marine environment has strengthened the need for complex numerical simulations. How does one, in an objective way, assess the performance of and results from, a coupled environmental model? The answer to this question becomes increasingly important since model results are being used increasingly by management at many levels of decision making.

A number of comparisons between model results and field measurements exist with the aim to evaluate the current ability of numerical models to reproduce nature and their effectiveness in support of monitoring programmes. Numerical models can, among other things, be used for estimating typical scales and magnitudes of natural environmental variability, crucial information within any monitoring programme. However, there is still a great lack of objective quantified validation. Although some models show promising results, there is still a long way to go towards proper stepwise QA/QC of models. This is especially true for coupled physical-biological-chemical models.

Opening

The session was opened by Einar Svendsen.

Presentations

Eight papers were presented. Six addressed validation-assessment procedures of specific models of different

complexity, whereas two papers discussed a conceptual framework for validation, generic as well as functional, and its implications on modelling.

Conclusions

Unfortunately there was not enough time for discussion, but the conveners noted the following conclusions:

1. In addition to more qualitative statements of model behaviour, two relatively new measures of integrated model performance were presented; the Cost Function and the SMAC (Simulation Model, Acceptability Criterion) method.
2. There is insufficient data available for adequate data validation.
3. These methods need further testing in a variety of areas, parameters and processes.
4. More attention should be paid towards testing models on their ability to reproduce ecosystem variability as opposed to mean conditions.
5. More work is needed to create a framework for validation.
6. Coupled ecosystem models are of prime importance for ICES work. ICES should actively support further development.

Documents presented

Q:1	J.M. de Kok, C. de Valk, J.A.Th.M. van Kester, E.D. de Goede and R.E. Uittenbogaard	Validation of a temperature and salinity model for the Rhine plume – A case study
Q:2	A.C. Le Gall, D.J. Hydes, B.A. Kelly-Gerreyn, and D.J. Slinn	Development of a 2-D horizontal biogeochemical model for the Irish Sea DYMONIS
Q:3	H. Sjøiland and M.D. Skogen	Validation of a 3-D biophysical model using nutrient observations in the North Sea
Q:4	A. Eigenheer and H. Dahlin	Quality assessment of the high resolution operational model of the Baltic Sea, HIROMB
Q:5	A. Moll	Assessment of three-dimensional physical-biological ECOHAM1 simulations by quantified validation for the North Sea with ICES and ERSEM data
Q:8	H. Scholten, M.W.M. van der Tol, and A.C. Smaal	Models or measurements?
Q:9 Poster	C. Schrum and F. Janssen	Validations for a coupled ice/ocean model for the North Sea and the Baltic Sea

THEME SESSION ON MESOSCALE PHYSICAL PHENOMENA AND BIOLOGICAL PRODUCTION: IMPLICATIONS FOR GLOBEC (R)

Co-Conveners: Dr L. Valdes (Spain), J.A. da Silva (Portugal), and Dr K. Tenore (USA)
Rapporteur: J.A. da Silva (Portugal)

Background

Interactions between physical and biological processes occur in the ocean at a wide range of scales. Mesoscale physical phenomena (upwelling areas, coastal fronts, current jets and eddies), with dimensions of kilometres to tens of kilometres, have profound effects on biological variability. Understanding how these processes affect the structure and productivity of pelagic communities was the subject of an ICES/GLOBEC Workshop in 1994 and continues to be the focus of much research, including direct applications to fisheries assessments. The purpose of the session was to provide a forum for the presentation and discussion of studies on identification and understanding of the interactions between mesoscale physical phenomena and ecosystem processes, with emphasis on the following activities:

1. Identification of the significant mesoscale processes that characterise a given region, studies on their temporal variability and the role of mesoscale physics in modulating ecosystem processes.
2. Description and quantification of the dynamics of zooplankton populations, their trophic relationships with phytoplankton and with their major predators in areas governed by mesoscale physical forcing.
3. Influence of mesoscale physical forcing on the early life stages of fishes, on variability in recruitment, and on the dynamics of pelagic fish (e.g. effects of mesoscale features on advection of fish larvae in coastal and shelf regions).
4. Predictive models of ecosystem fluxes and trophodynamics; models of coupled physical and biological processes at the mesoscale.

Opening

As the session was relevant to ICES activities related to GLOBEC, the ICES/GLOBEC Coordinator opened the Session, in order to provide the audience with an overview of the GLOBEC-related ICES activities.

Presentations

Twenty-one papers and seven posters were presented, covering features from sub-mesoscale (Doc. R:5) to basin-wide (Doc. R:20). Some papers specifically addressed the direct effects on biological production caused by mesoscale features and coherent structures (Docs. R:9, R:10, R:13, R:15, R:16, R:17, R:19, and R:22) or by the time variability (on different scales) of those features (Docs.

R:7, R:16, and R:22) and processes (Docs. R:4 and R:23). Evidence was presented of the success of the available coupled physical-biological modelling in reproducing dynamic features, namely those that are topographically steered (Doc. R:17), or in providing support for large scale variability in biological production (Docs. R:17 and R:18). Available model grid size, however, imposes limitations in the reproduction of smaller scale features (Doc. R:17). Two papers (Docs. R:5 and R:15) revitalized historical data sets, while another (Doc. R:21) presented a comprehensive summary of a recently concluded project conceived as a direct contribution to GLOBEC.

A number of oral presentations (Docs. R:9, R:10, R:13, and R:19), as well as posters (Docs. R:1, R:24, R:25, R:27, and R:28) were presented by scientists coming from non-ICES countries, thus setting a wider context for the session.

Discussion

Among the points raised by the contributions as well as the audience during the discussions, the following may be noted:

It was suggested during the presentation of Doc. R:23 that El Niño years might be related to the recruitment of sardine in the Iberian area. Whether the amount of available scientific evidence was enough to sustain that suggestion was, however, questioned.

The extensive use of Ekman transport as an upwelling index at seasonal to interannual scales (Docs. R:4 and R:23), was questioned by the audience, caution being required as it totally ignores the role of Kelvin-like waves.

One quarter to one third of the total primary production in the Kuroshio area was claimed to be due to the contribution of eddies (Docs. R:9 and R:13). The physics behind the development of the eddies were, however, not presented. The time scales deduced for the full development of a chlorophyll *a* eddy (3–4 days) were, therefore, regarded as not totally convincing. The eddy activity was claimed to potentially contribute to the entrainment of inshore water into the Kuroshio frontal area, and therefore help sustain recruitment in the area. It was, however, not yet known whether it was possible to use such findings for stock management.

Doc. R:16 raised a great deal of discussion. Inflow of Atlantic water into the North Sea in the Shetland area may be important for the exchange of (haddock) larvae between ICES assessment areas and, also, provide mechanisms for such larvae to meet copepods and be advected together. Presently undergoing research is the finding that the larvae

were apparently feeding well even under clearly turbulent conditions. Attention was drawn to the need to follow the size structure of the larvae population over time when a drift study is carried out, in order to make sure that a patch is actually being tracked.

In the discussion of Doc. R:8, the use of probability density functions was suggested, instead of larvae concentrations, in order to avoid taking into account dead larvae.

Doc. R:5 was an attempt to use the 3D potential of the FLEX (1978) data set. The spatial scales of variability found in the paper were, however, regarded as too small. The question was asked whether it was noise or just part of a system not adequately understood. The need to incorporate physics into the understanding of the variability was stressed by the audience. It was suggested that such cases are easy to model.

Doc. R:21 raised interest about the potential extension to other areas of what was learned in the Baltic Cod Recruitment Project, having in mind the specifics of the Baltic area. It was suggested that, if key environmental factors are identified, such extension might be envisaged.

The similarity between the features reported for the Pacific and those in the ICES area was recognised, and the need was stressed to build up a typology of ecosystems. Extensive use of circulation models to adequately explain the relations between different areas was also regarded as being of utmost importance.

Documents presented

R:1 Poster	R.P. Sánchez, J. Altheit, P. Martos, and M. Pájaro	The spawning and early life of <i>Engraulis anchoita</i> in the tidal fronts off Patagonia
R:2	P. Dalpadado, B. Ellertsen, W. Melle, and A. Dommasnes	Food, and feeding conditions and prey selectivity of herring (<i>Clupea harengus</i>) through its feeding migrations from coastal areas of Norway to the Atlantic and Arctic watermasses of the Nordic Seas
R:4	J.O. Blanton and K.R. Tenore	Interannual variability of upwelling strength and mussel production on the Iberian Peninsula
R:5	J.H. Steele and A. Beet	Physical factors affecting copepod migration
R:7	E. Gaard	The zooplankton community structure in relation to its biological and physical environment on the Faroe Shelf, 1989-1997
R:8	P. Møller, M.A. St. John, T. Lund, and K.P. Madsen	Identifying the effect of frontal regimes on conditions of larval and juvenile sand lance (<i>Ammodytes</i> sp.): Utilization of foodweb specific tracer lipids
R:9	S. Kimura, H. Nakata, Y. Okazaki, and A. Kasai	Biological production in meso-scale eddies caused by frontal disturbances of the Kuroshio and the Kuroshio Extension
R:11	A. Makarchouk and H.-H. Hinrichsen	The vertical distribution of ichthyoplankton in relation to the hydrographic conditions in the Eastern Baltic
R:12	P. Danielsen, M.A. St. John, and J. Heilmann	Investigations of hydrographic processes influencing the distribution and production of phyto- and zooplankton in the Bornholm Basin, Baltic Sea
R:13	H. Nakata, S. Kimura, Y. Okazaki, and A. Kasai	Entrainment of coastal water into meso-scale eddies caused by frontal disturbances of the Kuroshio Current: Its implication for anchovy recruitment
R:15	K.F. Drinkwater	Horizontal dispersion on the northern flank of Georges Bank

Conclusions

Among the issues that should be tackled in the context of GLOBEC-related work, the following were pointed out:

- How is *Calanus* related to fronts, and how does such relation (retention/dispersion) change with hydrographic conditions;
- At which point does the very early life history of cod become density dependent, to explain a 15-fold recruitment variability;
- Mismatches between observations and models, even in the reproduction of a spring bloom, need to be solved, and a methodology must be agreed upon to tackle the problem, since quite often the data sets are inadequate for model validation;
- It was pointed out that, in the Baltic area, there are models that can adequately reproduce the phytoplankton annual cycle (and not just the spring bloom);
- Models will, however, never replace observations, and new technologies become extremely important in this context; they need to be implemented in the laboratories, and a future Theme Session on this should be considered;
- Models are, however, major tools to look into the past, especially where observations are not available.

R:16	B.R. MacKenzie, A. Visser, M. Heath, A. Gallego, and W. Crawford	Environmental variability along the drift track of larval haddock in the East Shetland Atlantic inflow
R:17	R. Sætre, E. Svendsen, P. Fossum, M.D. Skogen, and G. Eriksrød	On the site-specific role of the central Norwegian shelf for the recruitment strategy of the Norwegian spring spawning herring
R:18	S.A. Iversen, M.D. Skogen, and E. Svendsen	Influx of Atlantic water and feeding migration of horse mackerel
R:19	V.L. Filipe	A cyclonic eddy observed in Angolan waters in April 1997
R:20	P. B. Oliveira and A.F.G. Fiuza	Seasonal and interannual variability of sea surface temperature in the NE Atlantic Coastal upwelling region using NOAA/AVHRR data
R:21	D. Schnack and F.W. Köster	Baltic COd REcruitment Project: Summary of results 1994-1997
R:22	S. Skreslet and K. Olsen	The Norwegian coastal current frontal system, a spawning habitat of <i>Calanus finmarchicus</i> that forces year class formation in NE Arctic cod (<i>Gadus morhua</i>) by food-web telecommunication
R:23	J.M. Cabanas and C. Porteiro	Links between the North Atlantic Sardine recruitment and its environment
R:24	M.D. Viñas and B.A. Santos	First-feeding of hake (<i>Merluccius hubbsi</i>) larvae and prey availability in the Patagonian spawning area
Poster		
R:25	E.A.G. Vidal and M. Haimovici	Distribution and abundance of <i>Illex argentinus</i> paralarvae (<i>Cephalopoda: Ommastrephidae</i>) in relation to oceanographic processes off southern Brazil
Poster		
R:27	H. Nakata, Y. Suenaga, M. Fujihara, T. Nagasawa, and H. Yamada	Interaction of wind-induced onshore/offshore drifts with coastal eddies on the shelf near the Sado Strait, Sea of Japan, in relation to recruitment strategies of brown sole (<i>Pleuronectes herzensteini</i>)
R:28	R.P. Sánchez and D.R. Brown	Larval and early juvenile growth of two Patagonian clupeoids: <i>Engraulis anchoita</i> and <i>Sprattus fuegensis</i>
Poster		
R:30	S.O. Pires and A.F.G. Fiuza	A satellite-based study of the seasonal evolution and the spatial structure of mesoscale physical processes off Portugal with relevance to the marine ecosystem

THEME SESSION ON VISUALISATION OF SPATIAL (INCLUDING SURVEY) DATA (POSTERS/SOFTWARE DEMONSTRATIONS) (S)

Co-Conveners: Dr J. Ault (USA), Dr B.A. Megrey (USA) and Dr E. Moksness (Norway)

Rapporteurs: Dr J. Ault (USA), Dr B.A. Megrey (USA) and Dr E. Moksness (Norway)

Background

New sensors, information technologies, and models are opening up a 'bigger picture' in fish population dynamics and fisheries oceanography, allowing near real-time tracking of biological and physical processes in ocean ecosystems. Not only is this picture bigger in both space and time dimensions, but recent management requirements point to the need to consider the number and complexity of interacting system components.

Scientific data visualisation, which involves the use of sophisticated interactive computer graphics to gain insight into complex problems often characterised by massive, multi-dimensional data sets from physical, biological, and ecological component systems, has recently been gaining acceptance as a strategic technology in fisheries assessment and management. The reason for this surge in popularity is because the visualisation processes facilitates making the unseen or "unseeable" visible, thereby providing unparalleled insight into processes that might otherwise be impossible. Graphical visualisation tools are becoming an integral part of the oceanographic and fisheries science because they provide unprecedented power to explore fisheries science problems, and to communicate what we learn in very new ways.

Presentations

The contributed papers and posters presented in Theme Session S covered four major areas relevant to the scientific focus of ICES:

- (1) synoptic assessment of biological and physical parameters of the marine environment in both space and time;
- (2) geographical information system techniques for displaying and analysing multi-layered multi-dimensional data sets;
- (3) objective analyses and quantification of fixed and dynamic characteristics of both pelagic and benthic marine habitats; and
- (4) strategic use of animation tools to link together the aforementioned ideas in a scientific process that greatly facilitates the analysis and interpretation of the time-space dynamics of higher-order models of marine ecosystems.

The paper and poster presentations focused on an important range of topics including sampling design, data

analysis, visualisation of survey data, and systems analysis activities, including conceptual model building, quantitative specifications of models, model validation, and management system organisation. The papers clearly reflected the ways in which graphical visualisation tools are becoming an integral part of the oceanographic and fisheries sciences because they provide unprecedented power to explore fisheries science problems, and to communicate what we learn in very new ways.

The contributions also emphasised that scientific data visualisation (SDV) is an important emerging technology in fisheries and fisheries oceanography because it allows a systems view of resources with emphasis on strategy over tactics. In addition, SDV will continue to play a major role in integrated studies of marine ecosystems and their relationship to evolving societal needs. SDV facilitates the efforts of the scientific community to provide assessments of the entire fish community with respect to the coupled biological-physical environment, animal behaviour, physiology, and "habitat quality". Another important attribute of visualisation is that it helps to convey relatively complex technical information to scientists, managers, and decision-makers. Because visualisation technologies provide a high degree of functionality in sampling design, data assimilation, exploratory data analysis (i.e. "data mining") and model development, they will continue to play an increasing strategic role in fishery management and assessment.

The range of methodologies and applications covered in the session were clearly relevant to fisheries science and the ongoing work in ICES in general, particularly in the areas of fisheries assessment and management. It is believed that these methods will lead to improved understanding of basic biological processes, increase the accuracy and precision in sampling survey design, leading to improved assessments of both pelagic and benthic organisms in the marine environment that help in efforts to build sustainable fisheries and conserve marine biodiversity.

Recommendations

The conveners were greatly impressed by the significant progress in the area of visualisation of scientific data. To ensure the continued development and improvement of different techniques and applications in the ICES community directed specifically at the complex problems of fisheries science, stock assessment, and fishery management, we offer the following suggestions:

- (1) That ICES continues to strive to provide and explore examples and innovations in the evolution of the

methods, data standards, models, and tool development in scientific data visualisation as applied to fishery assessment and management.

(2) That ICES emphasises development of integrated time-space fishery management systems with the following foci:

- Education, training, and understanding of basic biological processes.

- Integrated visualisation, statistical, and analysis tools in the form of software packages relevant for the scientific functions of fishery assessment and management.

- Emphasise the strategic use of visualisation in defining the key linkages between raw survey data, analysis, optimal sampling survey design, parameter estimation, model development with explicit coupling of the biological-physical oceanographic environments, fishery assessments, and their interface(s) with fishery management.

Documents presented

S:1	B.A. Megrey, E. Dobbins, and S. Hinckley	Using scientific visualization tools to facilitate analysis of multidimensional data from a spatially-explicit, biophysical, individual-based model of marine fish early life history
S:2	L. Mayer, Y. Li, G. Melvin, and C. Ware	The application of 3-D visualization technology to pelagic fisheries assessment and research
S:3	J.S. Ault and J. Luo	Coastal bays to coral reefs: Systems use of scientific data visualizations in reef fishery management
S:4	C. Walters, D. Pauly, and V. Christensen	Ecospace: prediction of mesoscale spatial patterns in trophic relationships of exploited ecosystems, with emphasis on the impacts of marine protected areas
S:6	A.J. Booth	Visualisation of the spatial component of fisheries data and its incorporation into existing stock assessment models
S:7	J. Luo, P.B. Ortner, D. Forcucci, and S.R. Cummings	Diel vertical migration of zooplankton and mesopelagic fish in the Arabian Sea
S:14	G. Melvin, Y. Li, L. Mayer, and A. Clay	Development of an automated sounder/sonar acoustic logging system for deployment on commercial fishing vessels
S:15 Poster	C.F. Greenlaw, D.V. Holliday, C.A. Barans, and B.W. Stender	Long-term, high-resolution acoustical monitoring of plankton in an estuary
S:16 Poster	D.E. McGehee, C.F. Greenlaw, D.V. Holliday, and R.E. Pieper	High-frequency acoustical backscattering in the Arabian Sea: Acoustical analyses
S:17 Poster	R.E. Piper, D.E. McGehee, C.F. Greenlaw, and D.V. Holliday	High-frequency acoustical backscattering in the Arabian Sea: Zooplankton size classes
S:18 Poster	Z. Kemp and G. Meaden	Visualisation for fisheries management from a spatio-temporal perspective
S:19 Poster	R.D. Stanley, R. Kieser, K. Cooke, and B. Mose	3-D visualization of acoustic survey data for widow rockfish (<i>Sebastes entomelas</i>) off British Columbia, Canada. Its use in survey design and communication with industry participants
S:20 Poster	R.L. Johnson and D.B. Rex	Interactive 3-D visualization of multibeam sonar data for fish behaviour evaluations
S:21 Poster	L. Fortunati, G. Garofalo, and R. Demontis	TSDV: a GIS tool for inspecting trawl survey data
S:22 Poster	M. Ostrowski	Quality control and preparation of acoustic survey data for treatment by spatial analysis techniques. Experiences from using integrated visualization software tools
S:23 Poster	J.T. Anderson, R.S. Gregory, and W. Collins	Digital acoustic seabed classification of marine habitats in coastal waters of Newfoundland
S:24 Poster	A. Sharov and A. Akchremenko	User-friendly graphic software for survey design and data visualization of shellfish and finfish resource assessment in the Chesapeake Bay

THEME SESSION ON MANAGEMENT UNDER A PRECAUTIONARY APPROACH: ECOLOGICAL, SOCIAL AND ECONOMIC CONSEQUENCES (T)

Convenors: Prof. J.G. Pope, Prof. E. Cadima and Dr R.L. Stephenson

The Theme Session was held on Friday 18 September from 08:30–15:30 hrs.

The Conveners opened the Session by reviewing elements of the precautionary approach, and emphasising the importance of considering social and economic, as well as ecological aspects and consequences.

Doc. T:4 evaluated the short-term economic consequences to the Danish herring and industrial fisheries of the seven management options provided by ACFM. In addition, the estimated net revenues for the Danish fisheries when constrained by EU regulations alone were compared to those obtained when the EU regulations were supplemented by additional national regulations.

Doc. T:6 dealt with changes in catchability, and the impact this may have on calculation of reference points under a precautionary approach. The annual change in catchability was estimated to be in the order of 2.5%. This study outlined the reduction in biomass target that was required with this increase in catchability under various fishery scenarios.

Doc. T:8 investigated the influence of ship properties and fishing strategies on fishing capacity of a variety of French fishing fleets. The results demonstrate the need for separate consideration of passive vs. mobile gear, and the importance of consideration of fishermens behaviour and adaptability in consideration of management measures based on effort data.

Doc. T:9 compiled and compared a variety of reference points for 30 ICES stocks. It concluded that levels of long-term projections of %SPR between 2-40% and %S between 50-70% are candidates for target reference points under a precautionary approach.

Doc. T:10 evaluated harvest strategies for Fraser River sockeye salmon in mixed-stock fisheries, considering economic and social performance indicators of long-term catch and probability of fishery closure.

Doc. T:11 described the recent development of ecological indicators in the Netherlands in the GONZ project.

Doc. T:1 described differences in production characteristics of cod populations, and pointed out the importance of including difference and variation in production dynamics in effective management.

Doc. T:12 used a cost-benefit analysis approach to show optimal reductions in fishing mortality for maximising total value added (the sum of owners' profits and crew share-based pay) for 19 stocks managed under the EU Common Fisheries Policy.

Doc. T:13 investigated the appropriateness of popular biological reference points and spawning potential ratio (SPR) in three stocks of different reproductive strategy.

Doc. T:14 described a computer package which provides a means to assist documentation and review of projects in an environmental risk assessment.

Doc. T:16 discussed the role personal knowledge plays in stock assessment and how this can impact the quality of an assessment.

Doc. T:17 proposes the development of a model to estimate the recruitment of salmon in the NEAFC area, as an interim measure in using the best available information in a precautionary approach to management.

Doc. T:18 described an advanced fisheries information system capable of integrating very large data sets from various remote and in-situ sensors to fishery information, arguing that rapid access to information on stocks and the ocean environment is a requirement of a precautionary approach.

Doc. T:19 discussed the important role of fishers in implementation of a precautionary approach, and proposed a framework for this involvement in a future fishery policy.

Doc. T:20 explored information requirements under alternative precautionary fishery management systems, attempting to quantify the marginal benefits and costs of acquiring various types of additional information.

Documents presented

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| T:1 | J.-D. Dutil, D. Gascon, M. Castonguay, M.O. Hammill, P. Ouellet, Y. Lambert, D. Chabot, H. Browman, D. Gilbert, A. Fréchet, J. Gagné, and L. Savard | Biological limits to tradeoffs between biological and social considerations in fish stocks management: the need to factor in stock productivity |
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T:4	S. Christensen and H. Lassen	The economic impact of the ACFM management options for the Danish North Sea herring fishery in 1999
T:6	P. Marchal	Variation in catchability and precautionary TACs
T:8	O. Le Pape and J. Vigneau	Influence of fishing vessels properties and polyvalence on their fishing capacity: interest for management measures
T:9	E. Cadima and M. Azevedo	A proposal to select reference points for long-term fishery management objectives
T:10	A.J. Cass, L.J. Richards, and J. Schnute	Consequences of precautionary management for mixed stock fisheries on sockeye salmon from the Fraser River, Canada
T:11	R.L.P. Lanfers and E.L. Enserink	Integration of ecological and fisheries objectives through indicator development
T:12	J.P. Hillis	Avoidance of growth overfishing as an effective solution to both economic problems for the fishing community and ecological problems for the environment
T:13	A.F. Sharov and A.E. Bobyrev	Fisheries strategies versus reproductive strategies: is consensus possible?
T:14	A.E. Morcom-Harneys, I.H. Townsend, A.J. Kenny, and N.I. Pontee	Environmental risk assessment and its application in managing coastal and estuarine developments
T:16	K. Hiis Hauge	The use of personal knowledge in stock assessment
T:17	E.C.E. Potter, L.P. Hansen, G. Gudbergsson, W.C. Crozier, J. Erkinaro, C. Insulander, J. MacLean, N. O'Maoileidigh, and S. Prusov	A method for estimating preliminary conservation limits for salmon stocks in the NASCO-NEAFC area
T:18	B.J. Rothschild, A.R. Robinson, M. Miller, A. Gangopadhyay, J. Bisagni, A. Cabeza, D. Cai, P. Fortier, P.J. Haley, H.S. Kim, L. Lannerolle, W.G. Leslie, and C. Losano	Management information systems and the precautionary approach
T:19	I. Lutchman and S. Des Clers	Precautionary approach and fishermen
T:20	D.E. Lane and B. Kaufmann	Information requirements for alternative precautionary fisheries management systems
T:21 Poster	J.P. Hillis	Predictions of changes in annual and cumulative catch revenues and profits in depleted fishery rehabilitation

THEME SESSION ON EVALUATION OF MARINE PROTECTED AREAS AS MANAGEMENT TOOLS (U)

Co-Conveners: Dr A. Rijnsdorp (Netherlands) and Dr R. Brown (USA)
Rapporteur: Dr K. Frank (Canada)

The Theme Session was well attended, with over 100 participants. Discussion was lively and focused on the principal objective of the session, i.e. critical evaluation of the effectiveness of area closures in achieving fishery management objectives.

Marine protected areas are emerging as an alternative approach for managing fish stocks. Although many area closures have been established in the past, they lack both a quantitative evaluation and a quantitative basis for their formation. The principal objective of the Theme Session was to review evidence of the effectiveness of area closures. These area closures are not to be confused with MPAs, defined as areas closed to all fishing for conservation of the marine ecosystem.

The effectiveness of closed areas must be considered within the overall fisheries management plan (Doc. U:3). For example, establishing a closed area under a TAC regulation will inevitably lead to effort displacement and may even result in an increase of effort, especially in adjacent areas typified by lower catch rates. Such displacement of effort can be detrimental to localised stocks and may increase impacts on the ecosystem. Area closures in combination with effort controls may be more effective in achieving overall reductions in fishing mortality or other explicit management objectives. A fundamental requirement in the design of closed areas is to consider the seasonal and ontogenetic changes in the distribution of the target species relative to the geographic location and scale of the closed area. Technological advances to monitor individual fish movements will help to define the most appropriate spatial scale of closed areas (Doc. U:4).

In all of the cases presented, area closures have been established to protect individual species at particular life stages in discrete geographic locations. In most of the cases reviewed, groundfish were the target species considered. The objectives behind the area closures ranged from protection of juveniles from discarding by mobile gear fisheries (Docs. U:1, U:2, and U:8), overall reduction of fishing mortality (Docs. U:9, U:13, and U:15), and protection of spawning stock biomass (Doc. U:10). These studies showed that fishing effort was

displaced from the areas closed to fishing to other geographic areas. Some of the expected benefits of area closures were demonstrated in these cases. Generally, biomass increased inside the protected areas following their establishment. However, reductions in total mortality were difficult to detect, particularly at the juvenile stages. While local increases in biomass have been evident in the cases reviewed, increases in stock biomass at the scale of the management unit have not been observed. Benefits achieved within closed areas may be offset by intense fisheries operating in surrounding areas. In cases of seasonal closures, temporally displaced fishing effort may negate the benefits achieved by the stock during its residence inside the closed area. Large-scale environmental effects can also limit the ability to detect the benefits of area closures. In addition, changes in the behaviour of the protected species may occur, either in response to spatial gradients in exploitation and/or changes in productivity of their food resource. The potential use of real-time area closures was illustrated (Doc. U:8) and discussed. Flexibility is required to administer such a programme and industry support is essential. Cooperation between industry and management is necessary in order to avoid the high cost of intensive monitoring when conducted by management alone.

The idea of converting abandoned oil platforms in the North Sea into areas that might serve as fish aggregating devices was presented (Doc. U:11). The contribution of these structures to the total stock was considered insignificant. The possibility that large adults may preferentially inhabit such areas was discussed.

In conclusion, it was agreed that closed areas should not be seen as a panacea for solving fishery management problems. Rather, we should not lose sight of the fact that overall reductions in fishing effort are required for most stocks. Closed areas should be considered one of several possible tools to be used in achieving fisheries management objectives and should be tailored to the unique ecological characteristics of the target species. A designed approach to quantitative evaluation of closed areas is required, both in relation to temporal changes in the closed area and in relation to control areas.

Documents presented

U:1	K.T. Frank and J.E. Simon	An evaluation of the Emerald/Western Bank juvenile haddock closed area
U:2	M.A. Pastoors, A.D. Rijnsdorp, and F.A. van Beek	Evaluation of the effects of a closed area in the North Sea ('Plaice Box') on the stock development of plaice (<i>Pleuronectes platessa</i>)
U:3	J.W. Horwood	Evaluation of the effects of closed areas on fish stocks

U:4	J.D. Metcalfe, G.P. Arnold, and E. Hunter	The use of electronic data storage tags in modelling the effectiveness of marine protected areas
U:7	A. Punzón and R.M. Gancedo	Specific characterisation and identification of the fishing gears in use in the Cantabrian Sea (NE Atlantic, Northern Spain)
U:8	S. Ehrich, W. Weber, and C. Zimmermann	A four-week area closure in the German Bight: A measure to protect the strong 1996 cod year class
U:9	R.W. Brown, D. Sheehan, and B. Figuerido	Response of cod and haddock populations to area closures on Georges Bank
U:10	I. Røttingen and A. Slotte	Norwegian spring spawning herring (<i>Clupea harengus</i> L.): Protection of spawning areas in relation to changes in migration pattern
U:11	A.V. Soldal, O. Brønstad, O.-B. Humborstad, T. Jørgensen, S. Løkkeborg, and I. Svellingen	Oil production structures in the North Sea as fish aggregating devices
U:13 Poster	C. Pipitone, F. Badalamenti, G. D'Anna, C. James, H. Pickering and D. Whitmarsh	Can coastal demersal resources be effectively enhanced and managed through trawling bans? A proposal for European Mediterranean countries
U:15 Poster	R.R. Ferraz, G.M. Menezes, and R.S. Santos	The limpets marine protected zones in the Azores

THEME SESSION ON RECOVERY AND PROTECTION OF MARINE HABITATS AND ECOSYSTEMS FROM NATURAL AND ANTHROPOGENIC IMPACTS (V)

Co-Conveners: Dr H. Rumohr (Germany), Dr H. Rees (UK), and Dr A.D. Rijnsdorp (Netherlands)
Rapporteur: Dr K. Hiscock (UK)

Introduction

This Theme Session had been initiated by the Marine Habitat Committee (an evolution from the previous Marine Environment Quality Committee). The objectives were:

- to bring together a variety of relevant topics and disciplines in a unifying event illustrative of the multi-disciplinary nature of the issues facing the new Committee, and
- to provide a forum by which to demonstrate the scope of some of the new Committee's interests to other Committees and Working Groups within (and beyond) ICES.

The Theme Session was attended by 40–60 participants.

Doc. V:13. The discussion revealed that regional differences had to be taken into account in assigning recoverability scores. Whilst sensitivity (without incorporating recoverability) would be the same wherever a species occurred, potential for recovery would be likely to be much higher at the centre of a species range (where recruitment is frequent and recovery potential therefore high) than at the edge of a species range (where recruitment is infrequent and therefore recovery potential low). If 'sensitivity' includes 'prospects for recovery', sensitivity scores will be higher at the geographical limits of a species.

Doc. V:14. No discussion.

Doc. V:6. The discussion drew attention to the difficulty of analysing video images in a quantitative way, options for which were reviewed in the paper.

Doc. V:1. It was believed that there were effects on benthic communities arising from the application of antibiotics and pesticides to farmed fish, although it was not possible to discriminate between these and the more significant impact of organic enrichment in the present study.

There was debate on the relative merits of cage rotation versus the repeated use of 'sacrificial' sites, and the use of dispersive versus accumulating locations, in ameliorating environmental effects.

It was not known whether benthic fish populations had achieved recovery. However, it was believed that mobile fish populations were important in consuming waste

materials (especially waste food), as well as benthic organisms.

Doc. V:12. It was suggested that a fished reference area would be more valid if it were in the same nearshore area of the southeastern North Sea rather than offshore. The reference site had, however, been chosen because of the availability of comparable data, and similar communities were present. The differences between areas had been taken into account for the analyses.

The relevance of biomass and the size of organisms as an indicator of fishing effects were mentioned but neither was measured in the study.

It was clarified that eight by-catch species were used for multivariate analysis and 20–25 for Principal Component Analysis. The smaller components of the benthos had not been studied.

It was noted that the reference area was slightly deeper, and the very cold winter, which had occurred during the experimental period, may have affected the results, as the mortality of certain species may have been higher in the shallower area. The main species on which plaice fed were small worms not caught during the survey, so the importance of the cold winter to sources of food could not be assessed.

Doc. V:10. It was felt that the biomass changes in the ecosystem could not be accounted for in a static model. However, this was unlikely to affect the application of the model because, in a dynamic system, the predation-mortality rates will tend to follow the biomass changes.

Using the ecopath approach, it is important to realise that it is an 'averaging' approach so that the full range of short-term dynamics is not captured (a routine called 'Ecoranger' takes into account the uncertainty that exists in the data, whilst the 'Ecosim' routine is a dynamic extension of ecopath).

The system could be extended to evaluate the spatial distribution of effects - this is 'Ecospace', which was described in Doc. S:4.

Re-calculating the Ecopath model requires varying a number of parameters. The next step is to include the Monte-Carlo resampling routine already in use in 'Ecoranger' to generalise the calibration process.

Different tracers, within the same ecosystem, could be used to test the re-calibration of the original Ecopath model.

Doc. V:8. In discussion it was emphasised that evidence of a relationship between an upward trend in the numbers and densities of certain taxa and declining TBT concentrations was circumstantial, in common with most field-based surveys of anthropogenic effects. However, no other (natural) environmental factor could be identified which might account for the change. Experimental work might assist in strengthening the apparent link. Also, certain species of ascidians (which increased markedly in abundance) were not thought to be sensitive to TBT in 1987, but are now known to be sensitive. Improved levels of dissolved oxygen were suggested as likely to effect the sort of change described in the benthos, although there was no reason to expect such a coincident trend in the absence of any other significant waste inputs to this relatively unpolluted estuary.

In response to a question about the possible longer-term risk of remobilisation of TBT from the sediments, it was noted that this could not be excluded, but that the levels were relatively low.

The estuary cannot be considered 'recovered' in all respects but, at the community level, recovery from a modest level of impact was effectively complete after about five years.

The choice of November as a sampling time was questioned. This had been a pragmatic decision based on the first available time after the banning of TBT, and the month had been retained for consistency.

Surveys conducted in the estuary about 100 years ago had indicated a marked similarity in epifaunal species composition; however, the data were not sufficiently quantitative to use for analysis beyond presence/absence.

Doc. V:11. Habitat recovery occurs following oil spills in the marine environment; however, the process is extremely slow (>25 years). It was clear that bioremediation strategies had the potential to accelerate natural recovery rates. The concentrations of oil in sediments in the experimental studies were similar to those resulting from real spills. The technique described is for pebbles/cobbles and sand beach environments, and is not being developed for bedrock shores where different methods are appropriate.

In experimental field trials, it has been shown that bioremediation agents or the metabolic by-products of oil degradation may induce some toxic responses. However, the range of tests used to investigate toxicity suggested that there is not a large problem. No toxicity has been observed in actual emergency response operations.

Doc. V:2. Paper not presented.

Doc. V:5. The point was made that the priority should be to protect natural reefs rather than discussing the replacement of them or adding to them with artificial reefs.

For conservation scientists, there is often a dilemma: artificial reefs increase biodiversity in an area but destroy the natural character of an area. However, there may be support for 'conservation gain' being built into proposals for artificial reefs which will happen anyway (for instance, the bases for wind generators) placed in widespread habitats.

It was clarified that the replacement of stone reefs would use natural stone or concrete, and Denmark did not intend to use other materials.

Doc. V:4. Paper not presented.

Doc. V:9. It was explained that sampling nematodes offered the opportunity to differentiate between different human activities, for instance chemical inputs or dredging. The Centre for Coastal and Marine Science at Plymouth had shown a sensitivity of certain species to specific contaminants, suggesting the potential for identifying indicator species. It was noted that the identification of nematodes was a skilled undertaking. However, with the wider availability of up-to-date taxonomic keys, the authors considered that competence could be achieved within six months.

Doc. V:3. Paper not presented.

Discussion and conclusions

There had been a remarkable range of scientific specialities (at least nine of the 13 selected papers) attracted to the theme of the session, demonstrating the cross-disciplinary nature of the interest in matters relating to marine habitats.

Definition of concepts

A three-dimensional matrix within which to undertake assessment was suggested. The axes are:

- 1) Sensitivity, recoverability and importance;
- 2) Type of impact or event;
- 3) Ecological entities (from populations to habitats).

However, assessment is frequently more complicated than the three-dimensional matrix suggested. Expert groups should determine the fields of information required and the criteria or scoring systems to be used. 'Publication' should take advantage of new information technology, especially as relevant texts could become

quickly dated. There are now major opportunities to use the Internet to disseminate draft material to relevant experts or make it entirely open to anyone using the World Wide Web. Specialists can then check entries and advise on errors, fill gaps, etc. This was planned in the project about to start in the UK under the Marine Life Information Network (MarLIN) programme.

The importance of defining terms was emphasised because 'sensitivity' and 'recoverability' were clearly being confused. Discussion seemed to suggest that the two should be assessed separately rather than recoverability being a part of sensitivity. There was also a proposal to include quantified indications of 'probability of being killed'.

It was agreed that computer-aided ('expert') systems were useful aids to an experienced marine ecologist in evaluating the likely effects of an activity; however, they must not be seen as a short-cut for use by those without the necessary expertise.

The participants agreed that it was important to take account of sublethal effects in assessing sensitivity; for instance effects of reproduction. The effects of TBT on dogwhelks served as a useful example -the dogwhelks that developed imposex could not reproduce but died of old age without producing replacement individuals.

In practice, it would be unrealistic to expect recovery of biological communities to an identical state to that prevailing before commencement of the impact. This is because of the possibility of habitat change as well as natural biological variability. Measurement in relation to departure from the status of simultaneously-sampled reference sites was more realistic, provided that the latter were carefully located. It may, however, be reasonable to expect recovery to the pre-impact state in terms of certain functional measures (e.g. community productivity). However, for some species of key importance from this standpoint, or from the perspective of the conservation of

biodiversity, the system could not be considered 'recovered' unless those species had returned.

Scientists need to establish quantifiable criteria, even if somewhat pragmatic ones, to assess likely sensitivity and importance (for instance, criteria for 'rarity'). Such measures and terms help politicians and managers who are not scientists to use approaches which are scientifically based, but which are readily understandable and involve the minimum use of 'jargon' terms, without having to understand jargon.

The following conclusions were reached:

- 1) Active encouragement should be given to the publication of recovery-type studies - even if (or perhaps especially because) they do not conform to recognised models.
- 2) Up-to-date syntheses are required of parallels that may be drawn between the effects of natural events and anthropogenic impacts, accompanied by the development of widely applicable descriptive models, where feasible.
- 3) There is a need for better definition of terminology, for instance use and misuse of 'recovery': a system could only be considered to have 'recovered' when an agreed end-point had been reached, e.g. lack of significant departure from a reference station, for selected measures. In progress towards this end, it was more appropriate to speak in terms of recolonisation or succession of species.
- 4) For non-commercial species and communities, a degree of value judgement was usually required in order to assess 'importance' and 'significance' in management terms. Despite this, further consideration of the scope for, and limitations of, developing objective ecological quality standards was required, as measures of the acceptability of change.

Documents presented

V:1	T.D. Nickell, K.D. Black, T.H. Pearson, I.M. Davies, and P.G. Provost	The recovery of the sea-bed after the cessation of fish farming: benthos and biogeochemistry
V:2	N.F. Plotitsyna	Content of pollutants in harp seals (<i>Phoca groenlandica</i>) of the White Sea population
V:3	O.V. Titov	Hydrochemical and density indications of interannual variations in the Barents Sea ecosystem: periodical "disturbances", their reasons and consequences
V:4	E.A. Totàro and E. Totàro	An integrated programme on the management of coastal areas: advanced training for managers of pleasure craft ports
V:5	J.G. Støttrup, S. Helmig, J.K. Petersen, C. Krog, R. Zorn, H.T. Madsen, and J. Olsen	Is there a case for artificial reefs in Denmark?
V:6	M. Service	Recovery of benthic communities in Strangford Lough following changes in fishing practice

V:8	H.L. Rees, R. Waldock, P. Matthiessen, and M.A. Pendle	Improvements in the fauna in the Crouch estuary (United Kingdom) following a decline in TBT concentrations
V:9	S.E. Boyd, H.L. Rees, and C.A. Richardson	Nematodes as sensitive indicators of change at dredged material disposal sites
V:10	J. Dalsgaard, A. Jarre-Teichmann, C. Walters, and D. Pauly	An approach to the modelling of persistent pollutants in marine ecosystems
V:11	K. Lee	Accelerating natural processes for oil spill remediation
V:12	G.J. Piet, J.A. Craeymeersch, J. Buijs, and A.D. Rijnsdorp	Changes in the benthic invertebrate assemblage following the establishment of a protected area, the "plaice box"
V:13	K. Hiscock, T. Hill, and D. Connor	Recovery of seabed wildlife from natural change and human activity - assessing 'sensitivity' and 'importance'
V:14	A.J. Kenny, H.L. Rees, J. Greening, and S. Campbell	The effects of marine gravel extraction on the macrobenthos at an experimental dredge site off north Norfolk, UK (Results from 3 years post-dredging)
V:15 Poster	A. Lappalainen and M. Rask	How did the coastal fish community structure change after strong reduction in waste-water loading? - a case study in the Helsinki sea area
V:16 Poster	V.M. O'Connell, W.W. Wakefield, and H.G. Greene	Using in-situ technology to identify and characterize essential fish habitat for classification as a marine reserve in the Eastern Gulf of Alaska
V:17 Poster	I.J.-O. Krakstad, I. Bethinussen, and T. Johannessen	Differences in the diet of 0-group cod in a polluted vs. a non-polluted area on the south coast of Norway: possible implications for the recruitment

THEME SESSION ON STOCK COMPONENTS IN MANAGEMENT (AA)

Convener: Dr Robert L. Stephenson

The Theme Session was held on Saturday 19 September from 13:30–15:30 hrs.

This Theme Session included a collection of “open” papers dealing with the general topic of stock structure, stock movements, and the consideration stock components in management. The following papers were presented:

Doc. AA:1 Are there independent populations of coastal cod in the Barents and Norwegian Seas? (An analysis of views)

Doc. AA:2 Population structure of *Sebastes mentella* in the North-East Arctic

Doc. AA:5 On some peculiarities of Baltic cod distribution in relation to its migration model

Doc. AA:8 Migration of mackerel during summer in the Norwegian sea

Doc. AA:3 The influence of physical factors on the habitat quality for the of lesser sandeel *Ammodytes*

marinus and its relevance to fishing pressure in the North Sea

Doc. AA:7 Assessments of the lesser sandeel (*Ammodytes marinus*) in the North Sea based on revised stock divisions

Doc. AA:9 Distribution, abundance and stock composition of herring in the Sound (ICES Subdivision 23) during the autumn, winter and spring periods from September 1993 to May 1998

Doc. AA:10 Spatial variabilities of CPUE and mean size as possible criteria for unit stock demarcations in analytical assessment of *Nephrops* at Iceland

Doc. AA:11 A proposal for stock assessment and management in mixed stock fisheries: the in/out model. Application to Western English Channel cod

An additional paper was read by title:

Doc. AA:4 Ecological and parasitological investigations on the Barents Sea red king crab

Documents presented

AA:1	V.M. Borisov, V.P. Ponomarenko, and N.A. Yaragina	Are there independent populations of coastal cod in the Barents and Norwegian Seas? (An analysis of views)
AA:2	F. Saborido-Rey and K.H. Nedreaas	Population structure of <i>S. mentella</i> in the North-East Arctic
AA:3	P.J. Wright, S.A. Pedersen, L. Donald, C. Anderson, P. Lewy, and R. Proctor	The influence of physical factors on the habitat quality for the lesser sandeel, <i>Ammodytes marinus</i> and its relevance to fishing pressure in the North Sea
AA:4	Yu. I. Bakay, S.A. Kuzmin, and S. Yu. Utevsky	Ecological and parasitological investigations on the Barents Sea red king crab (<i>Paralithodes camtschatica</i>) (the first results)
AA:5	E. Karasiova	On some peculiarities of Baltic cod distribution in relation to its migrations model
AA:7	S.A. Pedersen, P. Lewy, and P. Wright	Assessments of the lesser sandeel (<i>Ammodytes marinus</i>) in the North Sea based on revised stock divisions
AA:8	S.V. Belikov, S.H. í Jákupsstovu, E. Shamrai, and B. Thomsen	Migration of mackerel during summer in the Norwegian Sea
AA:9	J. Rasmus Nielsen, B. Lundgren, K.-J. Stæhr, T.F. Jensen, J. Pedersen, S. Poulsen	Distribution, abundance and stock composition of herring (<i>Clupea harengus</i>) in the Sound (ICES Sub-division 23) during the autumn, winter and spring periods from September 1993 to May 1998
AA:10	H. Eiríksson	Spatial variabilities of CPUE and mean size as possible criteria for unit stock demarcations in analytical assessment of <i>Nephrops</i> at Iceland
AA:11	C. Ulrich, D. Gascuel, and O. Maury	A proposal for stock assessment and management in mixed stock fisheries: the in/out model. Application to Western English Channel cod

THEME SESSION ON FISHERIES ASSESSMENT METHODS (BB)

Convener and Rapporteur: Jean-Jacques Maguire, Canada

Theme Session BB was put together by the Consultative Committee from titles submitted by authors to a general session. It contained a diverse mix of fishery technology, resource management, living resource topics. The session was very well attended.

The overall conclusion of the Theme Session points to the importance to look at the details of assessment work such as how to combine several national surveys each covering only a portion of the stock to obtain a comprehensive survey, reduction of the sampling intensity of larval surveys, selectivity etc.

Two problems were identified with the procedures presented to validate the effectiveness of the reduced area larval survey. First the comparison with the Working Group assessment of the North Sea herring spawning stock biomass is not independent of the Larval Index time series because the index was used by the Working Group to tune the assessment. Therefore, the estimates of

precision are probably overestimated. Secondly, the paper presented a selection of survey areas to give a reduced area survey based on the minimum residual between the reduced area time series and the spawning biomass. Selection of a subset of data on this basis from only a few years of data does not give a good indication of the performance of such a reduced area series. An improvement would be to use the first half of the time series to estimate a provisional model and test this using the second half of the series.

Doc. BB:08, A fresh look at surplus production modeling as a pragmatic assessment tool, by R.J. Conser, raised a lot of interest and appears promising as a tool to complement analyses currently done using VPA-based techniques.

All presentations were interesting and the authors are thanked for sharing their results with Theme Session participants.

Documents presented

- BB:1 H. Sparholt and J. Tomkiewicz: A robust way of compiling trawl survey data for the use in the Central Baltic cod stock assessment
- BB:3 D.A. Vasilyev: Separable cohort procedures with internal property of unbiasedness of the solution
- BB:4 D. Schnack, N. Rohl, and J. Gröger: Effects of calculation procedure and reduced sampling effort on abundance indices of herring larvae as a measure of spawning stock size
- BB:5 F.A. van Beek: Discarding in the Dutch beam trawl fishery
- BB:6 T. Neudecker, J. Fischer, and U. Damm: Influence of tidal currents on fishing performance in the Wadden Sea
- BB:8 R.J. Conser: A fresh look at surplus production modelling as a pragmatic assessment tool
- BB:9 T. Sigurdsson and K. Thórarinnsson: Icelandic fishery of oceanic redfish (*S. Mentella* Travin); information based on log-book data and sampling from commercial fishery
- BB:10 S. Poulsen, J. Rasmus Nielsen, R. Holst, and K.-J. Stæhr: A herring size selection model for experimental gill nets used in the Sound (ICES Subdivision 23)
- BB:11 B.R. MacKenzie, J. Tomkiewicz, F. Köster, and A. Nissling: Quantifying and disaggregating the spawner effect: incorporating stock structure, spatial distribution and female influences into estimates of annual population egg production
- BB:12 P. Fonseca, A. Campos, and J. Feitoria: Square mesh windows experiments in Portuguese waters
- BB:15 M.E. Costa and T.C. Borges: Shark discards from the southern Portuguese coastal fisheries
- BB:16 D.W. Skagen, B. Bogstad, K.G. Frøysa, and K. Hiis Hauge: Fleksibest - a flexible toolbox for fish stock assessment
- BB:17 A. Lago de Lanzós, L. Quintanilla, A. Solá, and C. Franco: The daily egg production method applied to the spawning biomass estimation of Sardine, *Sardina pilchardus* (Walb.) off the North Atlantic Spanish coast

THEME SESSION ON POPULATION BIOLOGY (CC)

Convener: Dr R.C.A. Bannister

The Theme Session represented a collection of 'open' papers outwith the main themes of the 1998 ASC, but which had been grouped into several broad topics for purposes of presentation. The Sessions were held on Thursday 17 September 1998 from 16.00 to 18.00 hrs, and Friday 18 September from 13.30 to 15.30 hrs. The Sessions were only moderately attended.

Trophic interactions between mammals and fish

Doc. CC:3. From 1992 to 1995, minke whale (*Balaenoptera acutorostrata*) along the Finmark and Barents Sea coast fed opportunistically, eating a million tons of each good herring year class, but switching to other fish as herring declined.

Doc. CC:4. Harp seals (*Phoca groenlandica*) in the Svalbard area mainly ate krill, polar cod, and cod. Abundance data from trawl hauls provide there was no evidence of prey selection.

Doc. CC:1. Dives by harbour seals (*Phoca vitulina*) were studied using radio tags and depth-velocity tags with transmitters. Dives were mainly U-shaped dives for foraging on the benthos. The seals swam at a speed close to the minimum cost of transport, appeared to maximise their efficiency of energy intake, and few breached the estimated aerobic dive limit. Sample sizes in all these papers were relatively small.

Feeding by fish

Doc. CC:7. Samples of zooplankton and fish stomachs from the 1970's and 1990's showed that in the SE Baltic juvenile herring and sprat both graze on copepods, but that in autumn herring switch to mysids, which were not eaten by sprat. Herring can also switch to feed on the calorifically rich sprat, thus reducing inter-specific competition.

Doc. CC:11. Haddock larvae feeding at a moderate rate at Shetland showed a distinct peak ingestion of food in the early evening, with peak activity of tryptic enzyme lagging by 6 hours.

Doc. CC:5. Stomach contents of North Sea cod and whiting from the ICES stomach sampling project were compared with species composition and size in trawl catches. When the suitability model was used only 40% of the stomach content variation was explained by the prey abundance. Either there was negative switching by predators, or the model is not appropriate. This paper was presented with flair and was nominated for an award (unsuccessfully).

Biota in the Gulf of Riga

Doc. CC:2. Using catch trends, environmental data, and data on fish parasites, a study of the Gulf of Riga ecosystem suggests that in the 1970's to early 1990's increased freshwater favoured organisms preferring low salinity and tolerating higher eutrophication, whilst higher temperatures and high cod stocks reduced the abundance of other fish. Since then increased salinity and reduced temperature have begun to reverse this trend.

Doc. CC:16. This paper provides a brief summary of the changes in Atlantic salmon stocks in Russian rivers.

Doc. CC:11 arises from a large EU study on recruitment processes in cod and haddock in the northern North Sea, and a Theme Session based round this project is being proposed for the 1999 ASC.

Uses of otolith microstructure

Doc. CC:6. Using otolith microstructure to estimate daily age, samples of adult and juvenile turbot from the Baltic near Kaliningrad showed that the annual growth rate decreased with the onset of maturity. Diver observations show that in coastal waters young fish remain until maturity, and adults remain until they spawn.

Doc. CC:17. Seasonal and regional differences in *L1* distributions, coupled with the infestation level of *Anisakis simplex*, were used to investigate stock and growth differences in Portugal, the Bay of Biscay, the North Sea and the Norwegian Deep.

Doc. CC:15. Meristic, morphometric and otolith parameters of pelagic and post-settlement juvenile cod were analysed to show that juvenile cod grow more slowly in winter than in summer, and that hydrological differences between the Arkona Sea and the Bornholm Basin do not influence the results.

Survival, growth and maturity

Doc. CC:8. Laboratory experiments on sexually mature capelin from a beach spawning site at Balsfjord, northern Norway show that although capelin are considered to be one-time spawners, at least 60% of the capelin in this experiment survived the winter, grew rapidly, and produced gonads the next spring, before dying. In contrast males died quickly in the first autumn.

Doc. CC: 9. Spatially unstratified samples of whelk from fisheries round England and Wales were analysed for maturity. The 50% point on the maturity at length

relationship was obtained by logistic regression. There were substantial regional and local differences, making it inappropriate to set a single minimum size, although if one value is accepted it would best be 55 mm shell height. The most parsimonious and significant fit was a negative relationship with temperature.

Doc. CC:19. On the Norwegian east coast, juvenile sprat show that maturity is length dependent (50% length of maturity is 9.3 cm.), and that mean length of coastal samples increased with latitude, perhaps because the northerly fish have had a longer time to drift from the south and grow.

General

Doc. CC:10. Analyses in this paper show that the environment at Svalbard and the Barents Sea affects juvenile fish. Gadoid, herring and redfish were found in warmer waters than halibut and polar cod. The mean length of cod, haddock, saithe, herring and redfish was lower at Svalbard, the colder area. Across years, herring mean lengths increase with temperature, but cod, haddock and redfish show no systematic variation with temperature.

Doc. CC:12. For *Nephrops* in the western Irish Sea, MULTIFAN was used to decompose a time series of

length distributions into age at length in order to calculate growth curves, which are compared with area and sediment type. There is considerable local variation in mean length, the largest animals occurring on the coarser sediments.

Doc. CC:20. For hake in the Bay of Biscay, EU-funding has made it possible to measure 10000 hake and age 4000 of them. The paper describes the various length-weight, otolith length and weight relationships, the seasonal sex ratio, and estimates the size at first maturity to be about 38 cm for males and 49 cm for females. The best fitting growth curve is the Gompertz.

Doc. CC:14. Detailed monitoring of *Crassostrea gigas* populations shows that mass mortality occurs in summer, after spawning, when glycogen is low, and temperature is high, but is lower in the less stressed tray culture than on the sea bed, where sedimentation, due to culture, has reduced depth and increased exposure time at low tide.

These papers provided basic observations about trophic interactions, food preferences, regime shifts, the application of otolith microstructure, survival, growth and maturity, and summer mortality in oysters. Most papers produced information of potential value to assessments and management.

Documents

- | | | |
|-------|---|---|
| CC:1 | B. Esben, P. Braaten, A. Bjørge, D. Thompson and E. Bryant | Strategies for optimising energy expenditure and energy intake during foraging dives of free-ranging harbour seals |
| CC:2 | H. Ojaveer, A. Lankov, L. Näks, M. Eero, A. Turkovski, J. Kotta, I. Kotta, and A. Lumberg | Dynamics of the biota component of the Gulf of Riga in the 1970s-1990s |
| CC:3 | U. Lindstrøm, T. Haug, and I. Røttingen | Herring (<i>Clupea harengus</i>) as a key species in Northeast Atlantic minke whale (<i>Balaenoptera acutorostrata</i>) diets |
| CC:4 | K.T. Nilssen, I. Ahlqvist, A. Harbitz, T. Haug, and L. Lindblom | Feeding habits of harp seals (<i>Phoca groenlandica</i>) during summer in Svalbard waters |
| CC:5 | A. Rindorf, H. Gislason and P. Lewy | Does the diet of cod and whiting reflect the species composition estimated from trawl surveys? |
| CC:6 | L.V. Scherbich | Daily age of juvenile turbot <i>Psetta maxima</i> L. (Pleuronectiformes, Scophthalmidae) and some peculiarities of juvenile and adult fishes distribution in the coastal area of the Baltic Sea, adjacent to the Kaliningrad region |
| CC:7 | F.A. Patokina and V.N. Feldman | Peculiarities of trophic relations between Baltic herring (<i>Clupea harengus membras</i> L.) and Baltic sprat (<i>Sprattus sprattus balticus</i> Schneider) in the south-eastern Baltic Sea in 1995-1997 |
| CC:8 | J.S. Christiansen and S.I. Siikavuopio | Survival and growth of post-spawning capelin (<i>Mallotus villosus</i>)—An introductory report from a laboratory study |
| CC:9 | M.C. Bell and P. Walker | Size at maturity in common whelks (<i>Buccinum undatum</i> L.) in England and Wales |
| CC:10 | B.K. Stensholt and O. Nakken | Spatial distribution of variables in marine environmental and fisheries research Part II: Distribution and length of 0-group fish in relation to environmental factors |

- CC:11 B.R. MacKenzie, B. Ueberschär, D. Basford, M. Heath, and A. Gallego Diel variability of feeding activity in haddock larvae in the East Shetland area, North Sea
- CC:12 I.S. Thompson, J.E. Whitmore, J.P. Hillis, and J. Carroll Temporal and spatial variations in the age structure and growth rates of *Nephrops norvegicus* in the Western Irish Sea
- CC:14 P. Goulletquer, P. Soletchnik, O. Le Moine, D. Razet, P. Geairon, N. Faury, and S. Taillade Summer mortality of the Pacific cupped oyster *Crassostrea gigas* in the Bay of Marennes-Oléron (France)
- CC:15 R. Oeberst and U. Böttcher Development of juvenile Baltic cod described with meristic, morphometric and Sagitta otolith parameters
- CC:16 S.V. Prusov, M.Ju. Alexeev, N.G. Popov, V.P. Antonova, and V.A. Valetov Atlantic salmon from Russian rivers. Fisheries and status of stocks in 1997
- CC:17 M.M. Martins *S. scombrus* L. from ICES Division IXa (Portugal): Analysis on otolith first ring and an infestation study of *Anisakis simplex* (Nematoda: Ascaridae)
- CC:19 E. Torstensen Growth and maturity of sprat in Norwegian coastal waters
- CC:20 P. Lucio, M. Santurtún, and H. Murua Growth and reproduction of hake (*Merluccius merluccius*) in the Bay of Biscay during 1996-1997

THEME SESSION ON SPAWNING AND RECRUITMENT (DD)

Convener and Rapporteur: Ero Aro

The Theme Session on Spawning and Recruitment (DD) was held on 19 September 1998. The Convener opened the Theme Session and the Convener also acted as Rapporteur for the Theme Session. The revised agenda was adopted and one presentation was added on the agenda. This contribution was earlier miscoded and placed in the wrong Theme Session.

The Convener informed the Theme Session about recent observations on changes in maturation, growth and condition, duration of spawning season and the spatial distribution of spawning stock in several stocks in the Northern hemisphere. For the management of fish stocks, changes in demographic parameters and vital rates of fish stocks can profoundly affect the assessment and management of these resources. Changes in these parameters have implications for all areas of stock assessment, including short-term projections, equilibrium calculations, retrospective analyses, and rebuilding strategies. The nature of the variability observed for these parameters (i.e., high or low frequency, trended, predictability) may dictate which methodological approaches to assessment calculations should be undertaken (e.g. running averages, annual estimates, predictive models).

The Theme Session DD was set up to address these issues in the ICES area. Six scientific contributions were presented and two contributions did not show up.

Presentation of Scientific Contributions and Conclusions

Authors of contribution G.P. Mazhirina and E.A. Shamrai (Doc. DD:7), entitled "Status of reproductive system of mackerel during its feeding in the Norwegian Sea", were not present at the Theme Session, and thus this contribution was not presented.

Spatial variation in birth date distributions and origin of pelagic juvenile cod in Icelandic waters indicate that there are possibilities to track the origin of 0-group Icelandic cod. Results show that the size and age decrease from West to North when moving clockwise around Iceland away from the main spawning grounds in the South. Results indicate that some of the smaller

spawning grounds outside the main spawning ground may be important components for spawning as well. Size specific time and duration of spawning of cod in Icelandic waters seems to be dependent on temperature variation, and according to data storage tags spawners seem to select a similar depth range in the spawning grounds as in previous spawning seasons. Furthermore, the duration of stay on spawning grounds was characterised by decreased vertical movements and migrations. The time and duration of spawning appeared to be more size specific among females than males.

Long-term studies on spawning in Arcto-Norwegian cod - mortality patterns in eggs and early larvae indicate that there is a big difference between first time and second time spawners' egg quality and survival. Thus the estimation of spawning stock reproduction potential only by biomass estimation obviously overestimates the reproductive potential of the stock.

Information on the spawning of cod (*Gadus morhua morhua*) in the Western Baltic under captivity in controlled conditions indicate that old females start spawning first and the maximum duration of spawning was observed to be about 4 months, the average being about 1.5 months. The actual fecundity has been observed to be lower than the potential fecundity.

Recruitment of megrim and four-spotted megrim seem to be influenced by sea surface temperature in the Northern Spain continental shelf. Temperature seems to be the most important factor determining recruitment, but how the temperature process operates is not clear.

Authors of contribution (Doc. DD:1) M. Ju. Alexeev and S.V. Prusov entitled "Estimates of conservation limits for Atlantic salmon females for four Russian rivers" were not present at the Theme Session, and thus this contribution was not presented.

Lastly, new information on 0-group fish surveys made in August 1998 in Icelandic waters indicates that the year class 1998 of Icelandic cod is the highest on record since 1970. Haddock and capelin year class 1998 are about average. It was pointed out that also in the Northwestern Atlantic cod the 1998 year class seems to be very strong.

Documents presented

DD:2	J. Landa	Influence of sea surface temperature on recruitments of megrim (<i>Lepidorhombus whiffiagonis</i>) and four spot megrim (<i>L. bosci</i>) in the northern Spanish continental shelf (ICES Division VIIIc)
DD:3	M. Bleil and R. Oeberst	The spawning of cod (<i>Gadus morhua morhua</i>) under controlled conditions of captivity, quantity and quality of spawned eggs

DD:4	G. Marteinsdóttir, B. Gunnarsson, I.M. Suthers, and A. Jonsdóttir	Spatial variation in birth date distributions and origin of pelagic juvenile cod in Icelandic waters
DD:5	G. Marteinsdóttir and V. Thorsteinsson	Size specific time and duration of spawning of cod (<i>Gadus morhua</i>) in Icelandic waters
DD:8	P. Solemdal and V. Makhotin	Long-term studies on spawning in Arcto-Norwegian cod - mortality pattern of eggs and early larvae

Supplement 3: List of Participants at the 1998 ICES Annual Science Conference

**LIST OF PARTICIPANTS AT THE 1998 ANNUAL SCIENCE CONFERENCE/
LISTE DES PARTICIPANTS A LA CONFERENCE SCIENTIFIQUE ANNUELLE 1998**

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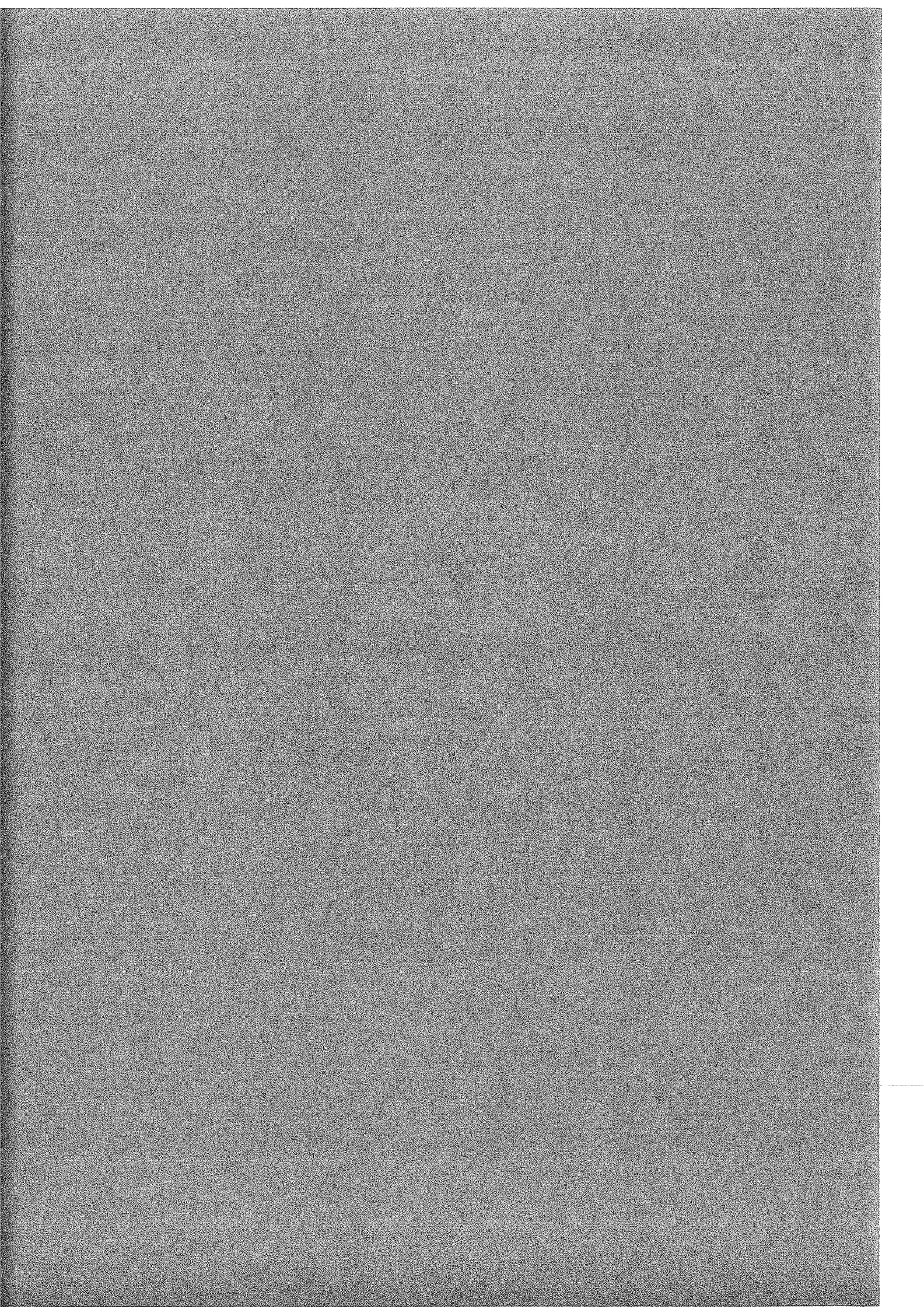
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France:	G. Biaï B. Mesnil	Spain:	F.J. Pereiro A. Fernández
Germany:	Dr G. Hubold Prof. A. Temming	Sweden:	T. Gustavsson B. Sjöstrand
Iceland:	Dr G. Stefánsson T. Sigurdsson	UK:	Dr R.M. Cook Dr T.K. Stokes
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Latvia:	Dr A. Mitans M. Vitins		

MARICULTURE COMMITTEE/COMITÉ SUR LA MARICULTURE

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Estonia:	Dr M. Kangur G. Martin	Portugal:	Dr C. Costa Monteiro Dr F. Ruano
Finland:	Dr T. Mäkinen	Russia:	Dr I.A. Burtsev Dr A.I. Nikolaev
France:	M. Goulletquer Dr M. Héral, Chair	Spain:	I. Arnal Dr J. Iglesias
Germany:	Dr U. Böttcher Prof. H. Rosenthal	Sweden:	Prof. H. Ackefors L.-O. Eriksson
Iceland:	Dr B. Björnsson A. Isaksson	UK:	Dr B. Howell Dr A.H. McVicar
Ireland:	J. Doyle Dr D. Michin	USA:	Dr A. Calabrese Prof. J. Carlton
Latvia:	Dr A. Mitans O. Vasins		

BALTIC COMMITTEE/COMITÉ SUR LES POISSONS DE LA BALTIQUE

Denmark:	H. Hovgaard Dr B. McKenzie	Poland:	Dr T. Linkowski Dr W. Grygiel
Estonia:	Dr E. Ojaveer Dr T. Raid	Russia:	Dr V.N. Feldmann Dr E.M. Malkin
Finland:	E. Aro K. Myrberg	Sweden:	Dr P.O. Larsson B. Sjöberg
Germany:	Dr W. Matthäus Dr O. Rechlin	USA:	Prof. T. Osborn, Chair Dr K. Sherman
Latvia:	Dr G. Kornilovs M. Pliksh		

ICES COMMITTEES AND THEIR SUBSIDIARY GROUPS

The following is a list of the Committee Parentage of Working, Study, Planning, Steering, and other Groups and Workshops in existence in 1998/1999.

Fisheries Technology Committee (FTC)

Working Group on Fisheries Acoustics Science and Technology (WGFAST)
Working Group on Fishing Technology and Fish Behaviour (WGFTFB)
Study Group on Methods for Measuring the Selectivity of Static Gear (SGMMG)

Oceanography Committee (OCC)

ICES/GLOBEC North Atlantic Regional Co-ordination Group (RCG)
ICES/GLOBEC Working Group on Cod and Climate Change (WGCCC)
Working Group on Oceanic Hydrography (WGOH)
Working Group on Marine Data Management (WGMDM)
Working Group on Seabird Ecology (WGSE)
Working Group on Zooplankton Ecology (WGZE)
Working Group on Phytoplankton Ecology (WGPE)
Working Group on Shelf Seas Oceanography (WGSSO)
Working Group on Harmful Algal Bloom Dynamics (WGHABD)
Study Group on an ICES/IOC Checklist of Phytoplankton (SGPHYT)
Steering Group for the ICES/GLOBEC North Atlantic Regional Office (SGNARO)
Steering Group on Global Ocean Observing System (SGGOOS)
Workshop on Gadoid Stocks in the North Sea during the 1960s and 1970s, the Fourth ICES/GLOBEC Backward-Facing Workshop (WK6070)
Workshop on GOOS (WKGOOS)

Resource Management Committee (RMC)

International Bottom Trawl Survey Working Group (IBTSWG)
Comprehensive Fishery Evaluation Working Group (WGCOMP)
Planning Group on Surveys on Pelagic Fish in the Norwegian Sea (PGSPFN)
Study Group on the Management Performance of Fisheries Systems (SGMPFS)
Study Group to Evaluate Effects of Multispecies Interactions (SGEEMI)
Workshop on the Evaluation of the Plaice Box (WKEPB)

Marine Habitat Committee (MHC)

Benthos Ecology Working Group (BEWG)
Working Group on Environmental Assessment and Monitoring Strategies (WGEAMS)
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 (WGMMA)
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 Marine Biodiversity (SGMB)

Mariculture Committee (MARC)

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 Sea Trout (SGSTR)
Study Group on Elasmobranch Fishes (SGEF)
Study Group on Life Histories of *Nephrops* (SGNEPH)
Study Group on Redfish Stocks (SGRS)
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 Otolith Ageing of North Sea Whiting (WKOAW)
Horse Mackerel Otolith Workshop (WKHMO)
Workshop on the Usefulness of Scale Growth Analyses and Other Measures of Condition in Salmon (WKUS)

Baltic Committee (BLTC)

Baltic International Fish Survey Working Group (WGBIFS)
Study Group on Baltic Acoustic Data (SGBAD)
Baltic Herring Age-Reading Study Group (BHARSG)

Workshop on Baltic Trawl Experiments (WKBTE)

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 (WGNSSDS)

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 Future Requirements for Fisheries Assessment Data and Software (SGFADS)

Study Group on Multiannual Assessment Procedures (SGMAP)

Study Group on Market Sampling Methodology (SGMSM)

Study Group on Effects of Sandeel Fishing (SGESF)

Study Group on IIIa Herring (SG3AH)

Study Group on Baltic Herring Maturity (SGBHM)

ACME

Working Group on Introductions and Transfers of Marine Organisms (WGITMO)

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 Sediments (SGBWS)

ICES/HELCOM Workshop on Quality Assurance of Chemical Procedures for the Baltic Monitoring Programme (WKQAC)

ICES/HELCOM Workshop on Baltic Sea Sediments: Conditions and Contaminants (WKBSED)

AMAP/EEA/ICES Workshop on Biological Effects Methods to be applied to detect 'Combined Effects' in Marine Ecosystems (WKCEME)

ACFM/ACME

Working Group on Ecosystem Effects of Fishing Activities (WGECO)

DIRECTORY OF ICES COMMITTEES AND SUBSIDIARY GROUPS AND ASSOCIATED 1998 COUNCIL RESOLUTIONS

Resolutions originating from the organisational structure at the 1998 Annual Science Conference. This is not identical to the Organisational Overview of ICES Subsidiary Groups on pp. 298–305.

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Steering Group for the ICES/GLOBEC North Atlantic Regional Office	2:18	109	301
Working Group on Marine Data Management	2:19	110	301
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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, or the National Delegates to ICES (an overview of their names and addresses is provided on pp 305–310, or from the Chairs themselves.

ADVISORY COMMITTEE ON FISHERY MANAGEMENT/ COMITÉ D'AVIS SUR LA GESTION DES PÊCHES

EIFAC/ICES Working Group on Eels/Groupe de Travail EIFAC/CIEM sur les Anguilles

Dr Willem Dekker (Netherlands), Chair

Working Group on *Nephrops* Stocks/Groupe de Travail sur les Stocks de *Nephrops*

Dr F. 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 Mmaquereaux, de Chinchards, de Sardines et d'Anchois

Dr Ken Patterson (UK), 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, Chair

Working Group on North Atlantic Salmon/Groupe de Travail sur le Saumon de l'Atlantique Nord

Dr Larry Marshall (Canada), 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

Svein Tveite (Norway), 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 Future Requirements for Fisheries Assessment Data and Software/Groupe d'Étude sur les Besoins Futurs Concernant les Logiciels et les Données d'Évaluation des Stocks de Poissons

Dr Robin M. Cook (UK), Chair

Study Group on Multiannual Assessment Procedures/Groupe d'Étude sur les Procédures d'Évaluation Multi-annuelles

Svein Iversen (Norway), Chair

Study Group on Market Sampling Methodology/Groupe d'Étude sur la Méthodologie d'Échantillonnage au Marché

Martin A. Pastoors (Netherlands), Chair

Study Group on Effects of Sandeel Fishing/Groupe d'Étude sur les Effets de la Pêche du Lançon

Dr Jake Rice (Canada), Chair

Study Group on IIIa Herring/Groupe d'Étude sur le Hareng IIIa

Dr Tomas Gröhsler (Germany), Chair

Study Group on Baltic Herring Maturity/Groupe d'Étude sur la Maturité du Hareng Baltique

Hildrun Müller (Germany) 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 Lars Hernroth (Sweden), 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 Sediments/Groupe d'Étude CIEM/COI/OMI sur les Eaux de Ballastage et les Sédiments

Prof. James T. Carlton (USA), Chair

Second ICES/HELCOM Workshop and Training Course on Phytoplankton/Deuxième Atelier et Formation CIEM/HELCOM sur le Phytoplancton

Dr Mikael Krysell (Sweden), Chair

ICES/HELCOM Workshop on Quality Assurance of Chemical Procedures for the Baltic Monitoring Programme/Deuxième Atelier CIEM/HELCOM sur l'Assurance de Qualité des Procédures Chimiques pour le Programme de Contrôle Baltique

Dr Mikael Krysell (Sweden), Chair

ICES/HELCOM Workshop on Baltic Sea Sediments: Conditions and Contaminants/Atelier CIEM/HELCOM sur les Sédiments dans la Mer Baltique: Conditions et Contaminants

Prof. Matti Perttilä (Finland) and Dr Boris Winterhalter (Finland) Co-Chairs

Workshop on Biological Effects Methods to be Applied to Detect 'Combined Effects' in Marine Ecosystems/Atelier Sur les Méthodes Pour Détecter 'les Effets Combinés' dans les Écosystèmes Marins

**JOINT ACFM/ACME
ACFM/ACME CONJOINTS**

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 A. Engås (Norway), Chair

Working Group on Fishing Technology and Fish Behaviour/Groupe de Travail sur la Technologie de Pêche et le Comportement des Poissons et/Working Group on Fisheries Acoustics Science and Technology/Groupe de Travail sur l'Étude de la Science et la Technologie Acoustique de la Pêche

Dr Jacques Massé (France), Chair

Study Group on Methods for Measuring the Selectivity of Static Gear/Groupe d'Étude sur la Méthodes pour mesurer la Sélectivité des Engins Statiques

A. Carr (USA), Chair

**OCEANOGRAPHY COMMITTEE/
COMITÉ SUR L'Océanographie**

ICES/GLOBEC North Atlantic Regional Co-Ordination Group/Groupe CIEM/GLOBEC Régional de Coordination sur l'Atlantique Nord

Dr Mike Reeve (USA), 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 S. Narayanan (Canada), Chair

Working Group on Marine Data Management/Groupe de Travail sur la Gestion des Données Marines

R. 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 Richard Harris (UK), Chair

Working Group on Phytoplankton Ecology/Groupe de Travail sur l'Écologie du Phytoplancton

Dr D. Mills (UK), Chair

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Workshop on Gadoid Stocks in the North Sea during the 1960s and 1970s, the Fourth ICES/GLOBEC Backward-Facing Workshop/Atelier sur les Stocks de Gadoïdes en Mer du Nord Pendant les Années 1960 et 1970; Quatrième Atelier Retrospectif

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Workshop on Otolith Ageing of North Sea Whiting/Atelier sur la Lecture d'Âge des Otolithes du Merlan en Mer du Nord

A. Newton (UK), Chair

Horse Mackerel Otolith Workshop/Atelier sur les Otolithes du Chinchard

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Workshop on the Usefulness of Scale Growth Analyses and their Measures of Condition in Salmon/Atelier sur l'Utilité des Analyses de la Croissance des Écailles et d'Autres Mesures de l'État du Saumon

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Second Scale-Reading Workshop on Baltic Salmon/Deuxième Atelier sur La Lecture des Écailles du Saumon da la Baltique

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Workshop on Baltic Trawl Experiments/Atelier sur les Essais de Chaluts en Mer Baltique

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INTERNATIONAL ORGANISATIONS HAVING OBSERVER STATUS AND COOPERATIVE RELATIONS WITH ICES

- 1 Arctic Monitoring and Assessment Programme (AMAP)
- 2 Atlantic Salmon Trust
- 3 Arctic Ocean Science Board (AOSB)
- 4 Baltic Marine Biologists (BMB)
- 5 Baltic Marine Environment Protection Commission (HELCOM)
- 6 Comision Tecnica Mixta del Frente Maritimo
- 7 Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)
- 8 Commission Internationale pour l'Exploration Scientifique de la Mer Méditerranée (CIESM)
- 9 Commonwealth Scientific and Industrial Research Organization (CSIRO) (Australia)
- 10 Danish Institute for Fisheries Economics Research
- 11 European Commission
 - 11.1 Directorate-General for Fisheries (DGXIV)
 - 11.2 Directorate-General for Science, Research and Development (DG XII)
 - 11.3 Directorate-General for Environment, Consumer Protection and Nuclear Safety
- 12 European Environment Agency (EEA)
- 13 European Inland Fisheries Advisory Commission (EIFAC)
- 14 European Aquaculture Society
- 15 European Association of Fisheries Economists
- 16 European Association for Marine Science and Technology
- 17 European Science Foundation
 - 17.1 European Marine and Polar Science (EMaPS) Boards
- 18 Fisheries Society of the British Isles
- 19 Institute for Fisheries Research and Development (INIDEP) (Argentina)
- 20 Institute of Marine Biology of Crete (Greece)
- 21 International Arctic Science Committee (IASC)
- 22 International Association for Biological Oceanography (IABO)
- 23 International Baltic Sea Fishery Commission (IBSFC)
- 24 International Center for Living Aquatic Resource Management (ICLARM)
- 25 International Commission for the Conservation of Atlantic Tunas (ICCAT)
- 26 International Council of Scientific Unions (ICSU)
- 27 International Institute of Fisheries Economics & Trade (IIFET)
- 28 International Maritime Organization (IMO)
 - 28.1 London Convention on Dumping
- 29 International Pacific Halibut Commission (IPHC)
- 30 International Union for the Conservation of Nature and Natural Resources (IUCN)
- 31 International Whaling Commission (IWC)
- 32 National Institute of Water and Atmospheric Research (NIWA) (New Zealand)

- 33 Nordic Council of Ministers
- 34 North Atlantic Marine Mammal Commission (NAMMCO)
- 35 North Atlantic Salmon Conservation Organization (NASCO)
- 36 North-East Atlantic Fisheries Commission (NEAFC)
- 37 North Pacific Anadromous Fish Commission (NPAFC)
- 38 North Pacific Marine Science Organization (PICES)
- 39 Northwest Atlantic Fisheries Organization (NAFO)
- 40 Organization for Economic Cooperation and Development (OECD)
- 41 Oslo and Paris Commissions (OSPAR)
- 42 Scientific Committee on Oceanic Research (SCOR)
- 43 Sea Fisheries Research Institute (South Africa)
- 44 Statistical Office of the European Communities (EUROSTAT)
- 45 United Nations Educational, Scientific and Cultural Organization (UNESCO)
 - 45.1 Intergovernmental Oceanographic Commission (IOC)
- 46 United Nations Environment Programme (UNEP)
- 47 United Nations Food and Agriculture Organization (FAO)
 - Fisheries Department
- 48 World Wide Fund for Nature (WWF)

ACRONYMS APPEARING IN ICES ANNUAL REPORT
(Acronyms of ICES Committees and their Subsidiary Groups are given on pp 293–294)

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
ASCOBANS	Agreement on Small Cetaceans in the Baltic and North Seas
ASMO	Environmental Assessment and Monitoring Committee (OSPAR)
BWG	Bureau Working Group
BWGADV	Bureau Working Group on Restructuring of ICES Advisory Committees
BWGSTRAT	Bureau Working Group on Strategic Planning
BWG100	Bureau Working Group on Planning for the ICES Centenary
CCAMLR	Commission for the Conservation of Antarctic Living Marine Resources
CEFAS	The Centre for Environment, Fisheries & Aquaculture Science (UK)
CFC	chlorofluorocarbon
CGADV	Coordinating Group on ICES Advice
CIEM	Conseil International pour l'Exploration de la Mer (ICES)
CM	ICES Council Meeting
COFI	Committee on Fisheries (FAO)
CONSSO	Committee of North Sea Senior Officials
CPR	Continuous Plankton Recorder
CPUE	Catch Per Unit Effort
CRF	Capital Reserve Fund
CRIMP	Centre for Research in Marine Pests (Australia)
CRR	ICES Cooperative Research Report
CSC	Communication and Science Centre
CSIRO	Commonwealth Scientific and Industrial Research Organization (Australia)
CSP	Core Science Programme
CTD	Conductivity, Temperature and Depth
CWP	Coordinating Working Party on Fishery Statistics
DEL	Delegate
DEPM	Daily Egg Production Method
DFO	Department of Fisheries and Oceans, Canada
DG	Directorate-General
DIFRES	Danish Institute for Fisheries Research
DKK	Danish Kroner
DOC	Dissolved organic carbon
DSP	diarrhetic shellfish poisoning
EC	European Commission
EC	Environment Committee (HELCOM)
EDP	Electronic Data Processing
EEA	European Environment Agency
EIFAC	European Inland Fisheries Advisory Commission
EMaPS	European Marine and Polar Science Committee
EQS	Environmental Quality Standards
ESF	European Science Foundation
ESOP	European Subpolar Ocean Programme
ESOP-II	European Subpolar Ocean Programme (phase 2)
ETM	estuarine turbidity maximum
FAO	Food and Agriculture Organization (UN)
GBP	British pound (i.e. £ sterling)
GEF	Global Environment Facility
GLOBEC	Global Ocean Ecosystem Dynamics Programme
GMO	Genetically Modified Organism
GOOS	Global Ocean Observing System

GPS	Global Positioning System
GSA	Great Salinity Anomaly
HAB	Harmful Algal Blooms
HABD	Harmful Algal Bloom Dynamics
HAEDAT	Harmful Algae Event Database
HELCOM	Helsinki Commission (Baltic Marine Environment Protection Commission)
IABO	International Association for Biological Oceanography
IASC	International Arctic Science Committee
IBSFC	International Baltic Sea Fishery Commission
IBTS	International Bottom Trawl Survey
ICES	International Council for the Exploration of the Sea
IDEAL	International Digital Electronic Access Library
IFAP	ICES Fisheries Assessment Package
IFREMER	Institut Français de Recherche pour l'Exploitation de la Mer (France)
IGBP	International Geosphere - Biosphere Programme
IIFET	International Institute of Fisheries Economics & Trade
IMM	Intermediate Ministerial Meeting
IMO	International Maritime Organization
IMPACT	Working Group on Impacts on the Marine Environment (OSPAR)
INIDEP	Instituto Nacional de Investigación y Desarrollo Pesquero (Argentina)
IOC	Intergovernmental Oceanographic Commission
IODE	International Oceanographic Data and Information Exchange (IOC)
IOR	Fisheries Research Institute in Rostock
IPIMAR	Instituto Português de Investigação Marítima (Portugal)
IRF	Inter-Regional Forum
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
MAST	Marine Science and Technology (EC)
MD	Maryland
MEDAR	Mediterranean Data Archaeology and Rescue
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
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)
NODC	National Oceanographic Data Centre
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)
POC	Particulate organic carbon
POP	Persistent organic pollutants
PSP	paralytic shellfish poisoning
QA	Quality Assurance
QMP	Quality Management Procedures
QSR	Quality Status Report
QUASIMEME	Quality Assurance of Information for Marine Environmental Monitoring in Europe

RIKZ	Rijksinstituut voor Kust en Zee (the Netherlands)
ROSCOP	Reports on Scientific Cruises and Ocean Programmes
RPV	Rapports et Procès-Verbaux
SCOR	Scientific Committee on Oceanic Research
SD	Sub-division
SDV	Scientific Data Visualisation
SETAC	Society for Ecotoxicology and Chemistry
SGBSRP	ICES Steering Group on the Baltic Sea Regional Project
SGFIRENS	Steering Group on the Pilot Project on the Status of Fisheries and Related Environment of Northern Seas
SHADYS	Simulateur HALieutique de DYnamiques Spatiales
SMAC	Simulation Model, Acceptability Criterion
SMHI	Swedish Meteorological and Hydrological Institute
SOAEFD	Scottish Office Agriculture, Environment and Fisheries Department
SOP	Standard Operating Procedures
STATLANT	Statistical Programme for Atlantic Fisheries
SW	Southwest
TAC	Total Allowable Catch
TASC	Trans-Atlantic Studies of <i>Calanus finmarchicus</i>
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
UNCED	United Nations Conference on Environment and Development
UNESCO	United Nations Educational, Scientific, and Cultural Organization
US	United States
USA	United States of America
USD	United States Dollar
VAT	Value Added Tax
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