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January 1995

**ICES Annual Report**  
**Procès-Verbal de la Réunion**  
  
**1994**

**1994 ICES Annual Science Conference**

**82nd Statutory Meeting**

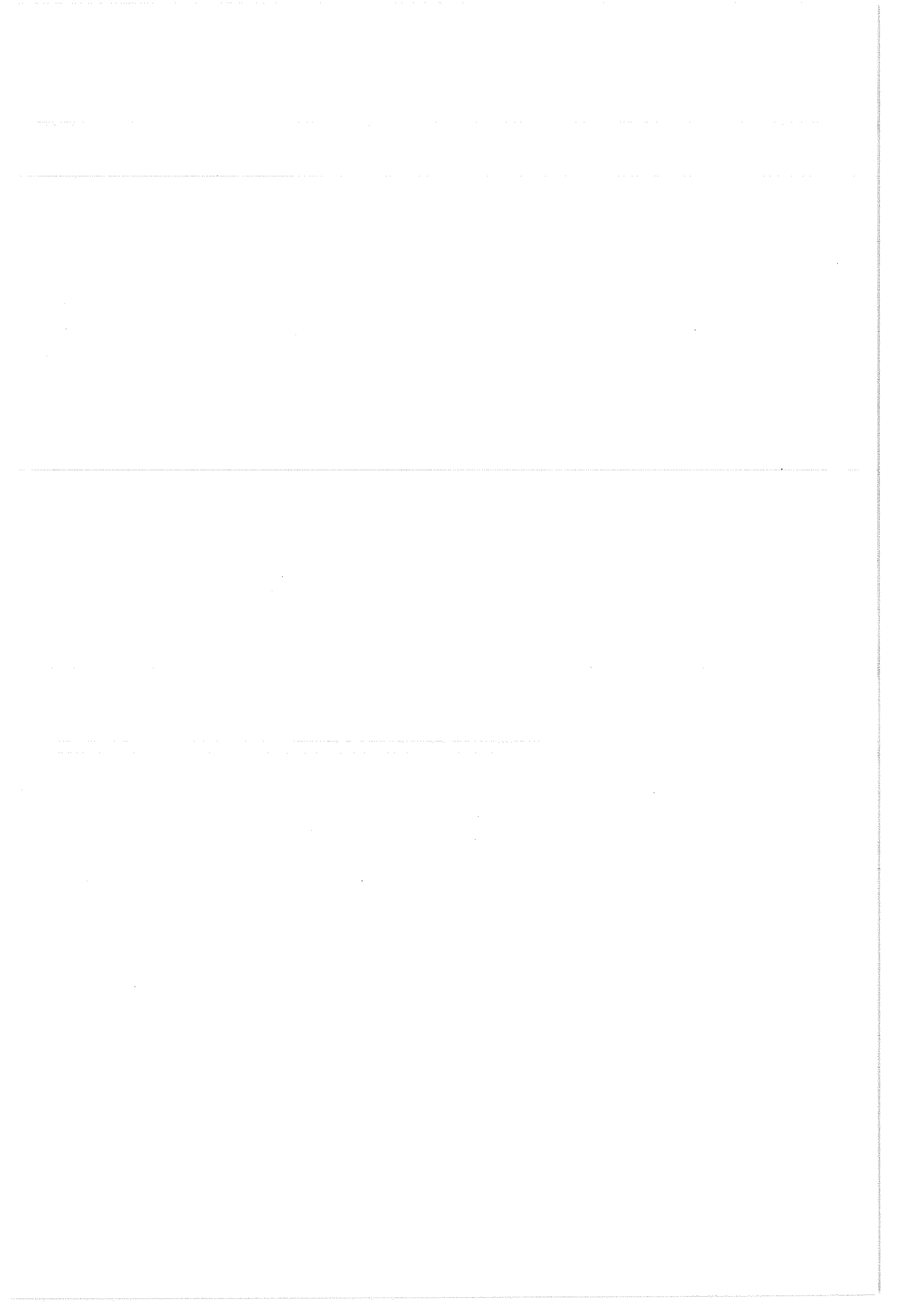
**22-30 September 1994**

**St John's, Newfoundland, Canada**

**International Council for the Exploration of the Sea**  

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**Conseil International pour l'Exploration de la Mer**



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## **PART I**

### **PROCEEDINGS OF 1994 ANNUAL SCIENCE CONFERENCE**

**St John's, Newfoundland, Canada, 22-30 September 1994**



# **AGENDA FOR 1994 ANNUAL SCIENCE CONFERENCE (82ND STATUTORY MEETING)**

St John's, Newfoundland (Canada), 22 - 30 September 1994

## **GENERAL ASSEMBLY**

- 1 General Secretary's Announcements
- 2 President's Address, including:
  - 2.1 Report on Symposium on "Zooplankton Production - Measurement and Role in Global Ecosystem Dynamics and Biochemical Cycles"
  - 2.2 Observers' Reports from Meetings of Co-operating Organisations
  - 2.3 Deceases
- 3 Chairman of Consultative Committee's Preview of Annual Science Conference
- 4 Address by the Honourable Mr Brian Tobin, Minister of Fisheries and Oceans
- 5 Open Lecture by Professor Jacqueline McGlade on "Putting Fishermen into Fishery Models"
- 6 Response to Open Lecture by Mr Herb Clarke (Chairman, Canadian Fisheries Resource Conservation Council)

## **DELEGATES MEETING**

- 1 Preliminary Report on Administration
- 2 Council Membership
- 3 Election of President
- 4 Election of First Vice President
- 5 Election of three Vice-Presidents
- 6 ICES Marine Mammal Policy
- 7 Proposals to change Rules of Procedure
- 8 Status, Rules and Procedures Governing Data Bases Maintained at the ICES Secretariat
- 9 Co-operation with Other International Organisations: Working Relationships and Financial Arrangements
- 10 Conclusion of North Sea Task Force and Succeeding Developments
- 11 Topics for Delegates "Extra" Meeting
- 12 Appointment of Chairman of Finance Committee
- 13 Report of Finance Committee
  - 13.1 Audited Accounts for Financial Year 1992/1993
  - 13.2 Estimated Accounts for Financial Year 1993/1994
  - 13.3 Budget for Financial Year 1994/1995
  - 13.4 Forecast Budget for Financial Year 1995/1996
  - 13.5 Contributions to ICES Budgets
- 14 Auditing of the Council's Accounts and Relationship with the Auditor General of Denmark
- 15 Appointment of Chairman and two Members of Publications Committee
- 16 Report of Publications Committee
- 17 Report and Recommendations of Consultative Committee
- 18 ACFM Matters
- 19 ACME Matters
- 20 1995 and 1996 Annual Science Conferences (83rd and 84th Statutory Meetings)
- 21 Any Other Business



## GENERAL ASSEMBLY

Radisson Plaza Hotel, St John's, Newfoundland  
Thursday, 22 September 1994

The General Secretary, Professor Chris Hopkins, called the General Assembly of the 1994 ICES Annual Science Conference (82nd Statutory Meeting) to order at 09.00 hrs. The participants' attention was drawn to the various administrative and social arrangements for the Conference, including the situation of rooms for the scientific and business sessions, and elections to be held for five Subject/Area Committee Chairmen, as well as for a new President, First Vice-President and three ordinary Vice-Presidents. He gratefully acknowledged the excellent conference facilities provided by the Government of Canada, through the auspices of the Canadian Delegates and the Department of Fisheries and Oceans.

The President, Mr David de G. Griffith, opened the General Assembly:

*Mr Minister, Ladies and Gentlemen, on behalf of the International Council for the Exploration of the Sea, welcome to the 1994 Annual Science Conference - our 82nd Statutory Meeting - and to St John's, where our host is the Government of Canada, represented by the Department of Fisheries and Oceans.*

*For most people, Newfoundland has always been identified with fishing. For Newfoundlanders life means: the sea. Most specifically, it means, unambiguously and unequivocally, fishing, and particularly the cod fishery; King Cod and the Newfoundland Banks. For the rest of us, Newfoundland and the fishery are, and always have been, synonymous. In this place, when people say 'fish' they mean 'cod'. It has passed into the colloquial language. If you want to talk specifically about flounder, you say you are going fishing for flounder, or if you want to talk about herring you mention the name, but for 'fish', you don't need to mention what it is, it means 'cod'.*

*Some of us, perhaps, have not been fully aware of exactly how many centuries have elapsed since the cod fishery began. Newfoundland, it is now reliably believed, was discovered in 1481 - some eleven years before Columbus landed on the shores of the Caribbean. Perhaps one should say Newfoundland was 'rediscovered' in 1481, since the island can also boast of the very first European settlement in North America at l'Anse aux Meadows, where Leif Eriksson landed following Bjarnir Herjolfsson's discovery of Vinland in the 10th century.*

*Since the first fishing voyages from Portugal and England in 1501, the Banks of Newfoundland have brought virtually uninterrupted prosperity for many nations, for five centuries. I draw your attention to these considerations, Ladies and Gentlemen, in order that you*

*may fully understand the severity, and the extent, of the economic and social trauma resulting from the recent collapse of the cod stocks. This is a subject to which we will be returning in more depth later in this opening session.*

*Turning, for the moment, to some specifically ICES matters, I would like to welcome, on behalf of everyone, the accession of Estonia as a full member of ICES. Estonia has thus become our 19th Member Country, having been an Observer last year and an Associate Member a long time ago from 1923 to 1927. And in recognition of this accession, the Estonian flag will be given pride of place by the ICES flag in the hotel lobby entrance for the duration of the Conference.*

*We on our part have been working hard in the Secretariat to implement various improvements in the way we run the Annual Science Conference, as we now call the meeting; this will become evident as the meeting progresses. We hope these improvements achieve the measure of success envisaged by you when you recommended them. One suggestion, which I will now act on, was for me to explain the essential working of the Conference for the benefit of first-time participants, starting with the identification of the platform party.*

*Most of the people up here are the ICES Vice-Presidents, known collectively as the Bureau, which means in effect, the Executive Committee of ICES - the people who have responsibility for conducting the Council's affairs throughout the year and for arranging the annual Council Meeting. In order, from the far end of the platform we have:*

- 1. The Chairman of the Consultative Committee, Dr Colin Bannister, who is Head of the Shellfish Resources Group in the MAFF Fisheries Laboratory in Lowestoft, England. The Chairman of the Consultative Committee functions as the ICES Chief Scientist. He is Chairman of the Committee which is charged with responsibility for advising the Council on scientific policy;*
- 2. Dr Pentti Mätkki from Finland, Director of the Finnish Institute of Marine Research in Helsinki;*
- 3. Mr David MacLennan from the United Kingdom, Deputy Director of the SOAFD Marine Laboratory in Aberdeen;*
- 4. Dr L. Scott Parsons from Canada, the Assistant Deputy Minister of Science, Department of Fisheries and Oceans, Ottawa;*

5. *Our Guest of Honour - he is not a member of the Bureau yet, but he has other rather more serious elections from time to time than our elective posts - the Honourable Mr Brian Tobin, the Canadian Minister of Fisheries and Oceans;*
6. *M Alain Maucorps, our First Vice-President; this traditionally means that he is in effect President Elect, and would be expected to succeed me on 1 November. He is Head of the Fisheries Resources Department in IFREMER, Nantes, France;*
7. *Dr Pierre Hovart, Director of the Fisheries Research Station at Ostende, Belgium;*

*and of course the General Secretary, Professor Chris Hopkins.*

*ICES has 14 Standing Committees in addition to the Consultative Committee: 12 Subject/Area Committees and two Advisory Committees, the Chairmen of which form the Consultative Committee. You can see them listed on the back of your Blue Card, which you should carry with you at all times during the Conference. This card tells you where the sessions are, who is running them, and who you need to talk to in order to get things done if you want to make a proposal during the business of the Committees. The appointed members of the Subject/Area Committees serve as national contact points for their Committees' work. In the body of the Blue Card's timetable, you will see that in addition to relatively short sessions of each of these Committees, there are Joint Sessions of two or more Committees as well as several special Theme Sessions on matters of topical importance. We regard these sessions as being much more important now than in the past when we used to rely entirely on the Committee structure to fuel scientific progress. Now they are considered essential to ensure the full degree of interdisciplinary communication which the Conference is all about; this is being tackled through the Theme and Joint Sessions.*

*It is vitally important for you, particularly newcomers, to understand that all these scientific sessions are open to everybody. Except for the meetings listed in the bottom right-hand corner in the inside of the Blue Card, which have restricted access, all sessions are completely open. To help you be in the right place at the right time, your Yellow List of papers, which you will find in your pigeonholes, also has a set of Agendas and Timetables attached on green paper, the so-called Green List. The latter is an innovation this year.*

*The Annual Science Conference has three general functions:*

- A. *to report on progress across a very wide range of marine science topics;*
- B. *to identify gaps in our knowledge;*

- C. *to make recommendations regarding co-operative research activities designed to fill these gaps.*

*The last function is fulfilled by drawing up Committee Recommendations. And again, to first-time participants, join in this process; all the scientific discussions are open to all participants. The Recommendations then go from the Subject/Area and Advisory Committees to the Consultative Committee, where they are tidied up, amended and co-ordinated so that duplication is avoided and that all of them are scientifically justified. Finally, the package of Consultative Committee-approved Recommendations is put to the decision-making body of the Council, the national Delegates, where they are endorsed as Council Resolutions.*

*I draw to your attention the Convenors' Report on the highly successful ICES Symposium on Zooplankton Production, which was held in Plymouth, England, for five days in August and in which 215 scientists from 22 countries participated. The Symposium was co-sponsored by the Scientific Committee on Oceanic Research (SCOR) and the Intergovernmental Oceanographic Commission (IOC), and took place in the first-class facilities of the University of Plymouth. The Convenors' Report is available at the back of the room and in the Documents Room. The document containing Observers' Reports from our representatives attending meetings of co-operating organisations is also available.*

*Turning for the moment to the past, it is my sad duty to inform you of the deaths of former ICES colleagues which have occurred during the past year.*

*Professor Adolf Bückmann, Germany, died in Hamburg on 7 December 1993 at the age of almost 94 years. His affiliation to ICES commenced in 1928 and continued for 35 years. He was one of the pioneers of modern fish population dynamics theory, based principally on his work on North Sea herring and plaice, but his contributions to marine science covered a range of topics, particularly the effects of the environment on fish stocks. Professor Gotthilf Hempel writes in his obituary for Adolf Bückmann: "With the death of Adolf Bückmann, ICES has lost one of the last leading figures in the Council's pre-war history". It was Bückmann who in the turmoil after the Second World War led Germany back into full membership of ICES.*

*Mr Tony Burd, United Kingdom, likewise made sustained contributions to herring research during a lifetime's work at the Fisheries Laboratory in Lowestoft. He chaired the Bløden Herring Tagging Working Group in the early 1970s and was a long-standing and active member of Herring Assessment Working Groups - several of them in succession - for many years.*

*The untimely death of Dr John Gamble, United Kingdom, in August 1994 overshadowed the Zooplankton*

*Production Symposium, of which he had been one of the leading organisers. A widely respected scientist, he had moved in recent years from the Marine Laboratory, Aberdeen, to Plymouth, where he became Director of the Sir Alister Hardy Foundation for Ocean Science.*

*M Marc Giret, France, died on 2 July 1994 at a relatively young age. He had worked on flatfish at the IFREMER Laboratory at Ouistreham and had been a member of the North Sea Flatfish Working Group, the Study Group on Beam Trawl Surveys and the Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak.*

*Ms Sigthrudur Jónsdóttir, Iceland, died in Reykjavik on 14 February 1994. For more than 30 years she had been the principal ICES contact for the supply of Icelandic oceanographic data.*

*Mr Rodney Jones, United Kingdom, died on 11 May 1994 at the age of 66, after a long illness. He joined the Marine Laboratory in Aberdeen in 1948 and became widely known for his work on fish population dynamics and modelling, particularly for the development of length-based stock assessment techniques. He had a warm and engaging personality and was a fine teacher. I personally experienced all these qualities of his.*

*Mr Arthur Lee, United Kingdom, died on 28 December 1993, aged 73. Among the ICES offices he held, the most notable were as Chairman of the Hydrography Committee, Chairman of the Consultative Committee in the early 1970s, and Chairman of the Advisory Committee on Marine Pollution in the early 1970's. In 1980, he retired as Director of the MAFF Fisheries Laboratory in Lowestoft.*

*Finally, Mr Hans Tambs-Lyche of Norway died on 27 July 1994 at the age of 81. As General Secretary from 1965 to 1983 his contributions to the development of ICES were many and far-reaching. A man of many parts, as his obituary in the current issue of the ICES newsletter shows, he had been actively involved in many things, including Bergen's post-war housing allocation authority - work which he found challenging in those very difficult times but which was very rewarding to his strong humanitarian instincts. As a member of his Secretariat staff in the early 1970s, I can truly say: he was a great person to work for.*

*I would ask you now all to stand for a few moments of silence in memory of our friends and colleagues.*

*I now hand you over to the Chairman of the Consultative Committee, Dr Colin Bannister, who will inform you about some of the main scientific themes of this Conference.*

**Dr Bannister** reported as follows:

*My task in essence is to reassert our sense of mission and later on to underscore the contribution that the 1994 Annual Science Conference can make to that mission. When I come away for a meeting like this, new acquaintances back home often say, "What a great job you seem to have, but what do you actually do?" In response, I tell them that we are trying to describe and explain the courses of trends and fluctuations in the living marine resources and their environment, and that we advise on the management of the fisheries and the environment in order to maintain what we can of the fishing communities. That latter part is a critical area in my mission statement since I spent a lot of teenage years in the once great port of Hull on the east coast of England, which of course is now a shadow of its heyday, although it still buys a considerable amount of fish from elsewhere. But it was those years that made me want to become a fishery biologist. When pressed for details, I remind my friends of some of the things that perhaps we tend to take for granted when we come to a meeting like this. Firstly, we are predominantly dealing with the life cycles of individual species, including the life history stages of eggs, larvae, juveniles and adults. These life cycles take place in a particular habitat of a certain type, quality and, we hope, integrity. There are, of course, conflicts in habitat usage. Each of those life cycles has a demography aspect; the numerical aspect and the distributional aspects in time and space. A component of that is the behaviour of the individual animals themselves. We look at that on an individual species basis, but increasingly we are looking at the interactions within and between the species, and obviously between species and their environment. The end-result determines the abundance of the living marine resources, which in turn is a critical factor which affects the fisheries. Increasingly in our deliberations we are also talking about the enhancement and cultivation aspects which can bolster the wild stocks. The demography and life history aspects take place in a geographical location which has a climate, a hydrography and a production system which are characteristic and vitally important. On the other hand, we also have the fishery factors which are associated with the markets and the fleets, the fishing gear and the capture process, and the distinction between target and non-target species. Perhaps we have forgotten that the market fleets and search aspects involve people who have a psychology and a culture which affects the way they do things and the way they respond to what we do. In that sense, the role of ICES in the end is scientific co-ordination, investigation and analysis, leading, of course, to our assessments and our advice in both the fishery and environment wings. As has been self evident over the last two or three Annual Science Conferences, we have been progressively trying to merge the interdisciplinary aspects of that assessment and advisory process.*

*So in relation to this particular meeting then, we have an Open Lecture with a response from a fishery manager,*

and a Theme Session T, which focus on critical aspects of the fishing process, its assessment and management, and its implications in the bioeconomic and social spheres. We have deliberately backed up the Open Lecture this morning with the first part of Theme Session T for the sake of continuity. We have also: a Theme Session on 'Non-Target Species', something that has been long overdue; a Theme Session on the 'Multispecies Interactions of Importance to the Groundfish Abundance Fluctuations'; a Theme Session on 'Pelagic Fish and Plankton Interactions in Marine Ecosystems' which is obviously critical to the concept that abundance may well be determined at an early stage in a life history; two major hydrographic Theme Sessions, one on the Baltic Inflow and one on the medium and longer term time and geographical scale circulation changes in the North Atlantic, which are obviously critical to the whole overview of the coupling of biology and recruitment processes; and three Joint Sessions between Committees on the 'Occurrence and Effects of Contaminants in Marine Mammals', the 'Quality Assurance of Marine Measurements', and 'Estimating Abundance from Fishing Surveys and Acoustic Measurements'. The principal session is the Mini-Symposium, which is a critical look at the relationship between fish migration, distribution and hydrography.

The Subject/Area Committees fall into various different categories. The majority of these are essentially related to specific groups of organisms, technical activities or geographical areas. We are actively trying to bring them together to provide a more comprehensive approach to interdisciplinary and ecosystem studies. In the Mariculture, Marine Environmental Quality, Biological Oceanography and Hydrography Committees the work is increasingly being focused on the environmental protection and ecosystem change and management contributions.

Last but not least, the Committees have a very important business component, which is to review the Working/Study Groups and Workshop reports and to further task new developments in the scientific field. However, when you go away to your individual Committees and your specialities, please do not forget the 'big picture' which I have just sketched out earlier on in this presentation. The bottom line is always the assessment and management of the living marine resources and the oceanographic and environmental links between them.

Enjoy the Conference!

The President then introduced the Canadian Minister of Fisheries and Oceans, the Honourable Mr Brian Tobin:

We are aware, Sir, of the traumatic impact which the collapse of Canada's Atlantic cod stocks has had on the economy and social fabric of this region. We realise that

we are witnessing a crisis of unprecedented proportions for the coastal communities, a crisis which threatens to destroy a distinctive way of life which has evolved over centuries. Nobody can tell what elements of that unique social structure will survive, neither in what way nor to what extent. Those of us who are fisheries scientists and economists realise above all else the awesome responsibility we hold for monitoring events as they develop, and for formulating the best and most realistic forecasts we can. While this meeting is not constituted to formally draft advice, we do point to several scientific themes which have direct relevance to Canadian fishing interests, such as ways of improving the link between fisheries science and fisheries management, the fisheries implications of large-scale changes in water circulation patterns in the North Atlantic, and the effects of multi-species interactions on the abundance of groundfish.

We seek to complement the management responsibilities of politicians and administrators, particularly in areas such as yours where the need for courageous decision-making has been squarely faced.

Ladies and Gentlemen, Mr Brian Tobin.

Mr Brian Tobin, Minister of Fisheries and Oceans, gave the following address:

Thank you, Mr President, for your kind introduction.

I noted earlier that the sense of humour evident in some of your earlier remarks has not gone astray, and as a Newfoundlander I am proud to note that, because we were concerned when we sent the first settlers from Newfoundland to Ireland that the cultural traits not be lost. And of course they have not been.

It is a pleasure for me to welcome to St John's, Newfoundland, the 82nd Annual Meeting of ICES, the second such meeting to be held in Canada. It is appropriate, perhaps, that the oldest marine science organisation in the world, certainly the most prestigious, should meet in the oldest incorporated city of North America and in, as you said, the province that holds the site l'Anse aux Meadows, the first landing place of the Vikings, the Europeans in North America. It seems that we are having in Atlantic Canada almost a week of conferences all through the region. Yesterday, I was in Nova Scotia, in Halifax, where I addressed the Coastal Canada Conference 1994, with some 700 delegates from far and wide gathering to talk about co-management of our coastal areas and our coastal resources. Yesterday as well, in Dartmouth just across the harbour from Halifax, the Northwest Atlantic Fisheries Organization (NAFO) began its deliberations. Clearly, all of you gathered here with your great body of knowledge and your great experience and expertise have for many years been seized with the problems, with the potential, and with the challenges of managing the living resources of the

oceans. Just as clearly, a great deal of the population, those not living in coastal communities and not directly seized with responsibility for science or developing new knowledge and new techniques for management of the resources of the oceans, are now also paying attention: increasingly all around this planet we see ourselves confronted with rapidly diminishing resources, displaced - as a consequence - coastal communities. This past summer, notwithstanding all the advances we have made in the evolving societies and relationships between nations and regions, conflict has been the order of the day. I see some faces here that I saw in New York at the UN Conference on High Seas Fishing. We were talking about developing a binding Convention, governing the conduct of nations fishing on the high-seas, both with regard to straddling stocks and highly migratory species. It was ironic that while we were there, we saw nations that are otherwise good neighbours or that have enjoyed good relationships, mature relationships, in conflict everywhere in the world on the high-seas. The source of the conflict is directly related to your work: diminishing resources, displaced capacity, people in search of new resources to exploit, and of course confrontation. When one looks at that situation at a time when we are seeking solutions and co-operation, one realises the importance of the work that you do, individually in your own respective jurisdictions attached to government and to academic institutions, and collectively as the oldest marine science organisation in the world today - a voice that can not only explore mysteries of the deep but a voice that can speak with a degree of integrity, and I believe with a degree of selflessness, that is otherwise missing in all of these discussions about the management of our resources.

St John's is an appropriate place for you to gather. St John's plays a major role in Canadian fisheries and oceans science. The Department of Fisheries and Oceans operates the Northwest Atlantic Fisheries Centre. Memorial University operates both the Marine Laboratory for basic research and the Marine Institute for applied science. And as your President has noted, you are here in Newfoundland at a time of crisis for groundfish resources in the Northwest Atlantic. The great, the tremendous, the historic abundance of fish resources - and fish means cod, as you said, Mr President - that once dominated these waters and nourished these settlements as the very 'raison d'être' for human settlement over 500 years ago and still remaining here, have been depleted. They remain very frail elements of these once quite vast resources.

Canada's first priority against this backdrop is to protect what little is left of these resources. We know that we must let nature take its course. For now that course may include very adverse environmental conditions and dangerously low levels of spawning stock. But sooner or later, if we protect what is left, there will be, we believe, rebuilding and renewed harvest, and then, if we are

prudent, there will be healthy sustainable yields for the future.

If this year some suggest that Canada has been assertive in protecting these resources, it is because we believe the resources have come very close to, and perhaps, one might argue with respect to some stocks, have arrived at the point of, commercial extinction. When faced with an emergency, one must be prepared to take emergency measures. This we have done. Anything else would be irresponsible to present and to future generations.

But, we must do more than simply 'wait for the fish to come back'. We must also be ready to effectively conserve and manage resources when harvesting begins again. We must never allow a crisis like this to occur again. There is no accident here, there is no mystery here or indeed in many other places. There is an 'eyes wide open policy' management regime, management protocol, ethic - or lack of ethic - at work in too many places around the world. Canada shares a burden of responsibility for that lack of proper ethic. No nation is alone in assigning to itself virtue in these matters, and no nation is alone in sharing the burden of blame if blame is to be assigned in these matters. But we have, with our eyes wide open - too often notwithstanding the evidence and the science or the voice of caution (often a voice heard from those within this room) - proceeded dangerously and recklessly down the path of overexploitation, and this practice must stop. It can only stop with a new ethic. It can only stop if there is at the political level, the management level, a new commitment. A commitment must be not a commitment of convenience but an unshakeable commitment to the principle of 'sustainable development'. The Brundtland Commission, in its 1987 report "Our Common Heritage", defined sustainable development as development that "meets the needs of the present without compromising the ability of future generations to meet their own needs". That is a goal to which I am committed.

As the Minister of Fisheries and Oceans, I have responsibility for conservation. I also have a strong interest in the health of the fishing industry and the well-being of those who rely on the fishery, but I must always put conservation first. If we protect the resource, if we sustain the resource, the resource will sustain the fishermen and the fisher-people, and will sustain ultimately the coastal communities.

You know - and I have had some fun with this in Canada, I have been advertising that I intend to be 'the voice of the fish'; knowing that as these fish do not vote it is not a good policy for a politician. But it came home to me very quickly when I became Minister of Fisheries and Oceans, having been in parliament for about 14 years, that as we sat around the table, in every meeting, industry consultations, somebody stood and spoke for the fishermen, saying 'There must be enough fish to ensure

that we work long enough this year, that we can qualify for the social contract, qualify for unemployment and insurance in the off-season. There must be enough fish, Minister'. Somebody spoke for the processor, saying 'We have made large investments, based on our share, our allocation of the resource, we have gone to the banks and we have borrowed and there must be enough fish to allow us to make our mortgage payments at the bank'. And the Provincial government said 'Unemployment is high, there must be more fish-plants, more licences to ensure that we respond to our commitment to create jobs'. Every voice that was heard demanded of the Minister of Fisheries and Oceans the only capital that he had - fish - and nobody spoke for the fish!

Now I believe we need a new standard, those of us who have responsibility in the area of conservation. And the standard is to acknowledge that we cannot regulate and manage in detail the lives of every fisherman, although we wish we could. We cannot be responsible for the borrowing practices or the business plants of the large harvesters, whether it be to finance the massive fleets, the excess capacity in the fleets or the processing plants. We only have one thing we might be able to do modestly rather well: that is to protect and manage the resource, and if we can do that, the rest will follow.

Without a commitment to the principle of sustainable development, the best science in the world, I regret to tell this room of scientists, is of little use. The science, represented here of course, may be interesting, and the knowledge gratifying and exciting, but unless it is given application, unless it is heeded and unless the science comes before political, economic, business, social or other considerations, then we are going to be in trouble.

To achieve sustainable development in practice requires political commitment backed by good science, and good science includes a workable framework for decision making. One approach that seems promising involves the use of the precautionary reference points. These would include a target reference point for safe harvesting that on average should not be exceeded. These would also include a limit reference point that if reached would automatically trigger a predetermined conservation measure. An example of such a limit reference point is the case when a spawning biomass falls below a certain level and a moratorium is automatically triggered. A moratorium should not be triggered by political compromise or by deal-making; it ought to be triggered when it is necessary.

I said a moment ago that NAFO is meeting even as we meet, and NAFO will consider the science on 3M cod, for example, where some years ago there was a moratorium. The moratorium was dropped after a few years because nobody paid any attention to it. But the NAFO Scientific Council has again recommended a moratorium. The NAFO Scientific Council has

recommended a precautionary TAC on shrimp. Will we let the bottom line supersede the science? Will we listen to the Scientific Council report? The NAFO Scientific Council report has said Greenland halibut are in great difficulty. Over-exploitation is occurring. Rapid decline is under way. NAFO, act! Will those who make the decisions put science first, or will the business plan dictate a series of compromises? This is what we must see happen: whether or not the work, the value, the investment - as a significant and tremendous and important investment represented here in this room - are given true meaning and life and relevance in the other room where decisions are made. And I want to make clear that I am not judgemental: Canada has overfished. Canada in the past has compromised. Canada has turned a deaf ear to its scientists. Canada is in trouble today because Canada has not adopted the kind of standard that I speak about today. So we have no monopoly. But I can tell you that we have adopted a new standard. We have imposed a standard on ourselves that we seek from others, and we pay the heavy price for that: 40 000 people today displaced from their jobs. From fish, as you said, Mr President - cod - no longer being available. I sat in the room last week on the great northern peninsula of Newfoundland very near the site where the Vikings landed in L'Anse aux Meadows, a place called Flower's Cove, and it was a room not quite as elegant as this one but the crowd was equally large; I confronted a room full of faces. People were watching, they were paying attention, there was silence in the room. It was a room full of fishermen and plant workers. And while I had their attention as much as I hope I have your attention, while they were as alert as you are, there is a fundamental difference. Here there is interest, here there is work to be done, here there is a mission, there is a cause, there is a crusade, life has meaning, this is what you do. Before you start, you pause and take a moment to reflect upon the work of others who passed on, and then you carry on: The continuity of an organisation dedicated to a field of work at discipline. But in that room there was little expectation, there was genuine fear. Not fear of the loss of a pay-cheque, not fear of the loss of an income, but fear of a loss of orientation and loss of a way of life. This is why I live here on the great northern peninsula. Fifty yards away my house is built from the salt water. There are no trees, there are no minerals, there is no tourism sector, there is no manufacturing base, there is no information or knowledge-based industry; there is an ocean. There is ready access to a resource. There is a laboratory that could sustain the resource and now it is gone. It is healthy for me as Minister of Fisheries and Oceans, having spent the first year on the job largely immersed in the papers, in the meetings, in the dialogue, in the discussion, to look into the face of the consequence of failure to manage with some integrity and courage, our resources - and that is what your work is all about. That is why your work is so important. And that is why more than ever the work you will do and the workshops you have described, the conclusions you will draw, the advice that you will give is

being listened to again. Governments, and managers, need your continued commitment to excellence of science, excellence in research and integrity in your approach to understanding, as I said earlier, the possibilities, the problems and the potential of our oceans.

*I am here to salute you in your work - to thank you for your work - and to tell you that I, and indeed those lost displaced souls in Flower's Cove, count on you to continue your excellent pursuit on behalf of all of us.*

Thank you!

**The President** responded:

*Minister, I think that sustained and totally spontaneous applause speaks much more eloquently than I can, but I can truly say that in many years of participating in and attending these meetings, and these opening sessions, we have heard many different types of speech in the slot which you have just occupied. We like to give an opportunity to the local Minister to say things that are of relevance to him or her and to the region. However, I can honestly say that we have never listened to such a thoughtful presentation, which not only sets the scene for us but stimulates us as well, by being not just an address but a real contribution to our conference. I thank you most sincerely for that and for coming here this morning.*

**The President** welcomed Professor Jacqueline McGlade (United Kingdom), who would present the Open Lecture on "Putting Fishermen into Fishery Models".

**Professor McGlade** presented a 40-minute lecture, illustrated by slides and video recordings, on the need to describe and understand the activities and behaviour of fishermen as a key to better fishery management and regulation. The paper on which her lecture was based will be published in the *ICES Journal of Marine Science*.

**The President** thanked Professor McGlade for her excellent lecture and called upon Mr Herb Clarke, Chairman of the Canadian Fisheries Resource Conservation Council (FRCC), to respond to the lecture theme.

The address of **Mr Clarke** follows:

*Thank you, Mr President. Good morning, Ladies and Gentlemen.*

*I consider it an honour to have been asked to say a few words this morning in your opening session on the subject of 'Putting Fishermen into Fishery Models'. I had some sympathy with Professor McGlade in following the Honourable Brian Tobin's speech. I have to follow both, so that makes it even more difficult.*

*I would like to try to integrate some of the comments that I understood the Minister was saying with some of the views put forward by the Open Lecturer, related in my own words to the theme of this morning's session which is: 'Putting Fishermen into Fishery Models'. I personally believe that this is part of the solution to the problems with which we are faced, and I would like to start off by referring back to the reality of our situation here in Eastern Canada and the Western Atlantic where, although we have very large and enviable pelagic and shellfish fisheries, we do in fact have a major crisis in our groundfish stock.*

*Just five or six years ago the annual harvest from our groundfish resource was in the order of 1.2 million tonnes, in general accordance with established TACs. This year our harvest will be approximately 15% of that amount, in the order of less than 200 000 tonnes. For cod - or 'fish', as the President mentioned this morning - the numbers are even more dramatic. In 1988, 50% of our total groundfish was cod, in the order of 600 000 tonnes. This year we have one very small fishery in south-west Nova Scotia for cod with a TAC of 13 000 tonnes. Many of the fisheries have been closed and, as the Minister indicated, tens of thousands of fishermen and plant workers have nothing to do on the oceans. However, the fact that our resource and our fishery is in such bad shape also gives us a wonderful opportunity to do things differently than we have done in the past. My observation is that there is a desire and a need for more responsible participation by fishermen and the fishing industry in the decisions that affect them.*

*I want to start with science. At the moment our objectives, of course, are to rebuild the stocks and to be wise enough to know when to reopen fisheries and to have the proper threshold levels and indicators of stock health and the like, and to take more of a multi-disciplinary approach, particularly an ecological approach, to science and management. In fact, a number of fishermen have been quite cynical about their role in the science process. Similarly, a number of scientists have been quite cynical about the contribution that fishermen might be able to make.*

*I think there are two basic areas. The first is knowledge itself. And the challenge, I think, is to find a way to sort out and to better factor into stock assessments the practical knowledge and experience that fishermen have about fish stocks and about the oceans. The second major area is the question of participation: the actual participation of fishermen in the collecting of data in a disciplined way when fisheries are closed, for example, as they are now, as well as the effective involvement of fishermen more in the actual conduct of scientific surveys. To do this, we have to forge real partnerships between fishermen and scientists. We have to do it because it will improve the data we will receive and it will also improve the resulting science. Fishermen constantly tell us in the*

FRCC that they want to work more closely with scientists. Scientists tell us they want to work more closely with fishermen. Why then doesn't it happen more often? I think that this in itself is a good subject for a research initiative. It's really not that easy to build an effective partnership. We think we know exactly how to do it, but I think really it would be a good subject for research. For my contribution, I would like to think that a good partnership, somewhat like marriage, depends to a great extent on the choice of partners. Fishermen are not a homogeneous group, no more than fisheries sciences are, or indeed, fisheries managers. To be effective the fishermen partners have to be representative and they have to be respected. These are not necessarily the fishermen who would volunteer to participate in the programme. On the other hand, the science partners have to be ones who really believe that they will improve the quality of your science by this partnership. It has to be a 'two-way street', otherwise it won't be effective and it certainly won't last. There are some good examples in Canada of partnerships which are emerging; some are fledgling and some are well established. I could refer just to a few, some are the 'index fishermen' programmes which are in existence in certain fisheries, some in shellfish and some in groundfish. There is a concept which is certainly gaining a lot of momentum here at the moment, and this is the concept of a partnership for sentinel fishermen or sentinel fisheries. We have so many areas where fisheries are closed that really the only data that we collect are from the 'once-a-year scientific survey'. A proposal is that the would-be sentinels, fishermen who are selected and who are trained in a disciplined way, would participate in a very modest type of fishery where the data from that would be useful to the scientist and in complementing the information that comes from the various surveys. This is a concept which is gaining momentum both in the scientific community and certainly in the fishing community. Some progress has been made there and hopefully much more will be in the near future. Another area I would mention is a development in neighbouring Nova Scotia, where we have the Fishermen and Scientists Research Society, an active non-profit organisation designed to better improve the relationship between fishermen and scientists with a view to collection of data.

Understanding the behavioural and motivational actions of fishermen is vital for our fishery models. This implies scientifically studying fishing practices, the advances in gear technology and the pressures that come from over-capacity, but it also implies increasing our understanding of the attitude and the behaviour, and the pressures that the skipper is under when his vessel goes to sea. These pressures come from the need to make an adequate living, from the need to pay mortgages, from the need to follow very intricate and sophisticated micro-management measures with respect to the fishery. These pressures result in certain actions which have to be recognised and have to be reflected in the models that we use.

Finally, moving along from science into management, I would like to refer back to something the Minister mentioned earlier about the meeting that is going on in parallel with this Conference, the Coastal Zone Management Conference in Halifax, Nova Scotia, where many of the views on co-management and some of the approaches that have been mentioned by Professor McGlade will be discussed in considerable detail. Across the harbour in Halifax is the NAFO Conference, where some fishery managers are struggling to come to grips with flagrant overfishing of certain stocks. There are other fishery managers at the same meeting who I think are still waiting for the elixir of precise scientific data and precise scientific information. They are looking for the answers and the numbers, and they are using every bit of uncertainty associated with the scientific advice as an excuse to continue fishing practices which they know intellectually are wrong. That has to change and I think is changing. So my comments with respect to new management approaches would be twofold: the first point is that with all of the thinking about the different alternative approaches that are available, the important thing is not to look for one management approach which would be applied across the board and which could satisfy all of our requirements. For example, in eastern Canada I believe that there are some management approaches which are more appropriate to certain fisheries than others, and I think the real challenge is in being able to identify what is the appropriate management approach for particular fisheries, and to have the flexibility within the system to actually implement that approach. The second point I would make concerns the need for ongoing and continuing research into the various management approaches; here it is my observation that the research in that particular area is lagging behind the research with respect to new approaches for scientific assessments and the like. It's very important that the fisheries managers and the fisheries operational people buy into the fact that more research is needed into these management areas and that they participate in the process.

In closing, I would like to formally thank the planners of the ICES Annual Science Conference for their choice of the topic 'Putting Fishermen into Fishery Models'. It is a particularly appropriate one, given our current times.

Thank you very much!

The President warmly thanked Mr Clarke for his valuable remarks which he was sure would contribute to an encouraging start to Theme Session T due to follow the General Assembly. He concluded:

*In case one were to get the mistaken impression that ICES is only a fisheries-oriented body with fisheries science and advice to fishery managers occupying a fairly large part of our overall activities, it is vital to acknowledge that this area is but one of many key areas of engagement*

*in the activities of the organisation. ICES, uniquely it seems, can provide for linkages and crosscommunication in many directions internally and externally, through oceanographers and chemists and throughout the range of environmental and biological sciences that we have represented in our activities. Now, for the first time this*

*year, we have added fisheries economists and sociologists into that network, and we hope that this will be fruitful for all of you. Certainly we have got off to a good start to the Conference.'*

The **President** adjourned the General Assembly at 11.00 hrs.

## DOCUMENTS

- Gen:1                    Observers' reports from cooperating organizations
- Gen:2                    ICES activities in 1993/1994
- Gen:3                    Election of standing scientific committee Chairmen at 1994 Annual Science Conference (82<sup>nd</sup> Statutory Meeting) (E+F)
- Gen:4  
Ref. A + Del            Report of the Mid-Term Meeting of the Consultative Committee, ICES Headquarters, 1-2 June 1994
- Gen:5                    Advance Release of Tables, 1-6 of ICES Fisheries Statistics, Vol. 78, 1993
- Gen:6                    1993/1994 overview of ICES Committees and subsidiary Groups and their "shadowing" by Secretariat staff, and schedule of ICES Meetings and assigning of document codes

(E + F) = in English and French

## CLOSING OF THE SCIENTIFIC SESSIONS

Radisson Plaza Hotel, St John's, Newfoundland  
Tuesday, 27 September 1994

The **General Secretary** opened the Closing of the Scientific Sessions at 12.30 hrs and announced:

- Five new Chairmen had been elected for the following Subject/Area Committees: **Mr Harald Loeng** (Norway), Hydrography; **Dr Robin M. Cook** (UK), Statistics; **Dr Robert L. Stephenson** (Canada), Pelagic Fish; **Dr Kevin Friedland** (USA), Anadromous and Catadromous Fish; and **Dr Harald Benke** (Germany), Marine Mammals.
- **Dr Peter Hoogweg** (Netherlands) and **Professor Alfred Post** (Germany) had been elected as new Chairman and member, respectively, of the Finance Committee.
- **Dr Michael P. Sissenwine** (USA) had been elected Chairman, and **Professor Peter Boyle** (UK), **Dr Olafur Astthorsson** (Iceland) and **Dr Kenneth Foote** (Norway) had been elected members, of the Publications Committee.
- Three new Vice-Presidents of the Council had been elected: **Dr Ingemar Olsson** (Sweden), **Dr Rafael Robles** (Spain) and **Dr Michael P. Sissenwine** (USA).
- **M Alain Maucorps** (France) and **Dr L. Scott Parsons** (Canada) had been elected as President and First Vice-President, respectively, of the Council.

The Council was most appreciative of and thankful for the services of the outgoing Chairmen, Vice-Presidents and President.

The number of registered participants at the Annual Science Conference had been about 500, close to the record set in 1993 in Dublin, Ireland. Poster presenters should remove their materials, and Committee Chairmen and Convenors/Rapporteurs of the Mini-Symposium, and Theme and Joint Sessions should submit their reports to the Secretariat as soon as possible.

Lastly, on behalf of all the participants and the Secretariat, warm thanks were conveyed to the Canadian Delegates (Dr L. Scott Parsons and Dr Michael M. Sinclair), and to Mr Larry Coady and Ms Michelle Roberge and the staff of the Department of Fisheries and Oceans' Northwest Atlantic Fisheries Centre for the excellent arrangements and kind hospitality.

The **Chairman of the Consultative Committee** announced the prize winners for Poster, Paper, and Young Scientist awards, and he and the President presented certificates and gifts:

- a) **Best Paper Presentation Awards** to **B. Hansen, H.P. Joensen and V.E. Michelsen** (Faroe Islands) for Doc. C.M. 1994/S:5 "Bottom temperature between Iceland and Shetland 1906-1962 measured in telegraph cables" and to **K. Friedland and R. Haas** (USA) for Doc. C.M. 1994/M:7 "Patterns of post-smolt growth and early maturation of Atlantic salmon (*Salmo salar*);
- b) **Best Poster Presentation Award** to **P. Roose, K. Cooreman, H. Hillewart and W. Vyncke** (Belgium) for Doc. C.M. 1994 /E:22 "PCB's in cod, flounder and mussel from the Belgian continental shelf in the period 1983-1992: trend analysis and tissue distribution".
- c) **Young Scientist Award** to **O. Espeland** co-authored by, (**L. Kleivane, K.I. Ugland and J. Utne Skare**) (Norway) for Doc. C.M. 1994/(E+N):3 "Seasonal variation in organochlorine concentrations in harp seal (*Phoca groenlandica*) from the Barents Sea region".

The **President** expressed his deep gratitude for the support and friendship shown him during his term of office by the Bureau, Delegates, and not least the scientists of ICES who represented the heart of the organisation. He would miss the company of the Secretariat with whom he had enjoyed a very constructive and friendly relationship. He looked back with satisfaction at the period of further development that the Council had undergone during the last several years, with continuing emphasis being placed on interdisciplinary science and on attracting new persons and institutions to the ICES community. The Council's decision to establish the Bureau Working Group on the Structure of ICES would likely contribute to fresh developments in the evolution of ICES scientific and advisory capacities. It was, however, vital to maintain the effective substance of the organisation while adapting appropriately to meet present and future challenges. He passed on the Presidential Chain of Office to the incoming President, M Alain Maucorps, knowing that it was in good hands.

The **General Secretary** thanked the President on behalf of everyone for his leadership, prudence, and

humanity during the past three-years, pointing out that this had served as an inspiration at all levels in ICES. The audience expressed their appreciation with a standing ovation.

The **President** thanked all who had attended and contributed to the Annual Science Conference, wished everyone well for the coming year, and adjourned the meeting at 13.00 hrs.

## REPORT OF DELEGATES MEETING

Five sessions of the Delegates meeting were held under the chairmanship of Mr David de G. Griffith, President of ICES:

Thursday 22 September	14.30-17.00 hrs
Monday 26 September	14.30-18.00 hrs
Wednesday 28 September	09.00-13.00 hrs
Thursday 29 September	14.30-19.30 hrs
Friday 30 September	09.00-12.30 hrs

All Member Countries, except Poland at the session on 30 September, were represented at all sessions, together with the General Secretary. Other participants were the Chairman of the Consultative Committee, the Environment Secretary, the Fishery Secretary, and the Oceanography Secretary.

The **President** opened the first session of the Delegates meeting by welcoming Estonia as the 19th Member Country, on acceding to the ICES Convention, and Mr Ahto Järvik and Mr Evald Ojaveer as its appointed Delegates. He also welcomed a number of new Delegates (Professor Jan Thulin, Sweden; Professor John Pope, United Kingdom) and Acting Delegates (Mr Ronald Fonteyne, Belgium; Mr Poul Degnbol, Denmark; Dr Olafur Astthorsson, Iceland; Dr Paul Hillis, Ireland; and Ms G. Pestana, Portugal). [At the 29 September session he welcomed Dr Peter A.M. Stewart who served as Acting Delegate of the United Kingdom in place of Mr David N. MacLennan.]

The **President** quickly reviewed the agenda and indicated the sessions at which he intended to consider each particular agenda item. He requested, and received, Delegates' approval for the proposals.

### Agenda Item 1 PRELIMINARY REPORT ON ADMINISTRATION

The **General Secretary** drew attention to Doc. C.M. 1994/Del:2 with particular regard to the following points: a) the accession of Estonia, and the interest shown by Lithuania in exploring possible future ICES membership; b) changes in national Delegates and membership of ACFM and ACME; c) co-operation with other international organisations; d) Symposia held during the year or in preparation for 1995 and 1996; e) meetings of the Advisory Committees and Study/Working Groups; f) Secretariat matters, particularly improvements to security, communications systems and the establishment of a new foyer/reception area on the ground floor; and g) publication activities.

In response to an invitation from the President to comment on the presentation by the General Secretary and Doc. C.M. 1994/Del:2, the **Delegate of Sweden** noted

that the presentation had made reference to the letter sent by the former General Secretary (Dr Emory D. Anderson) in December 1993 to the Embassies of the Contracting Parties drawing attention to the serious decline in reporting and reliability of fisheries statistics. He would appreciate some additional information regarding the response to the letter. Likewise, he noted the letter from the General Secretary to the Foreign Ministers of the Baltic countries requesting that consideration be given to more flexible arrangements to allow rapid access by research vessels belonging to Baltic countries to parts of the Exclusive Economic Zone of any Baltic country during situations requiring urgent action. He would also appreciate information regarding the response to the General Secretary's letter.

The **General Secretary**, in responding to the Delegate of Sweden's inquiries, affirmed that the letter requesting improved access for research vessels had been sent to the Foreign Ministers of the Baltic countries but that this was not included in the Report on Administration; this would be redressed in the Annual Report for 1994. On both accounts, he was not as yet able to report on any clear positive reactions from particular countries.

### Agenda Item 2 COUNCIL MEMBERSHIP

The **General Secretary** reported that he had been in contact with the Lithuanian Ambassador in Copenhagen regarding interest shown by the Lithuanian fishery and environment laboratories in future Council membership. A meeting was scheduled soon between representatives of ICES and Lithuania, to identify the requisite steps leading to potential accession to the ICES Convention.

### Agenda Item 3 ELECTION OF NEW PRESIDENT

The **General Secretary** noted that in the case of agenda items 3, 4 and 5, the information governing the elections and appointments was provided in Doc. C.M. 1994/Del:7.

The elections were conducted in accordance with Rules 4 and 5 of the Rules of Procedure, the pertinent features being reviewed before the nominations and elections were proceeded with.

**M Alain Maucorps** (France) was elected as President of the Council for the three-year term commencing 1 November 1994. He thanked the Council for the confidence it had shown in electing him as President to succeed Mr Griffith. The quality of the Bureau and Delegates was an assurance of continued productive and inventive endeavours on behalf of the scientific community of ICES in the years to come.

#### **Agenda Item 4 ELECTION OF FIRST VICE PRESIDENT**

The **President** indicated that the position of First Vice-President was traditionally viewed as being the President elect who would likely succeed M Maucorps.

**Dr L. Scott Parsons** (Canada) was elected First Vice-President for the three-year term commencing 1 November 1994. He thanked the Council for its support and confidence in him.

#### **Agenda Item 5 ELECTION OF THREE VICE PRESIDENTS**

The **President** indicated that having determined the President and First-Vice President elect, it was necessary to elect three Vice-Presidents to replace Dr P. Hovart (Belgium), Mr J. Møller Christensen (Denmark) and Dr L.S. Parsons (Canada) who would be completing their three-year terms on 31 October 1994. Separate nominations followed by an election would be conducted for each vacant position. Rule 5(v) also emphasised that not more than one member of the Bureau should be from the same Member Country.

The following three Vice-Presidents were elected for three-year terms commencing 1 November 1994:

Dr Ingemar Olsson (Sweden)  
Dr Rafael Robles (Spain)  
Dr Michael P. Sissenwine (USA)

Following their election, each new Vice-President thanked his fellow Delegates for their support.

The **President** wished the President and Vice-Presidents elect all success in their office, and thanked the Council for the support provided during his period in office. Although some of the novel ideas had been his own, he had been stimulated by the outgoing and incoming Bureau members, and viewed his role as a facilitator for the momentum within the Council.

#### **Agenda Item 6 ICES MARINE MAMMALS POLICY**

The **President** reminded Delegates that a serious discussion had taken place over the last several years about the Council's engagement in research and advice on marine mammals. It had come to a head in the Delegates meeting at the 1992 Council Meeting in Rostock-Warnemünde, and clearly indicated that ICES needed to determine its policy on marine mammals issues. It would include, among others, an examination of the issues and considerations, leading to a clarification of the manner in which ICES would handle them within an agreed framework. This was considered necessary as several regulatory commissions had interests in marine

mammals, and Member Countries had varying scientific and cultural views regarding marine mammals. Doc. C.M. 1994/Del:8 (Proposal for an ICES Policy on Marine Mammals) had been produced for the consideration of the Council, with the hope that it would serve its purpose well for quite some time without amendment. The document comprised: first, a section on the role of ICES and a justification for involvement in marine mammals issues; second, current engagement and activities related to marine mammals; and third, a set of constraints setting out what would and would not be acceptable, thereby enabling activities to be kept within an accepted framework. The document had been prepared by a small group under the leadership of the Chairman of the Consultative Committee, passed on to the Consultative Committee for constructive critique at its May 1994 mid-term meeting, before being thoroughly examined and debated by the Bureau at its meeting soon afterwards. The Bureau had, on the basis of the considerations of the Consultative Committee and its own views, made some amendments whereby a greater awareness of the scientific politics had been added to the existent scientific foundations. Delegates were requested to express their views on the document.

The **Delegate of Iceland** indicated that he was quite concerned when the marine mammals policy group was established, as the group apparently lacked members who had a direct interest in the harvesting of marine mammals. However, the Delegates of Iceland had taken the President's advice that the group would deal with the matter of marine mammals policy on the basis of scientific considerations rather than be swayed by political influences. The groups' work testified, however, to the policy document being a worthy product in the scientific spirit of ICES. Iceland and other countries that were highly dependent on marine resources, including marine mammals, could accept the policy framework that was outlined in the document. Nevertheless, it was extraordinary that ICES had to carry out such steps in order to be able to work with marine mammals in the same way as it did with other marine living resources. He was irritated, however, by the rather murky constraints outlined on page two of the document regarding who should be the recipient of advice given by ICES on these matters. The question of competence was provocative as Iceland and Canada were not party to IWC. NAMMCO covered a major area of the North Atlantic with major stocks of cetaceans and seals, and was probably the major organisation actively dealing with marine mammals on a management basis. The marine mammals policy document did not clarify who was competent and who was not. The assertion was, apparently, that IWC was a competent organization in marine mammals management but that regional bodies were equally appropriate organizations dealing with this matter. North Sea countries were aware that the Bonn ASCOBANS Convention was recently established for the management of small cetaceans and seals. The NAMMCO area covered up to 70 per cent of

marine mammals in the North Atlantic Ocean. Iceland firmly welcomed as sensible and constructive the statement in the final part of C.M. 1994/Del:8 that ICES would not ordinarily undertake marine mammals investigations which duplicate research or assessment activities already being conducted by or in support of regulatory bodies. However, Iceland reserved the right to question whether particular international organizations conducted their business properly or had suitably sufficient levels of activity. Although some activities may take place in other organizations, Iceland may view these as being insufficient and would, in such circumstances, reserve the right to ask ICES to deal with matters.

The **President** noted Iceland's clear statement of position and its reservations, but understood that the proposed ICES policy on marine mammals was acceptable.

The **Delegate of the United States** acknowledged that the document had been produced as the result of difficult and lengthy deliberations, and congratulated those involved in having done their best to bring matters to a successful culmination. The United States was also concerned about the question of competency in the document, but in rather different terms from those expressed by the Delegate of Iceland. The United States had hoped that the wording would be stronger and more specific with respect to the issue of competency as in earlier drafts of the document. The United States was, at this point, prepared to accept Doc. C.M. 1994/Del:8.

The **President**, observing that no other Delegates had asked to comment on the document, thanked the Delegates of Iceland and the United States for their views.

On the basis of consensus, the statement of ICES Policy on Marine Mammals was adopted by the Council.

#### **Agenda Item 7 PROPOSALS TO CHANGE RULES OF PROCEDURE**

The **President** acquainted the Delegates with the content of the letter of 12 July 1994 which he and the General Secretary had sent to the Contracting Parties, with copies to national Delegates. The letter had been dispatched in accordance with the two months' notice required by Rule 16 governing changes to the Council's Rules of Procedure. The letter proposed that two Rules of Procedure be changed: Rule 26/26A governing the two Advisory Committees (i.e., ACFM and ACME), and Rule 20(vii) governing the auditing of the Council's accounts.

##### Change of Rule 26/26<sup>A</sup>

By way of introduction to the proposed Rule change affecting ACFM and ACME, the **President** recollected that the 1992 Council Meeting in Rostock-Warnemünde had endorsed the Rule change related to establishing ACME in place of ACMP. In retrospect, the two Rules

of Procedure in question, Rules 26 and 26<sup>A</sup>, concerning the two Advisory Committees required a greater degree of standardisation. This was necessary owing to the time elapsed since writing the Rules for ACFM and ACME, and some degree of confusion and misunderstanding caused by inconsistent word usage. Furthermore, examination of the Rules indicated that the two Advisory Committees were liable to be treated differently with respect to their 'proactive' capabilities. The Bureau had proposed the particular changes, taking into account the views of the ICES Professional Secretaries and the Advisory Committee Chairmen. The result was a single, more unified, Rule 26, governing both the Advisory Committees. As issues treated by ACFM and ACME increasingly needed to be seen in terms of both fisheries and environment, the text had to be read as 'inclusive' rather than 'exclusive' in the sense that the marine environment and interactions with living resource utilisation were included as a concept. Hence all aspects of the marine environment and all activities taking place in the marine environment were included. With this introduction, the matter was opened for comment and discussion.

The **Delegate of Canada** considered that the standardisation and unification of the operations of the two Advisory Committees as set forth in the amendment to Rule 26 was most useful. He supported its adoption by the Council.

The **Delegate of Sweden** wished to make a proposal regarding a small change to the second line of section (I), whereby "advice to intergovernmental bodies" would be replaced by "advice by intergovernmental bodies" in order to emphasise the 'demander' aspect.

The **President** replied that this aspect was considered important by the Bureau and that it had been examined by its members. It was important that the Advisory Committees should not only be able to respond to the questions addressed to them but that they also be given the possibility to be more proactive. Thus, if either of them felt that there were extra subjects that the customer was not aware of, they would be able to feel free to give advice without necessarily being asked. The advantages of this were, among others, that committees could make an input on a matter while there was still time to take remedial action rather than await for a crisis to occur.

The **Delegate of Norway** was anxious to gain clarification about procedural matters associated with the 12 July 1994 letter having been sent to the Norwegian Ministry of Fisheries and his role as Delegate. In his view, the Norwegian Government had been asked to accept the specified change to the Rule of Procedure, and so he was uncertain as to his mandate to agree on changes to the text. Had ICES received a reply or view from the Ministry of Fisheries about this matter?

The **General Secretary** responded that in communicating with the Contracting Parties, ICES had an official address for each Member Country. The 12 July 1994 letter had also been copied to the Delegates of the Member Countries. It was understood that should the Contracting Parties wish to provide instructions on their beliefs or views, they would do so through their Delegates. Thus, if ICES did not hear from the Contracting Parties in advance of the Council Meeting it was open for the Delegates to accept the proposals as to changes in Rules of Procedure, if it was so wished.

The **Delegate of Sweden**, having heard the explanation provided by the President, could accept Rule of Procedure 26 as proposed in the letter of 12 July 1994.

The **President** appreciated the consideration of the Delegate of Sweden, and wished to know whether this was also acceptable to the Delegate of Norway.

The **Delegate of Norway** confirmed that the new Rule of Procedure 26, for ACFM and ACME, was acceptable, but that he was not able to accept any subsequent amendments.

The **Delegate of Latvia** was able to accept the new Rule of Procedure 26, and recommended that the Delegates endorse it.

The **Delegate of Ireland** requested clarification on the living resources mentioned in section (ii) and the precise status of advice on mariculture which currently fell within the realm of ACME but obviously encompassed living resources. Although accepting the spirit of the revised Rule being inclusive, he felt one may need some sentence of explanation in order to avoid future conflicts of interest.

The **General Secretary** explained that the Bureau had considered such matters, and had concluded that concerns of the type just raised could be adequately attended to by including them in the report of the Delegates meeting.

The **Delegate of Germany** requested linguistic clarification with regard to sections (ii) and (iii). These sections were quite congruent until the matter of advice was reached regarding "on living resources and their exploitation" referring to ACFM, and "on the status of the marine environment (including marine pollution) and its consequences on living resources and their exploitation" referring to ACME. Would ACFM give advice on both the status of living resources and the effect of exploitation? The wording of section (iii) seemed to express matters in a more understandable manner for ACME. This might be due to a certain linguistic distinction or indeed a difference of greater 'substance'.

The **President** admitted that the Bureau had struggled with these aspects. In section (ii), the wording "The Advisory Committee on Fishery Management shall be responsible for scientific information and advice on living resources and their exploitation" had been proposed to allow for several things: the living resources themselves and the status of them and the effect of the exploitation on them and also the exploitation itself, in other words gear technology and fish capture. Development of new gear technology and the actual exploitation itself rather than the effect which exploitation had when it was applied. Similarly, in section (iii) "advice on the status of the marine environment.....and its consequences on living resources" was proposed to reflect developments whereby ACME would not solely look at pollution issues, which were specifically included, but all environmental aspects as well as the links between environmental quality and life in the sea, which were its 'resources'. These matters obviously affected human activities. Thus, these two sections of the Rule should include all the previous and foreseeable activities of the Council.

The **Delegate of the Netherlands** also desired some linguistic clarification regarding the last line of section (iii), specifically "consequences on living resources and related activities". The 'relation' was difficult to decipher, as there were consequences on living resources not related to human activities.

The **President** explained that related human activities were fishing, eutrophication, any of the uses of the coastal zone and oceanic waters. Thus, human activities could be related to both the living resources and the status of the marine environment. Requests were often addressed at marine environmental quality and contaminant levels. These were usually related to contaminant levels in fish or other organisms as food, or in terms of use of the sea for purposes such as swimming. The wording referred to in this Rule would allow ICES and its customers (e.g., regulatory commissions) some flexibility. Hence, a reiteration of the former point that the text should be viewed as inclusive rather than exclusive in its range. It attempted to be far reaching enough to encompass issues which were not specifically mentioned.

The **Delegate of the United States** was concerned about the word "or" being used rather than "and" in the second sentence of section (i): "The Advisory Committees might also provide scientific information and advice on such matters as the Council or the Committees considered relevant". His concern was that this might allow the Advisory Committees too substantial powers of freedom to speak on behalf of the Council. While agreeing with the need for the Committees to wield the correct degree of independence, it was necessary for them to work within a framework which was judged to be appropriate

by ICES. Thus, he favoured the use of the word "and" rather than "or".

The **Delegate of the United Kingdom** wondered whether one was at risk of getting enveloped by the technicalities of the English language. In the spirit of compromise, for which ICES was justly famous, he proposed that it would be pragmatic to follow the advice of the General Secretary, and heed the clarifications made by the President and others as recorded in the report of the Delegates meeting. The report would provide guidance should questions of interpretation arise in the future. He viewed the text, which had been given much thought in preparation, as satisfactory and that it met the needs of the Council. Thus, he agreed with the Delegate of Canada that it was an admirable revision. However, clarification should be provided now rather than returning the text for redrafting and waiting another year before being able to conclude matters.

The **President** thanked the Delegate of the UK for the positive advice offered. Responding to the Delegate of the United States, he recalled that the Advisory Committees conducted their tasks each year in accordance with the terms of reference agreed by the Delegates. Hence, the Delegates had the right to circumscribe sensitive matters as they desired. The previous Rule 26, referring to ACFM, had included the text "or on such matters as the Council or the Committee may consider relevant". To his knowledge this had functioned very satisfactorily, and this was the reason that the text was recommended to be retained. The Advisory Committees could then comment on matters of importance and urgency which perhaps were inadvertently overlooked when the terms of reference were drafted.

The **Delegate of the United States** recognized that this situation was long standing in the case of ACFM, and so did not represent a change. He simply wished to draw the Council's attention to the possibility that an Advisory Committee may choose to provide advice on certain issues that Delegates might not deem appropriate for ICES to become involved in. This consideration, however, ought not hinder the Delegates from supporting the important intention of the Rule change, i.e. to give equal working conditions to ACFM and ACME.

The **President**, having noted the clarification and that nobody wished to have the floor, proposed that the matter of the new, joint Rule of Procedure 26 for ACFM and ACME, i.e.

- (i) The Advisory Committees shall be responsible, on behalf of the Council, for providing scientific information and advice to intergovernmental bodies and Member Governments. The Advisory Committees may also provide scientific information and advice on such matters as the Council or the Committees may consider relevant;

- (ii) The Advisory Committee on Fishery Management shall be responsible for scientific information and advice on living resources and their exploitation;
- (iii) The Advisory Committee on the Marine Environment 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;
- (iv) The Advisory Committees shall each consist of a Chairman nominated by the Committee from among Delegates and experts and appointed by the Council, and the Chairman of such other Committees as the Council decides, and of one scientist nominated by each delegation who so wishes, and subsequently appointed by the Council. If the Chairman, when elected, is among the members nominated by the delegations, he shall cease to serve in that capacity and the Delegates who nominated him shall have the right to nominate another scientist.

be put to the vote. Having called for a roll call vote in alphabetical order, the President recorded the necessary two-thirds majority in favour and declared the new Rule of Procedure duly adopted.

#### Change of Rule 20(vii)

*[This part of agenda item 7 was dealt with after agenda items 13 and 14 had been concluded]*

The **President** introduced the requirement for the Change to Rule 20(vii) by referring to the justification given in Doc. C.M. 1994/Del:9 and to the discussion and agreement in principle which had recently occurred under agenda item 14. He also reminded Delegates of the recommendation of the Finance Committee that the Council engage its own independent firm of auditors and the budgetary provision made to cover the associated costs (c.f. agenda item 13). It was proposed that the Council adopt the new arrangement for auditing the Council's accounts, while leaving the field open for determining the precise nature and continuing involvement of the Auditor General of Denmark as proposed on the final page of Doc. C.M. 1994/Del:9. On the matter of deciding on the identity of the auditing firm, the Bureau was requesting the Council to endorse the engagement of KPMG C.Jespersen in Copenhagen, with extension of the engagement being subject to approval of the Finance Committee and the Delegates at some regular interval. It was appropriate to take these details, once they had been decided upon, into the minutes of the Delegates meeting rather than including them into the Rule of Procedure; any alteration could simply be agreed by Delegates without resorting to the intricacies of a change in the Rule of Procedure. Before going to a vote, the matter was opened for discussion and comment.

The **Delegate of Sweden** emphasised that it was vital to clearly identify who appointed the Auditor. In line with other international organizations, it was appropriate that the appointment should be made by the Council, preferably on an annual basis.

The **Delegate of the United Kingdom** proposed that the appointment of the Council's auditor be included as a standing item on the agenda of the Delegates meeting at the Annual Science Conference (i.e. Statutory Meeting).

The **Delegate of Norway** supported the views of the Delegates of Sweden and the United Kingdom.

The **President** proposed that the points made by the Delegates of Sweden and the United Kingdom be endorsed and taken into the record of the meeting. Thus, it was proposed that the appointment of the Council's auditor should be included on the agenda of the Finance Committee, and the Delegates consent could then occur in conjunction with the endorsement of the Report of the Finance Committee.

The **Delegate of Denmark** supported the conclusion that the Council and its Secretariat needed an updating of accounting and related management advice. The increase in the complexity of the Council's business and activities underlined the urgency of a change. Nevertheless, it would be advantageous to seek and attempt to agree upon an appropriate working relationship with the Auditor General of Denmark. Given the choice of keeping the current text of Rule 20(vii) or amending the text in the manner proposed in the letter of 12 July 1994, the Danish delegation would favour the former. In this way the onus would definitely be on finding a solution within which an agreed working relationship with the Auditor General was included.

The **President** reflected that a firm proposal had been made by the Delegates of Sweden, the United Kingdom and Norway for the approval of the appointment of the auditor to be included as a standard item on the agenda of the annual Delegates meeting. Further, the Delegate of Denmark had emphasised the desirability of attempting to find a formula by which the Auditor General of Denmark could be afforded a significant relationship in the future. The Bureau would ensure that transparent and open lines of communication be maintained with the Danish authorities for such purposes. He expressed his gratitude to the Delegate of Denmark for having personally assisted the Bureau deal with a sensitive and difficult matter. The Council was obliged, however, to vote on the proposal in front of it concerning the new Rule 20(vii), i.e.

The Council's Auditor shall check the invested and liquid funds as of 31st October each year as soon as possible after the date for the purpose of preparing the Balance Sheet, and they shall once annually, at such time as they may choose, in-

spect the Council's funds. The Council's Auditor may consult the Danish Delegate or delegates on any question in connection with the accounts.

Having called for a roll call vote in alphabetical order, the President recorded the necessary two-thirds majority of Member Countries in favour and declared the new Rule of Procedure 20(vii) duly adopted.

#### Change of Rule 36(iii)

*[This matter arose during the presentation of the Report and Recommendations of the Consultative Committee (c.f. Agenda Item 17), in which the Committee proposed that it no longer be obligatory for Subject/Area Committees to provide annual Reports of Activity]*

The **President**, noting that the Chairman of the Consultative Committee had requested that the Council approve a change in Rule of Procedure 36(iii) to make it no longer obligatory for Subject/Area Committees to submit an annual Report of Activities, reminded Delegates that under normal circumstances it was necessary to notify the Council two months in advance of the Statutory Meeting of an intention to change a Rule of Procedure. As Delegates had not been given prior notification of the intention to change Rule 36(iii), it was necessary for the Delegates to unanimously agree to have the matter included on their current agenda before the question of an appropriate Rule change be addressed. Any objection to discussing the proposal to change Rule 36(iii) would mean having to postpone the matter until the 1995 Annual Science Conference. Thus, it was formally proposed by the President that the Council agree to discuss a change to Rule 36(iii). Observing that no objections to his proposal had been voiced, the President emphasised that two alternatives were available: a) deletion of Rule 36(iii) in its entirety, or b) an appropriate amendment so that a Report of Activities could be compiled and submitted at the discretion of any Committee. The matter was, however, complicated by him having been made aware by the General Secretary that Rule 36(iii) also referred to information and data being submitted by the Oceanography and Fishery Secretaries.

The **Oceanography Secretary** and **Fishery Secretary** affirmed that they would not object to Rule 36(iii) being deleted in its entirety, if the Council so wished, so long as the option to produce appropriate reports remained, thus allowing the expectations inherent in their particular job descriptions to be met.

The **President** stressed that the option to report would be left open in all cases. On account of this, an amendment rather than deletion of Rule 36(iii) appeared preferable. Delegates were invited to make their opinions known.

The **Delegate of Ireland** supported the proposal for amendment, as it was clear that some Subject/Area

Committees wished to continue with the practice of submitting Reports of Activity.

The **Delegate of Norway** sympathised with the view of the Delegate of Ireland.

The **Delegate of Germany** recalled that the Rules of Procedure in ICES were established in order to ensure that actions and activities occurred, i.e. that actions were mandatory. As some Committees were for, while some were against the submission of Reports of Activity, the option to write a report should be discretionary rather than mandatory. Thus, it appeared illogical to have a "discretionary" Rule of Procedure.

The **President** acknowledged the clarity of the argument of the Delegate of Germany, which had clearly found favour with the General Secretary. Either, Rule 36(iii) should open with "At the discretion of the Chairman, ..." and update the parts referring to the former titles of the Professional Secretaries (e.g., for Statistician read Fishery Secretary), or alternatively delete the particular Rule of Procedure.

The **Oceanography Secretary** informed the President that maintenance of the mandatory nature of the Rule was likely to be problematical as, to his knowledge, no annual reports on Oceanographic Cruises had been produced in the last two decades.

The **President**, being persuaded by the need to revoke the obligation to submit Reports of Activity, but declaring that Committees and Professional Secretaries would not be obstructed in exercising their rights to continue to submit such reports if they so wished, proposed that the Council delete Rule 36(iii).

On the basis of a roll call vote, the Council agreed, by the required two-thirds majority ruling, to revoke Rule of Procedure 36(iii).

#### **Agenda Item 8 STATUS, RULES AND PROCEDURES GOVERNING DATA BASES MAINTAINED AT THE ICES SECRETARIAT**

The **President** drew attention to Doc. C.M. 1994/Del:10, drawn up by the Secretariat, as providing the background information for this item. Approval by the Delegates would be sought for the proposals a) at the foot of the right hand column on page 7 and continuing on to the following page, b) on page 11 (right hand column, centre paragraph), and c) the compendium of these points, listed on page 12.

In response to the request of the President, the **General Secretary** briefly reviewed the document and its aims. He pointed out that a number of important data bases were maintained at ICES Headquarters by the Secretar-

iat, within the fields of fishery, environment and oceanography. The data bases were either contributed to by Member Countries or by regulatory commissions with which ICES had working agreements. Some were the largest of their kind in existence. Data bases were frequently established at great cost to Member Country laboratories, through sea-going activities and the hard work of the scientists involved. The Secretariat had become increasingly aware that the data bases needed to be maintained according to good, and agreed codes of practice, particularly with regard to accessibility. In particular, the matter of accessibility was of great concern for the fishery data bases as several were used for management purposes at the national and international levels. The Secretariat had discovered that there was an unexpectedly large degree of uncertainty or even disagreement over who could be granted access to the particular data bases and under what rules of conduct. Unless this was tackled and resolved quickly one would likely see an escalation of the current difficulties. Doc. C.M. 1994/Del:10 drew attention to the specific data bases that ICES has in its domain, and some of the particular difficulties that had arisen. The Secretariat had made a number of proposals as to how uncertainties could be resolved and rules governing operational procedures applied. A follow up document had been presented to the Consultative Committee, at the 1994 Annual Science Conference: concrete examples were provided of how procedures had been tightened up since Doc. C.M. 1994/Del:10 had been written in the summer. The follow up document primarily addressed the fishery data bases, as these were the ones which drew attention to the need to develop clear custodial procedures. The lessons learnt from the fishery data bases would stand the Secretariat in good stead in the future to better safeguard the environment and oceanography data bases.

At the request of the General Secretary, the **Fishery Secretary** pointed out that the follow up document to Doc. C.M. 1994/Del:10 had been prepared on the basis of views proposed at the mid-term (June) 1994 meeting of the Consultative Committee. It was proposed that one should distinguish between requests which were specifically in response to meeting the terms of reference formulated in Council Resolutions on the one hand, and those which emanated from other sources. The Consultative Committee had concluded that all ICES data bases, including raw data, should be made freely available for the conduct of Council business, i.e. to address the terms of reference of ICES Study/Working Groups. Outside of such requests, were those which were associated with general scientific purposes, on the one hand, and those being requested to service contractual arrangements for which remuneration would be provided, on the other hand. The Secretariat had, since the summer, developed an improved working procedure for dealing with requests to access the fishery data bases. In short, applicants had to fill out a form (seen in the follow-up document) indicating the data requested and

their level of aggregation or disaggregation, the reasons why the request was being made, the title and description of the project for which the data were to be used, for whom the project was being conducted and particularly whether the project was done under contract. Once the form had been filled in and signed by the applicant and the undertakings on the form effectively agreed upon by the applicant, it would either be sent to ICES national Delegates or the national contact person of the countries responsible for supplying the data to the data base. In order for matters to move smoothly and efficiently, deadlines for responses had to be given. The procedure had worked satisfactorily so far, subject to the condition that data would not be identifiable to country of origin when published or used in reports. Objections, when arising, would be handled by referring the applicant to the country which had objected. Particular procedures were applied to individual data bases. The two data bases which had been examined in detail regarding accessibility terms were the International Bottom-Trawl Survey (IBTS) data base and the Scientific and Technical Committee on Fisheries (STCF) data base, the latter being originally provided by the European Commission Working Group and which had been formally handed over to ICES. It was proposed that the procedures that had been applied recently to fishery data bases be agreed and adopted by the Council, subject to a few further amendments given on page two of the follow up document. Finally, the Delegates attention was drawn to the last paragraph of the follow up document which raised the possibility of making fishery assessment computer-programs and their associated data available directly to the ICES computer via Internet. Preliminary investigations between the Secretariat and several institutes had failed to indicate either technical or security problems.

The **President** welcomed comments on the proposals commencing at the foot of page seven and on pages 11 and 12 of Doc. C.M. 1994/Del:10, as well as the complementary follow up document providing the practical form to be filled out for operational procedures.

The **Delegate of the United Kingdom** expressed his satisfaction with the developments outlined by the Secretariat in the two documents presented for approval. As Chairman of the Working Group which set up the STCF data base he was conscious that it was a sensitive and confidential data set. On the one hand, unless security was guaranteed, some countries might avoid providing data. On the other hand, data should be made available for scientific purposes, given the kinds of safeguards highlighted in the two documents. He commended the Secretariat for implementing some very sensible measures regarding the data bases, and firmly endorsed them.

The **President** believed that the need for an internal policy had become apparent, balancing the sensitivities against the need to make information and data available

for *bona fide* users. Given time, he envisaged a further step in the future whereby a cohesive policy statement could be produced.

The **Delegate of the Netherlands** viewed the documents as representing substantial progress. Doc. C.M. 1994/Del:10 had been favourably examined by persons in his institute. Although understanding the need for greater uniformity and safeguards, it was important to achieve the goals of the exercise without increasing the bureaucratic loads of the Secretariat. In addition, there still appeared to be uncertainty as to who was empowered to give the approval: the Council or the individual committees of ICES? The definition of a "commercial" user needed to be settled. In a number of Member Countries the movement of institutes or laboratories towards agency status indicated that matters were in a state of flux. Thus, clarification would be appreciated on the matter of who decided on given issues, and what was a commercial user given the move towards the commercial sector by the marine and fishery laboratories of a number of Member Countries.

The **Delegate of Finland** congratulated the General Secretary and the Professional Secretaries on having produced Doc. C.M. 1994/Del:10, which was a very edifying document. Despite there obviously being a number of points requiring further labour, the proposals made in the two documents merited support. The data bases and data lists of ICES were key elements for scientific progress and co-operation, and for maintaining the unique position of the Council in providing information and advice to Member Countries and regulatory commissions. ICES was also central in the IODE system by acting as a focal point in oceanographic data exchange. In addition to further endeavours affecting data access rules and procedures, it was vital to evolve strategies for further developing the data bases further. Attention should also be given to communal activities aimed at strengthening the ICES data bases, as well as finding ways to interweave fishery, environment and oceanography data bases. The concluding sentence of page 12 of Doc. C.M. 1994/Del:10 indicated that an *Ad Hoc* group was or would be established to examine the data bases, but some uncertainty existed as to whether the group would work on the strategic questions that he had focused on.

The **Delegate of Denmark** agreed with the views of the Delegate of the United Kingdom and the Delegate of Finland in advocating the virtues of collaboration and co-operation through exchanging and using data for communal scientific purposes. Recalling the STCF data base, the main reasons for its establishment were for scientific purposes. In accordance with this should be the obligation of having the results published, as it would form an independent medium for evaluating scientific value.

The **President**, in response to the query made by the Delegate of Finland, pointed out that the *Ad Hoc* group had been sanctioned in the light of discussions in the Consultative Committee and in the Bureau last year. He called upon the General Secretary to reply to the question of defining what was a commercial activity regarding requests for access to data bases.

The **General Secretary** acknowledged the difficulties faced in separating scientific and commercial activities related to ICES data bases. It was apparent that substantial debate had surrounded the question of applications from Member Country laboratories, either alone or working together with academic establishments, for access to data when financial grants (e.g. from the European Commission) were involved. Here the financial gain factor was probably not the major motivation. All those asked, Delegates and ICES Committee members alike, were in agreement that independent consultancies, making their living from contracts and from gaining access to data, should be charged the full price for data which normally would only be made available at the aggregated level. Regarding the matter of who actually decided on making fishery data available, the procedure was that requests for disaggregated data for the IBTS were referred to nationally agreed contact persons via electronic mail or telefax on a routine basis. In the case of a problem arising, the default response was to refer the matter back to the provider, i.e. the Delegate of the particular Member Country.

The **Delegate of France** agreed that the only sure response was to deal with requests on a case-by-case basis, as was being done, while attempting to apply agreed criteria and rules of procedure.

The **Chairman of the Consultative Committee** pointed out that, until the matter of conducting research using ICES data bases where some form of "remuneration" was involved was resolved, one would apply an all-inclusive interpretation of the term. In time, clearer criteria for separating the various categories were likely to become apparent. With regard to the discussion about the importance of the ICES data bases and strategies for their future development, the Delegates attention was drawn to the view of ACME that it was essential to make progress towards linking the fishery and environmental data bases. Problems of compatibility needed to be addressed, including different temporal and spatial scales. It was also necessary to develop a priority for developing the various data bases needed for the future. An example, was the recent implementation of a feasibility study by the Secretariat for establishing a Benthos databank, partly in response to the activities of the Benthos Ecology Working Group and the North Sea Task Force. Several other approaches concerning establishing other data bases were materialising. As data bases placed substantial demands on the finances and manpower of the Secretariat, there was a pressing need to

establish an *Ad Hoc* Group on the ICES Secretariat data bases to examine the Council's medium and long-term requirements, and a recommendation to this effect was imminent.

The **President** recollected the unanimous view of the Bureau, on several occasions during the past few years, that conducting a strategic analysis of the future needs of the Council's data bases would be propitious. Thus, noting the agreement of the Delegates on this point, the Chairman of the Consultative Committee could take it for granted that this task was endorsed forthwith in principle.

The **Delegate of Ireland** foresaw the Council sooner or later contemplating establishing data bases that included the financial value of fish catches, which was invariably a sensitive matter.

The **Delegate of Norway** queried whether the provider of data to ICES data bases lost some degree of ownership on doing so.

The **President** confirmed that the providers of data to ICES owned them. However, when the data were placed in the Council's databanks it was on the understanding that they could be used for approved purposes. The documents that the Delegates were considering were a recognition that appropriate procedures and safeguards were needed when data was placed on loan.

The **Delegate of the United States** expressed support for keeping ICES data bases under review, particularly with a view to developing a comprehensive strategy for the future. Although recognising the reasons for focusing on the fishery data bases in the current discussion, the strategic aspects of the data bases had immeasurable implications for the future role of ICES in the marine science community. The Global Ocean Observing System (GOOS) initiative merited some serious thought from ICES, particularly regarding the expectation that living resources should figure more prominently in GOOS. The Pacific Science Organization (PICES) would be devoting substantial discussion to its role in the regional implementation of GOOS. Likewise, ICES should waste no time in responding to global science programmes in its own geographic region of influence, i.e. the North Atlantic and adjacent seas.

The **President** thanked the Delegate of the United States for the clear reminder that data bases were obviously interlinked with ICES future role in marine science programmes. With respect to the matter of rules and procedures governing data bases maintained by the Secretariat, there was consensus that the Council adopt the proposals put forward in Doc. C.M. 1994/Del:10 and the supplementary follow-up paper. The Consultative Committee would provide proposals as to the member-

ship and terms of reference of an *Ad Hoc* Group on the Secretariat Data Bases.

#### **Agenda Item 9 CO-OPERATION WITH OTHER INTERNATIONAL ORGANISATIONS: WORKING RELATIONSHIPS AND FINANCIAL ARRANGEMENTS**

The **President** indicated that Doc. C.M. 1994/Del:11 and Doc. C.M. 1994/Del:12 formed the background information for the agenda item. Although wide reaching comments and views were invited on this matter, it was proposed that detailed discussion with respect to the Food and Agricultural Organization (FAO) of the United Nations be reserved for agenda item 11. Delegates attention was drawn to the possible initiatives that could be taken by ICES to focus more determinedly on international scientific programmes (e.g., Land - Ocean Interactions in the Coastal Zone, LOICZ; Global Ocean Observing System, GOOS; World Ocean Circulation Experiment, WOCE; and Global Ocean Ecosystem Dynamics, GLOBEC) at the Annual Science Conference by having Theme Sessions and other activities targeted at relevant programmes. Co-sponsorship should be sought from international organizations with which ICES had long and valued relationships. Further, more formalised contacts with appropriate international organizations were considered important, at the level of the President, General Secretary, and Consultative Committee levels. This would assist the Council in exploring ways for strengthening collaboration. Comment and endorsement of the major proposals for future activities, and strengthening ICES external affairs were welcomed. Doc. C.M. 1994/Del:12, among other things, recommended the establishment of an international programme coordination centre for GLOBEC in the ICES Secretariat. The Council already contributed actively to GLOBEC through the auspices of the Cod and Climate Change suite of scientific activities.

The **Delegate of the Netherlands** inquired about the relationship between ICES and the European Environment Agency (EEA) which had recently been situated in Copenhagen, and whether any initiative had been taken towards co-operation.

The **General Secretary** replied that a meeting had taken place at ICES Headquarters, attended by Dr Philippe Bourdeau (Chairman of the Task Force establishing the EEA) and a representative from the CORINE programme in addition to the Professional Secretaries and himself. The planned operations of the EEA were presented, and it was evident that the EEA would be dependent on co-operation with other organizations to fulfil its mandate of determining the status of the environment with regard to the effects of anthropogenic activities (e.g., pollutants) and natural cycles (e.g., climatic periodicity). The Secretariat provided an overview of the

ICES activities in the area of fisheries, environmental and oceanographic sciences, and the operations of ACME and ACFM in responding to requests for information and advice to Member Country governments and regulatory commissions. Dr Bourdeau considered that the EEA would aim to utilise existing experience and expertise, such as those of ICES, in order to avoid unnecessary duplication of activities which others had already established. Further concrete discussions on collaboration between ICES and the EEA would take place after the EEA had moved into its new building in the late Autumn of 1994.

The **President** requested that attention be focused on the question of establishing an international programme centre or office at ICES Headquarters, through the auspices of the Secretariat. Since Doc. C.M. 1994/Del:12 had been written, the Biological Oceanography Committee and the Consultative Committee would be considering a recommendation that such a project office be established to support the North Atlantic Programme of GLOBEC, in which ICES was a major participant in the form of the Working Group on Cod and Climate Change. There appeared to be a gathering interest from both agencies and Member Countries indicating that funding may be forthcoming. The proposed project office would consist of a person who would spend 100% of their time coordinating and servicing data bases, assisting in the planning of meetings and production of reports, and providing greater cohesion between the various national and regional scientific contributions. As more concrete details would be emerging during the course of the Annual Science Conference the matter was being raised purely to determine general reactions. The venture had some similarities to the North Sea Task Force (NSTF), where ICES played an important coordinating role and created new Secretariat positions in order to do the job well. The NSTF had proved invaluable to ICES, and similar benefits could materialise in this case.

The **Delegate of the United States** endorsed the overall aim of the documents associated with the agenda item. It was necessary for ICES to assert itself more strongly within the global marine science community. Although the history of ICES was rich and successful, the Council was still regarded by many people who did not attend its meetings as being a regional fish and fisheries body. Marine science would continue to be increasingly global and interdisciplinary. ICES scientific expertise and influence in the geographical area of the Convention would be maintained. However, it was necessary to continue to evolve, and there was a clear need to form successful links and partnerships with appropriate key organizations. GLOBEC was a fitting forum for ICES to demonstrate its oceanographic capacity related to fish population dynamics. The Cod and Climate Change initiative had been well regarded as a regional component of GLOBEC. In leading international endeavours,

it was paramount that adequate staff support be provided, with this being correctly cited in the ICES Secretariat. In terms of funding, the USA did not favour increases in Member Country contributions as the mechanism for financing such enterprises. The General Secretary had been approached by various agencies in the USA with regard to the possibility of their providing a share of the costs for a GLOBEC programme office. Other Delegates were invited to express their potential interest in supporting the initiative.

The **Delegate of Canada** viewed the general topic raised in Doc. C.M. 1994/Del:12 as being of great importance. Despite supporting the sentiments of the Delegate of the United States, some further general discussion appeared to be needed before engaging in the issue of Cod and Climate Change and Secretariat support. It was uncertain as to how much further discussion would impinge upon the sub-agenda items identified for discussion in the Delegates "Extra" Meeting.

The **President** emphasised that only initial comments and views were asked for at this stage. Further details regarding the proposed Cod and Climate Change project office and the likely Secretariat role in it would be forthcoming later in the meeting. The prevailing point was the general endorsement of the proposals on pages 7 and 8 of Doc. C.M. 1994/Del:12, in particular proposals 1 (more programme related Theme Sessions at the Annual Science Conference), 2 (additional formalised contacts and consultations regarding co-operation with key international organizations), 3 (encouraging pertinent co-sponsorship of developing topics, e.g. fisheries economics, by influential international organizations), and the principle of 4 (the consideration of establishing an international programme coordination centre at the Secretariat).

The **Delegate of Denmark** agreed with the proposal to increase the Council's international science perspectives. This should, however, also be viewed in the light of the overwhelming interdisciplinary needs. Here further thought must be directed to identify the future drive into the fields of economics, technical developments, and integrating fishery and environmental science and management. This should be seen against the needs in particular geographical areas such as the Baltic Sea. Hence, some scheme ought to be developed for given regions where significant political considerations would play their part.

The **President** acknowledged that the path taken in internationalising the Council's role should ideally be in accordance with the findings of the 1993 "Report of the Bureau Working Group on Strategic Planning for Scientific Cooperation and Advice". In reply to the question of broadening the existent geographic scope of the ICES, the firm answer had been that the Council should limit itself to the present geographic area of its Convention.

The element addressed by the current agenda item and supporting documentation was the strengthening of interdisciplinary science as a result of working more closely with global agencies like FAO and IOC, while still engaging in the ICES region of the "Atlantic Ocean and its adjacent seas".

The **Delegate of Ireland** suggested that as the President of the European Association of Fishery Economists (Mr Philip Rogers) and the recent past President of the International Institute of Fisheries Economics and Trade (Professor Rognvaldur Hannesson) were attending the Annual Science Conference it would be opportune to use the occasion to forge links with them.

The **President** acceded and recommended that listening to the papers presented on Theme Session T, and engaging in the usual corridor discussions was a productive way to meet new people.

#### **Agenda Item 10 CONCLUSION OF NORTH SEA TASK FORCE AND SUCCEEDING DEVELOPMENTS**

The **President** noted that Doc. C.M. 1994/Del:13 provided a summary of the involvement of ICES in the International Conferences on the North Sea, the Ministerial Meetings and Declarations, the establishment of the North Sea Task Force (NSTF) under the joint responsibility of ICES and OSPARCOM, and the publication of the 1993 *North Sea Quality Status Report (QSR)*. The whole operation had been of great importance in publicising the abilities of ICES in coordinating and managing this type of scientific exercise. The *QSR* was acknowledged as a quality product, resulting from the hard work of a large number of people over many years. Congratulations were due to the current and former Chairmen and members of ACMP, ACME, ACFM, supported by the Environment Secretary and other Secretariat staff. The high standing of the Council was also evident when examining the Annex to Doc. C.M. 1994/Del:13, which highlighted the program of future activities that the December 1993 Intermediate Ministerial Meeting had requested ICES to undertake.

The **General Secretary** indicated that a complimentary copy of the Guide to the 1993 *QSR* would be given to the Delegates before the conclusion of the meeting.

#### **Agenda Item 11 TOPICS FOR DELEGATES "EXTRA" MEETING**

The **President** recalled that the idea of having an "extra" meeting had been proposed at the 1993 Council Meeting by the Delegate of Norway, who firmly believed that there was a need for Delegates to devote additional time to strategic matters as well as dealing with their traditional agenda items. The Bureau, at its mid-term (June) 1994 meeting had, at the request of the Delegates,

identified several topics for consideration, as indicated in Doc. C.M. 1994/Del:14, an Annotated Draft Agenda. The **Delegate of Sweden** proposed in this connection that the ordinary Agenda for the Delegates Meeting should also include an annotated agenda. The **President** requested that the General Secretary implement this step for the 1995 Annual Science Conference (83rd Statutory Meeting).

The Three topics for the "extra" meeting were grouped under the general heading

#### 1) *"ICES in the Wider Marine Science Community"*

comprising

##### 1.1) *The Role of ICES in organising, promoting or sponsoring major international scientific programmes*

drawing upon Doc. C.M. 1994/Doc. Del:12;

##### 1.2) *ICES Role in Third World Development*

drawing upon Doc. C.M. 1994/Del:16: the report of discussions held between ICES and FAO in September 1994, in which the President, First Vice-President, and the General Secretary participated;

##### 1.3) *Potential Sources of Financial Support for the Annual Science Conference*

#### 2) *The Advisory Role of ICES*

addressing how the Council should respond to continuing developments in intergovernmental management activities in both marine living resources and the marine environment. The structure and the work of the Advisory Committees and Subject/Area Committees needed to be examined in the light of this appraisal.

#### 3) *Events to mark ICES Centenary, 2002*

comprising planning the steps needed to culminate in a productive and successful occasion.

In addition to the annotated agenda, important documents to be consulted were Doc. C.M. 1994/Del:11 and Doc. C.M. 1994/Del:12 which had been referred to previously in the Delegate meeting sessions. Additional literature provided were Doc. C.M. 1994/Del:16 (a report from the High-level ICES - FAO meeting in September 1994 to determine further collaboration), Doc. C.M. 1994/Del:17 (a letter from the United States National Science Foundation and National Oceanic and Atmospheric Administration expressing support for the establishment of a GLOBEC Coordination Office in the ICES Secretariat), and Doc. C.M. 1994/Del:18 (a paper by the Danish Delegates on Future ICES Committee

Structure). The latter document was viewed as being very important as it would probably reduce the time leading to a review of the advisory and scientific machinery of ICES.

#### 1 "ICES in the Wider Marine Science Community"

##### 1.1 The role of ICES in organising, promoting or sponsoring major international scientific programmes.

The **President** welcomed ideas reflecting on the topic with particular reference to Doc. C.M. 1994/Del:12. The questions to be answered were those raised in the annotated agenda, i.e. would major scientific programmes continue to increase in importance, and what steps were necessary to strengthen appropriate working relationships under the auspices of organizations like ICES so that Member Countries could make substantial contributions without necessarily mounting fully fledged programmes themselves? If the scenario was that international programmes were likely to maintain importance, then what were the challenges that ICES faced, and what structural and procedural changes should be implemented in order to meet the challenges?

The **Delegate of Norway** considered that in order to address this matter, it was relevant to consider the role of the national Delegates. The Delegates represented national authorities but also frequently had a key responsibility in an institution which had substantial resources of manpower and research vessels. Despite being active in marine research in the northern North Atlantic, it was pertinent to note that ICES did not organise major international programmes in these waters. As a Delegate of about two years standing, this deficiency emphasised that serious attention had to be given to ICES being a prime mover in the major programme scene, and appropriate changes appeared necessary in the Committee structure and in the Secretariat itself. It was necessary to be aware of important opinions of Fishery and Environment Ministries, as well as public sentiment, in Norway and in other countries regarding the need to focus firmly on the ecological multispecies approach. As an example taken from Norway, the Ministry of Fisheries and the fishermen's organizations wanted to know how much of the capelin stock in the Barents Sea needed to be safeguarded for spawning stock and recruitment purposes and how much for sustaining a growing cod stock? The Ministry of the Environment and non-governmental environmental organizations, for example, wanted to know how changes in the capelin stock would affect the marine mammals and seabirds. The interplay between the species was altered by changing temperature and climatic regimes. Getting to grips with these matters in order for the authorities to plan for the future were very complex and difficult. Neither the Institute of Marine Research nor ICES was sufficiently organized to handle these types of questions in a proper manner. If the an-

swer to the question of whether ICES was ready and willing to carry out major changes to handle these questions was affirmative then ICES had a good future as an advisory organization. It was vital that ICES functioned at the core of international scientific programmes. Norway, with other Atlantic nations, looked towards ICES in better cementing various national contributions in international programmes such as GLOBEC. Thus, it was firmly recommended that ICES a) changed its Committee structure, b) took the lead in creating international programme contributions in its geographical area, and c) co-operated closely with other organizations in the context of established international programmes.

The **President** greatly appreciated the initial thrust to the debate just shown and urged the Delegates of Denmark to respond with regard to possible structural change within ICES.

The **Delegate of Denmark** considered the views of the Delegate of Norway as providing support for a need to examine the structure of the scientific and advisory machinery of ICES. Doc. C.M. 1994/Del:18 expressed the view that the Subject/Area Committees of ICES had apparently lost the function of being the scientific engines of the Council. The Committees still carried out useful housekeeping roles but were not sufficiently vigorous, outward looking bodies for promoting timely contributions to international scientific programmes. The Advisory Committees carried out important and visible external functions, but it was now essential to revitalise the rest of the Committees to function as centres of initiative in the global scientific arena.

The **President** acknowledged the emerging consensus, among Delegates and scientists themselves, that appropriate revitalisation of the Committee structure of ICES was due. Although there were historical reasons for the present Committee structure, which had originally been adequate for dealing with previous demands, fishery and marine science had grown greatly in the intervening decades. The internal organisational benefits of the committees were worth maintaining while fresh efforts were focused on adapting their relevance to future needs.

The **Delegate of Canada** supported the incentive demonstrated by the Delegates of Norway and Denmark, particularly the integrated multidisciplinary, multispecies approach. While recognising that ICES had made substantial progress in recent years in adopting ecosystem related research, a major drive was required in the coming years to address the fundamentals of adopting a fitting organisational structure. Thus, the debate was not whether there would be a role for scientific committees, but how the Council would adapt and evolve to reflect the changing needs and circumstances of the present and future decades. ICES had a tendency to become engaged in particular international programmes on the basis of the enterprise of individual scientists rather than

through a central scrutiny of the particular merits of specific programmes. In addition to GLOBEC, the General Secretary's paper (Doc. C.M. 1994/Del:12) highlighted several programmes such as GOOS, WOCE and LOICZ which deserved objective review. ICES needed to establish the proper mechanism for reviewing the worth of given international programmes and making objective judgements on what it could contribute to them.

The **Delegate of Finland** heartily endorsed the proposals to examine the structure of ICES. It was unnecessary to have the current large number of hierarchical levels involved in decision making. The inability of the Consultative Committee, which was composed of serving committee Chairmen, to propose satisfactory alternatives to the current array of Subject/Area Committees underlined the need to appoint a special group to do the job. In order to focus the response of ICES properly, attention also needed to be given to getting the right portfolio of Study and Working Groups, i.e. which and how many? ICES needed new people and institutions to be involved in its work. The introduction of scientifically relevant Mini-Symposia, Theme Sessions etc. at the Annual Science Conference had improved attendance, but an apathy in Finnish interest in Subject/Area Committee sessions had been evident. An initiative had been shown recently in some circles in establishing an European Ocean and Polar Resources Board to coordinate marine scientific resources in responding to specific programmes such as GOOS. This could have been addressed in ICES, within the terms of the Convention.

The **Delegate of Germany** warned that it was important to define exactly what the roles of the Subject/Area Committees were. Being the "parents" of particular Study and Working Groups demanded that results and information produced by such groups be fed back and integrated at the committee level. Advisory Committees spent several weeks doing this, whereas Subject/Area Committees had sparse time for such purposes.

The **Delegate of Ireland** was disappointed that attempting to link biological and economic techniques in fishery management advice was regarded by some as an optional extra. Theme Session T was widely regarded as being successful, and was likely to be followed up in 1995 by another Theme Session. However, the challenges and difficulties of advising on fisheries management from the perspectives of biology, and market and social economics deserved future consideration for a Dialogue Meeting. With regard to changes in the structure of ICES, whatever would be put in place of the current committees needed to be reviewed extremely carefully.

The **President** agreed that where the committee structure was considered to be working it would be maintained, but improved dynamism and participation was necessary at all levels.

The **Delegate of the Netherlands** complimented the Delegates of Norway and Denmark on their initiative, and welcomed the move to strengthen the national and global perception of ICES. It was vital that there was a unified and agreed line on objectives, and that the organisational structure then reflected these.

The **President** agreed that defining the goals and having a "mission" was important to more clearly determine ICES international role.

The **Delegate of Denmark**, in responding to the view of the Delegate of Ireland on ensuring that the important tasks of the committees should continue, recalled that ICES had already made some fundamental changes in establishing geographical area based Working Groups better suited to ecosystem advice and management requirements. Managers and the public required answers to interdisciplinary questions, hence it was becoming increasingly difficult to allocate single parentage to a particular Subject/Area Committee: examples were the ecosystem effects of fishing activities and seabird - fish interactions. The dictates were already evident and ICES had to adjust its structure to keep at the forefront.

The **Delegate of France** emphasised the need to define the objectives of the exercise. In order to tackle this, it was first necessary to be aware of the questions that were being posed by society, and then to consider how the answers were to be found. Biodiversity was an example of current interest, which ICES already had elements of knowledge to provide informed responses. Coastal zone management required an integrated approach to different human needs and appreciations: here ICES had the elements spread across mariculture, fisheries, pollution, etc. The scattered elements were present but needed to be integrated and focused, through the auspices of appropriate work programmes.

The **Delegate of the United Kingdom** remarked that many of the marked success stories of ICES had been associated with particular geographical regions within the Convention area, with the North Sea Task Force and the multispecies work in the North Sea and Baltic Sea being obvious examples. The success of these initiatives was probably related to the centre of ICES, in terms of numbers of Member Countries, being close to the North Sea. Nevertheless, the North Sea was not of immediate relevance to a substantial number of Member Countries and other scientific issues, such as studies of boreal ecosystems, were likely to attract cooperative research in a substantial number of countries. The multispecies work was being actively extended into the boreal systems, such as in the Barents Sea, and in Icelandic and Canadian waters. Global research topics still needed to contain regional relevance and focal points.

The **Delegate of Belgium** advocated caution in changing the structure of ICES which, in his opinion, was not

so complex. It was important, however, to improve the Council's ability to focus better on specific issues, such as ICES playing a more prominent role in establishing and coordinating regional contributions to international scientific programmes.

The **President** referred to the first page of the ICES Convention, where the duty of the Council was emphasised as being to promote and encourage research and investigation for the study of the sea, particularly related to the living resources, and to draw up and coordinate the programmes required. Thus, the programmes, relying on the Contracting Parties, had to be international and concentrated in the geographical area of ICES, i.e. the North Atlantic and adjacent seas. The debate had emphasised that the objectives, in accord with the Convention, needed to be directed in a suitable manner to lead ICES into the next century. Once this was determined, it would be possible to adapt the structural and organisational aspects by reviewing *inter alia* the good and the inadequate points of the committee functions. Although the Consultative Committee needed to be involved in the debate, thought provoking proposals were most likely to be created by establishing an independent Bureau Working Group. It was vital, however, that there be active consultation with the "working scientists" of ICES. Before tackling the terms of reference, composition and membership of the Bureau Working Group, it was proposed that feed-back be gathered from Theme Session U "Interdisciplinary Links - the Next Steps". The Council endorsed, in principle, the establishment of a Bureau Working Group on the Structure of ICES.

*[Further debate on and the terms of reference and composition of the Bureau Working Group on the Structure of ICES were concluded under the ensuing sub-item 2 The Advisory Role of ICES]*

## 1.2 ICES role in Third World Development

The **President** recalled that Doc. C.M. 1994/Del:16, the report of the meeting between high-level representatives of ICES and FAO, formed the basis for the agenda sub-item. The meeting had been viewed by the participants as being very useful and had highlighted a number of fundamental areas of potential co-operation between FAO and ICES.

At the request of the President, the **General Secretary** reviewed the main points in Doc. C.M. 1994/Del:16. The meeting was held to follow up the initiative of the Bureau Working Group on Strategic Planning for Scientific Cooperation and Advice. ICES had no intentions of extending its geographical remit, but desired to put the Council's work, via collaboration with global agencies, into a greater mosaic of geographical and international co-operation. In particular, ICES wished to examine how its expertise could be put to use in actively assisting in Third World development of science and edu-

cation by working through the auspices of FAO. The overture from ICES was most positively received by FAO and resulted in the view that a Memorandum of Understanding would be advantageous for FAO to allocate funds for collaborative purposes. In terms of modes of co-operation, it was proposed that: a) resources would be identified to facilitate co-operation with developing countries through FAO, b) observers would be more frequently sent to each others meetings, c) formal participation would be encouraged in each others working groups and technical meetings (e.g. regional fisheries bodies), d) joint training documents, manuals, reviews etc., could be financed and produced, e) regular consultations would be held with detailed agenda concerning developments of common interest and intended follow-up activities, f) collaboration would occur in the FAO Advisory Committee on Fisheries Research (ACFR), and g) co-operation should be encouraged in developing information systems (e.g., fishery data and geographic information systems, literature abstracts). Potential co-operation would include: promotion of economic approaches in fisheries, organization of seminars, exchange of information, job training (including attendance of experts from developing countries at ICES Working Groups and attendance of ICES experts in FAO Fishery Working Groups), FAO participation in and co-sponsorship of ICES Dialogue Meetings, co-operation in Integrated Coastal Zone Management, ecosystem and multispecies management, ICES participation in the *Aquatic Science and Fisheries Abstracts* (ASFA), production of GIS and a joint digital resource atlas, the precautionary approach to fisheries management encompassing the Code of Conduct on Responsible Fishing, and the follow-up to UNCED in relation to Chapter 17 of Agenda 21 through proposed ICES participation in the UN Agency Coordinating Committee (ACC) Sub-Committee on Oceans and Coastal Areas, and follow-up to UNCLOS by co-operation on the Code of Conduct and Guidelines, in addition to existing co-operation. ICES had already responded actively in providing critique and improving the Code of Conduct on Responsible Fishing, and FAO valued ICES input regarding research and advisory aspects of Straddling Stocks and Highly Migratory Species. FAO had, in particular, underlined the educational importance of allowing developing country scientists to attend ICES Study and Working Group meetings, and see the benefits of the ICES organisational model working in practice. However, as there were various current restrictions on the participation of persons from non Member Countries in given types of ICES meetings, the Council would need to agree on the principles of attendance.

The **President** noted that much of the report was also relevant to the preceding agenda sub-item. Although the topic for discussion was ICES Role in Third World Development, the ensuing discussion would obviously also reflect, to some degree, on international scientific projects and programmes.

The **Delegate of Canada**, referring to areas of proposed co-operation mentioned on page three of the report of the ICES - FAO meeting, emphasised the value given to comparative management studies and their advantages or shortcomings. It drew attention to the increased need to understand man's impact on the marine environment, in terms of coastal zone and fisheries management, that had taken place since the establishment of the ICES Convention in the 1960s. It was opportune to embark on rigorous analytical studies of the results or successes of human interventions and management regimes. ICES appeared to have much to gain from closer co-operation with FAO, who had appreciable experience in comparative, global based studies.

The **Delegate of Iceland** had originally been uncertain as to the merits of the High-Level ICES - FAO meeting but, having learnt more about the details from the General Secretary's presentation, now strongly endorsed the proposals for collaboration leading towards a better understanding of living resources. International co-operation was important, but it could place marked demands on the economies of any country, particularly when benefits needed to be interpreted in regional terms. An initiative of apparent importance, as noted in Doc. C.M. 1994/Del:12, was the European Committee on Ocean and Polar Sciences (ECOPS), but he was disappointed in not seeing ICES represented at the 12-16 September 1994 meeting in Bremen (Germany) on "Grand Challenges". It was essential that the Grand Challenges also incorporated studies of sustainable living resources (e.g. fisheries), in accord with the key aspects of the ICES Convention.

The **President** stressed that ICES had contributed to the preparatory phases for the ECOPS meeting, but holding the ICES Annual Science Conference immediately afterwards had made it difficult to be formally represented in Bremen.

The **Delegate of Denmark** believed that ICES had a lot to gain as well as contribute in collaborating with FAO, particularly in Third World Development. As coastal zone management had been studied and practised more in South East Asia, for example, than in the majority of northern waters, it was likely that ICES would gain from FAO collaboration. On the other hand, as intimated by the General Secretary, developing country scientists could gain much from observing how the participants in ICES fisheries assessment Working Groups conducted their business devoid of political undertones. The ICES working model for scientific co-operation among countries had been built up over many decades and was a positive example for others to learn from. Denmark firmly advocated opening up ICES Study and Working group meetings, including those of the fish stock assessment groups for the education of developing country scientists.

The **President** agreed that ICES could make a major contribution to Third World development by using the activities of its Study and Working Groups for educational purposes. This needed though to be done selectively, as FAO had underlined that it was beneficial to bring experts from the northern hemisphere to developing regions to better appreciate the difficulties involved with particular resources and management systems, as well as the environment in which knowledge was to be applied.

In response to a request from the President for clarification about the current practice governing attendance at Council meetings, the **General Secretary** explained that the *Procès-Verbal de la Réunion 1985*, *ICES Annual Report 1991* and Doc. C.M. 1991/Del:9 and its Addendum, provided the requisite information. In short, non-governmental international organizations given Observer status by the Council were excluded from all scientific meetings of ICES except the "open" sessions of the Statutory Meeting (i.e., Annual Science Conference). The meetings of Stock Assessment and associated Working Groups established by ACFM were closed to all except experts appointed by national Delegates. ICES approved scientific observers (e.g., from CSIRO of Australia, Sea Fisheries Research Institute of South Africa) were allowed to attend scientific meetings of the Council, with the exception of the Advisory Committees and Stock Assessment Working Groups, at the discretion of the General Secretary. Likewise, with the exception of the Stock Assessment Working Groups, non-members (i.e., persons not appointed by Delegates) could be invited to attend ICES meetings at the discretion of their respective Chairmen with the sanction of the General Secretary.

The **President** considered that the current Council practice was clear, but that it was evident that some countries, such as Denmark, were willing to propose that Third World scientists should be allowed to attend the meetings of the Stock Assessment Working Groups.

The **Delegate of Sweden** declared that Sweden supported the development of Angolan fisheries, including the artisanal fishery, a fisheries training institute and fisheries sciences. Two persons working at a fisheries research institute in Angola, which Sweden funded, were attending the 1994 Annual Science Conference as Guests of ICES. These persons urged the Council to allow Observers to attend Study and Working Groups, particularly in hydroacoustics and stock assessments, in order to better develop their scientific work in Angolan waters. It was particularly important that they learnt to actually tackle practical problems in the spirit of ICES, e.g. dealing with "confidential" fisheries statistics and data associated with mixed stocks. In return, data would be submitted to ICES.

The **President** welcomed the approach made on behalf of Angola, pointing out that this was an example of what could be developed further together with Sweden and FAO.

The **Delegate of Spain** approved of the possibilities that had been described but hoped that some more concrete steps could be agreed upon.

The **President** acknowledged the growing consensus for change regarding attendance at the meetings of Study and Working Groups for educational and training purposes. In order to make firm advances, the Council needed first to agree in principle to opening up Study and Working Group meetings for persons from developing countries. The signals received in this context were that there was insubstantial resistance to changing Council procedures for the purposes described, with the possible exception of attendance at Stock Assessment Working Groups. The Delegate of Denmark had made a firm proposal, to include the Stock Assessment Working Groups, which needed endorsement.

The **Delegate of the USA** supported the opportunity for developing country scientists to attend all Study and Working Group meetings for *bona fide* purposes on a strictly individual, case-by-case basis.

The **Delegate of the United Kingdom** believed that ICES should assist in the education and training of developing country scientists. There was already a mechanism available whereby a national Delegate could appoint persons who were not nationals of their own country to be included in the list of Study and Working Group members. Delegates were able to inform appointees about protocols and sensitivities. Thus, the question arose of whether appointments of developing country persons to the membership of Council groups were to be made through the auspices of Delegates or whether a mechanism with safeguards could be established for the "Council", at the request of an approved international organization such as FAO, to sanction the inclusion of these persons without the need to approach individual Delegates.

The **Delegate of France** firmly supported the proposal for allowing the attendance of developing country scientists in the meetings of all Study and Working Groups. There was apparently no impediment for Delegates to register developing country scientists or others among their delegations.

The **Delegate of Spain** remarked that he had personally noted recent examples of the meetings of ICES groups having included participants from non Member Countries.

The **Delegate of Iceland** requested clarification as to whether decisions were being made about new rules for

Observers or whether the debate was about who could be included in national Delegations.

The **General Secretary** confirmed that it was traditionally accepted that Delegates were able to appoint any individual as a member of their delegation, thereby including them as registered members of ICES groups or meetings. All such appointments were required to be notified to the General Secretary for registration and for lists of membership to be maintained for administrative purposes. Nevertheless, the point made by the Delegate of Spain about non member participation in the meetings of ICES groups indicated that there was an increasing problem with agreed procedures not being followed. Comparisons of the membership lists of Secretariat registered participants and an overview of persons who had attended meetings of ICES groups highlighted numerous discrepancies.

The **Delegate of Ireland** had knowledge of the attendance of Italian scientists at Working Groups under the parentage of the Fish Capture Committee, and inquired as to the particular circumstances that enabled this to occur.

The **General Secretary** noted that in the nine months since his appointment he was unaware of recent "Italian" participants having attended the meetings of ICES groups. As no dispensations had been sought from the Secretariat, it had to be supposed that any participants from Italy had either attended as part of an ICES Member Country delegation or had attended illicitly.

The **Delegate of Norway** agreed on the need to follow approved practices with regard to the registration of membership and notification of attendance at meetings of groups. The approved mechanisms, either through Delegates or through the General Secretary acting on behalf of the Council, were able to deal with the attendance of developing country scientists at the meetings of ICES groups. A single point remained to be determined, i.e. the question of the possible exclusion of particular defined "sensitive" Working Groups.

The **President** underlined that the intention of the agenda item was to focus on the matter of participation by persons from Third World or so-called developing countries in the work of ICES, and the question of ICES assisting Third World development through the auspices of international organizations such as FAO. He proposed, from the Chair, that in order to facilitate the attendance of developing country scientists in the work of ICES, for purposes of advancing their education and expertise, that FAO or other similar and approved organizations be treated akin to a Member Country in being able to sponsor particular worthy persons. When requested by FAO, for example, approval could be given on behalf of the Council on a case-by-case basis by the General Secretary acting, when necessary, in consulta-

tion with the President. The proposal included all meetings of ICES groups, except the Advisory Committees.

The **Delegate of the Netherlands** supported the President's proposal. He favoured separating "national business" from science at the Study/Working Group and Subject/Area Committee levels.

The **President** interpreted the views of the Delegates as emphasising the scientific advantages of transferring knowledge and technical advances to persons from regions of the world who would benefit from it. However, it was important to concede that a number of Working Groups provided results and data which could affect Member Country environmental and fisheries policies. Thus, Member Countries had to be given the opportunity to determine which experts were most suitable.

The **Delegate of Spain** fully agreed with the President, but did not view the approval of the attendance of developing country scientists at the meetings of ICES groups as liable to cause problems.

The **President** requested, and received, the approval of the Council for his proposal that Third World or so-called developing country scientists be allowed to attend the meetings of all ICES groups, with the exception of the Advisory Committees. Appointment could occur either through national Delegates or by FAO, for example, approaching the General Secretary directly for approval to be granted on behalf of the Council

The **Delegate of the United States** congratulated the President on the important initiative taken by the ICES High-Level Deputation in arranging the meeting with the Fisheries Division of FAO. Although the current debate around FAO had primarily revolved around Third World development, it was appropriate to remind Delegates that it was necessary to follow up scientific initiatives in two ways. The first, was having constructed a list of ways in which co-operation could occur, one could await evolution on a broad number of fronts. The second was to tie existing ICES initiatives in co-sponsorship, such as GLOBEC, to the reference to FAO's interest in contributing and developing GOOS in the form of a living marine resources component. ICES and other organizations with a traditional involvement in fisheries could no longer afford to be passive as IOC had acquired a mandate to engage itself in the area of living marine resources, as well as in coastal zone management and weather/climate forecasting. It was necessary for ICES to explore with others, such as FAO, what appropriate proactive role the Council could play.

### 1.3 Potential Sources of Financial Support for the Annual Science Conference

*[This item was not addressed by Delegates owing to insufficient time being available]*

## 2. The Advisory Role of ICES

The **President** noted that during the last three years, ICES had made substantial structural and procedural changes (e.g., making the change from ACMP to ACME) in order to improve the quality and range of its scientific advice. However, it was necessary to consider how ICES would respond to continuing developments in intergovernmental management activities with regard to living marine resources and the marine environment. The Danish Delegates had, in response to this issue, produced Doc. C.M. 1994/Del:18 (Future ICES Committee Structure - a Means to Improve the Quality of Advisory Services and Scientific Profile). It was clear that Delegates had, bearing in mind the limited time available for its assimilation, clearly appreciated the general thrust of the paper.

The **Danish Delegate** explained that there were two aspects of the ICES system: one connected to providing advice and the other related to scientific research and development. There appeared to be several external factors affecting ICES, which needed to be addressed in order for the Council to maintain its leading advisory position in the future. An increasing number of requests were directed at systems ecology, where it was no longer easy to distinguish between environmental and fisheries managerial problems, i.e. an appropriate response demanded the attention of both ACFM and ACME. Furthermore, managers needed to obtain additional types of advice than those pertaining to the natural sciences. Hence, ICES would face challenges on both these counts, as there was a requirement to integrate environmental and living resource management as well as react to socio-economic issues and management implementation problems. Reverting to the matter of scientific research and development, Delegates had recognized that despite maintaining excellence in its various disciplines, ICES was losing ground by not responding adequately in terms of establishing and coordinating major international scientific programmes. This was exacerbated by changes in funding patterns, reflecting a trend from national funding towards international agencies or bodies. The current ICES Subject/Area Committees, in name and structure, did not contribute sufficiently to interdisciplinary issues. Modern marine science was ecosystem related, rather than, for example, Baltic Fish or Demersal Fish related. The enthusiastic response to the Theme Sessions at the Annual Science Conference had been matched by a general drift away from the Subject/Area Committees. The trends in science and in advice underlined the thrust towards integrated, systems based approaches. Hence, the two-way matrix diagram presented in Doc. C.M. 1994/Del:18, with advisory and scientific dimensions. The advisory dimension consisted of an Advisory Committee integrating ecosystem based issues of primary interest to customers (e.g., regulatory commissions) and society at large, including socio-economic and management implementation issues. The scientific

dimension consisted of Scientific Committees, promoting appropriate scientific development rather than "housekeeping" administration. The Scientific Committees to be formed would probably be less numerous than today and needed to be integrators and co-ordinators, generating more substantial interdisciplinary programmes, symposia and theme related sessions than was current practice. Examples of possible Scientific Committees were a Data, Statistics and Methods Committee, an Ecosystems and Processes Committee, and a Management Committee. Study/Working Groups and Workshops would frequently arise in response to interdisciplinary and systems related issues, where the Advisory Committee would put in the advisory related terms of reference and the Scientific Committees would put in the scientific excellence and developmental terms of reference. The idea presented would hopefully elevate the stature of the Scientific Committees within and outside ICES. The Scientific Committees may have to meet at other times than the Annual Science Conference in order to devote sufficient time to reviewing Study/Working Group reports etc. Finally, as much thought and discussion was required in order to arrive at firm conclusions, the proposed Bureau Working Group on the Structure of ICES would be asked to analyse the objectives of the advisory and scientific role of ICES in relation to new challenges, and on the basis of their deliberations recommend an appropriate structure to respond to challenges and demands.

The **President** appreciated the initiative taken by the Delegates of Denmark in submitting a useful proposal for the Council's consideration, and welcomed comment and discussion.

The **Delegate of the United Kingdom** valued the illustration of the interaction between the advisory and scientific activities in ICES, but considered it important that the Scientific Committees maintain a substantial opportunity to develop science that was not immediately important but which would come to fruition later. Delegates would need to give serious thought to the cost implications associated with enabling the Scientific Committees to work more during the year. It was also important to sustain individual "maverick" scientists with good ideas, outside of the large Scientific Committees.

The **Delegate of Finland** sympathised with the concepts presented in the Danish paper, but highlighted the need to further define terms, such as "advisory dimension" as it was really scientific advice which was provided by ICES. Much of ICES scientific advice was utilised but it was evident that this was not always the case. The reasons for ICES advice not being applied by end users needed to be examined, as it was vital that high standards of scientific advice be maintained across the board. He questioned the view that international funding agencies were always so important, as national direc-

tions and incentives were still paramount in given areas of the ICES region. As several possible future scenarios were possible, the Bureau Working Group needed to capture as many extraneous views as possible, including receiving input from all levels of ICES.

The **Delegate of Latvia** appreciated the ideas submitted in the Danish paper but lamented the lack of time to study it in detail. He agreed with the view of the Delegate of Finland that an analysis be made of the extent to which regulatory commissions and other customers actually followed ICES advice in particular years or circumstances. He was aware that in the Baltic, for example, total allowable catches (TACs) of cod markedly exceeded the levels advised by ACFM. A number of possible reasons for this existed, including the fact that ICES advice had not been taken or that ICES advice was not correct and that ICES failed in its advice.

The **President** pointed out that it was not uncommon for ACFM or its Working Groups to comment on poor implementation of advice. However, it was important that the question of unity of advice and response by ICES customers be kept under regular review.

The **Delegate of Iceland** thanked the Delegates of Denmark for assisting the Council in its deliberations, but believed that additional time was needed to consider the document and do justice to the matter in hand. The somewhat pessimistic tone in the document was apparently coloured by a series of failures in fisheries management, but political considerations and not ICES were primarily accountable for such failures. The transition from single species to multispecies and ecosystems based approaches indicated that ICES was responding seriously to the overfishing problem. Although many contributions had been made by Subject/Area Committees, it was clear that several alternatives existed when considering other important scientific vehicles, e.g. more clearly focused Symposia and Theme Sessions. However, Subject/Area Committees made a major contribution by offering a scholarly home for experts with like minds and expertise.

The **President** valued the diversity of input provided in response to the Danish document, but underlined that it was merely a discussion paper aimed at provoking further thought.

The **Delegate of Norway** believed that the Danish discussion paper had positively contributed towards concentrating a number of previously diffuse thoughts. He firmly supported the proposal of the Delegate of Latvia that the legitimacy of ICES advice had been questioned in terms of socio-economic matters. He proposed that ICES take the matter of the achievements of its advice more seriously in the future. Several countries were frustrated about how the advice was accepted in the practical world of fishermen and managers.

The **President** believed that the Delegate of Norway spoke for many Delegates in this regard.

The **Delegate of the Netherlands** complimented the Delegates of Denmark on having instigated future action. It was vital that the multidisciplinary approach be furthered actively by deeds rather than by sentiment alone. Studies of food webs, ecosystems, and management cultures and traditions were key ingredients for future success. The advisory work of the Council had to be customer and task oriented. He proposed that the Bureau Working Group be asked to identify the problems and tasks with respect to particular customers, in order to provide appropriate and satisfactory answers. The question of how many Advisory Committees were needed was an open question to be answered when the analysis had been carried out.

The **Delegate of Canada** remarked that he had followed the debate on the structure of ICES intensely, and viewed the proposed establishment of the Bureau Working Group as being an innovative step for ICES. He had, with the assistance of members of the Bureau, just circulated a proposal for the terms of reference and the membership of the Working Group for the consideration of the Council. The membership would ideally include Delegates, scientific experts and former Subject/Area Committee Chairmen as well as the Chairman of the Consultative Committee.

The **President** welcomed further views on the terms of reference and membership of the Working Group.

The **Delegate of Ireland** urged that serious consideration be given to attracting economists into the work of ICES, by working through the auspices of the European Association of Fisheries Economists and the International Institute of Fisheries Economics and Trade.

The **Delegate of Spain** agreed with the necessity to establish the Bureau Working Group, but requested clarification about the term "management implementation". Care needed to be shown regarding the extent to which radical changes in the structure and number of the Scientific Committees would affect the Statutory Meeting (i.e., Annual Science Conference).

The **President** replied that the meaning of "management implementation" had been explained earlier by the Delegate of Latvia when expounding the need to include scientific considerations of the effects and consequences of different management regimes and actions. The Working Groups would need to take into account the implications of structural change on the Annual Science Conference, including the business aspects.

The **Delegate of the United States** firmly supported the proposed establishment of the Bureau Working Group on the Structure of ICES to carry out the general terms

of reference outlined. It was recommended that the Bureau Working Group be given sufficient time to do a good job. When comprehensive input and ideas had been received, the Bureau Working Group should propose tangible and specific recommendations for change as well as the procedures to be associated with its implementation. Specific options should be available for consideration by the 1995 Annual Science Conference.

After some further discussion regarding the degree of inclusion of views from regulatory agencies in the Bureau Working Group's activities, the Council resolved that:

A Bureau Working Group on the Structure of ICES will be established under the Chairmanship of Dr L.S. Parsons (Canada) and including Dr A. Bjørge (Norway), Mr H. Dahlin (Sweden), Mr P. Degnbol (Denmark), Dr P. Mätkki (Finland), Prof. K.K. Olsen (Norway), Prof. J.G. Pope (United Kingdom), Prof. A. Post (Germany), and the Chairman of the Consultative Committee (Dr R.C.A. Bannister), and will meet at ICES Headquarters from 15-16 March 1995 at Council expense to:

- a) review the objectives, functions and role of ICES in the context of changing requirements for scientific information and advice, the need for an ecological multidisciplinary approach, and advances in science as the next centenary approaches;
- b) consider how best to integrate economic, sociological and other appropriate disciplines into ICES on an ongoing basis;
- c) analyze and review the existing structure of ICES and the nature of change required to meet the needs identified in (a) and (b);
- d) develop specific proposals for change, as necessary, and a plan for implementation;
- e) discuss options with representatives of regulatory agencies;
- f) provide a progress report to the 1995 mid-term meeting of the Bureau and report to the 1995 Annual Science Conference.

### 3 Events to mark ICES Centenary, 2002

The **President** recalled that the inception of ICES in 1902 had occurred as a result of several years of careful planning. Likewise, for successful Centenary celebrations, it was necessary to embark on a number of steps, leading up to 2002. As the First International Conference (Stockholm, Sweden, 1899) and the Second International Conference (Kristiania, Norway, 1901) prepared the way for the Inaugural Meeting (Copenhagen, Denmark, 1902), it appeared appropriate for the Annual Science Conferences in 1999, 2001 and 2002 to be held in Stockholm, Oslo, and Copenhagen respectively. The General Secretary had stimulated the Bureau at their

mid-term meeting in June 1994 to consider various ways in which appropriate events could take place. Included among the suggestions were:

- holding a major ICES Centenary Symposium reflecting current and future challenges in marine science and advice;
- arranging a Conference for Young Scientists;
- the production of a special publication documenting important activities and developments since Arthur Went's History (1902-1972) of ICES;
- better presentation and use of ICES considerable historical archives including the history of marine science and the correspondence of famous persons;
- the issuing by the Danish Postal Authorities a first day cover and an ICES Centenary commemorative philatelic stamp akin to those issued in 1964 to mark the conclusion of the ICES Convention.

The President had sent a letter to the Delegates of Sweden, Norway and Denmark inquiring as to the possibility that their authorities could host the Annual Science Conferences leading up to the Centenary as they had done 100 years previously. Comments and suggestions were requested from Delegates as to these or other ideas for marking the ICES Centenary.

The **Delegate of Sweden** reported that the President's letter regarding hosting the 1999 Annual Science Conference in Stockholm had been positively received by the Swedish Authorities. The possibilities of producing a special publication concerning Otto Pettersson and his role in the foundation of ICES was also being examined.

The **Delegate of Norway** stated that the Norwegian Government considered it an honour to hold the 2001 Annual Science Conference in Oslo. Knowing the interest of King Harald of Norway in marine matters, it was possible that an official reception could be arranged.

The **Delegate of Denmark** confirmed that the Danish Authorities were very positive to holding the 2002 Annual Science Conference in Copenhagen, and that the Royal Court would be approached.

The **President** expressed his appreciation of the kind invitations by Sweden, Norway and Denmark, and looked forward to receiving further information in due course.

With regard to the historical reflection on ICES, the **Delegate of Denmark** proposed the inclusion of one or more persons from outside the scientific community in the work. It was important to avoid simply listing events and providing anecdotes. Rather, it was essential to be objectively reflective on the Council's role and achieve-

ments, and explain what were the dynamic factors which influenced evolution and progression.

The **Delegate of the United Kingdom** reflected that the preparatory and inaugural meetings nearly 100 years ago included lucid scientific agendas and declarations which were still very relevant as much remained to be done. It was worth cautioning against excessive self congratulation.

The **President** agreed that self congratulation should be modest. Irrespective of whether the medium used was an ICES Symposium or a history, it would be useful to choose one or more persons outside ICES (e.g., from regulatory commissions) to provide constructive critical reviews. The Bureau proposed, without having yet decided on the particular persons, establishing an editorial group to partly write and also commission various chapters in the special volume. It was evident that there was support, in principle, for the ideas. Dr Mike Sinclair (Canada) would, for example, be an excellent Convenor or Editor-in-Chief, on the basis of his unique interest in the history of the Council as well as his active contributions to ICES scientific development. Noting concerted approval among Delegates, the President proposed the appointment of Dr Sinclair.

The **Delegate of the United States** viewed the ICES Centenary as an exciting opportunity. A symposium or congress ought to be tackled in a wide, and forward looking manner. Thought should be given to partnerships with other international organizations, societies and congresses. He firmly seconded the appointment of Dr Sinclair to lead the special publication initiative. However, additional presentational media should be examined, including documentary and educational type videos or television in co-operation with, for example, the BBC and National Geographic as sponsors. High level (e.g. royal and ministerial) receptions in the Scandinavian host countries leading up to the Centenary would add prestige and public interest necessary to influence possible sponsors.

The **Delegate of Spain** recalled the recent Centenary of the Biologische Anstalt Helgoland. German ideas and experiences were likely to be of great help.

The **President** expressed his gratitude for many very useful contributions to the inaugural Delegates "Extra" Session.

#### **Agenda Item 12 APPOINTMENT OF CHAIRMAN OF FINANCE COMMITTEE**

The **President**, noting that Mr O. Cendrero (Spain) would be concluding his three-year term of office on 31 October 1994 after having very ably served the Council, requested that Delegates give their approval to the Bureau's proposal that Mr Peter Hoogweg (Netherlands) be

appointed as Chairman of the Finance Committee for the three-year period commencing 1 November 1994, and that Prof. Alfred Post (Germany) be appointed to replace Mr Hoogweg as a member of the Finance Committee.

The Council endorsed the Bureau's proposals.

#### **Agenda Item 13 REPORT OF FINANCE COMMITTEE**

The **Chairman of the Finance Committee** presented the Committee's report, the main features of which are highlighted in Items 13.1 - 13.5.

##### **Item 13.1 Audited Accounts for Financial Year 1992/1993**

The Finance Committee had reviewed the Audited Accounts and Balance Sheet for 1992/1993, contained in Doc. C.M. 1994/Del:1 and, having no comments or questions, had approved and signed the Accounts and Balance Sheet on behalf of the Council.

The Audited Accounts were approved by the Council.

##### **Item 13.2 Estimated Accounts for Financial Year 1993/1994**

The Committee had reviewed the Estimated Accounts for Financial Year 1993/1994 (Doc. C.M. 1994/Del:4). There was overall conformity between the budgeted and estimated amounts. Although slightly more had been spent on staff salaries, this had been more than offset by savings on staff pensions as a result of staff opting for membership of private pension schemes. The Committee approved of the easier to follow layout of the presentation of the Accounts, reflecting the recent engagement of the international accountants KPMG C.Jespersen. The Committee had agreed, after discussion, to recommend to the Council that, in accordance with modern accounting practice, in future only the immediate pages of the Profit and Loss Account and the Balance Sheet on 31 October should be reproduced for inclusion in the Audited Accounts of the Annual Report. The complete document would, as usual, still be made available to the Delegates and the Contracting Parties.

Although there was likely to be a welcome, and relatively large, excess of income over expenditure at the end of the year, this was to be viewed as a temporary occurrence (being due to unbudgeted income) rather than being the start of a long-term trend. The Finance Committee noted the decision of the Bureau, at their June 1994 meeting, to make available up to DKK 300 000 to allow the General Secretary to purchase new computers and integrated software to improve the working conditions for the Secretariat and visiting scientists at ICES Headquarters. The Finance Committee

recognized that heavy demands were commonly placed on the Secretariat during the summer months, and understood that it may be necessary to establish an additional secretarial position to deal with the situation.

The Council approved the Estimated Accounts.

### **Item 13.3 Budget for Financial Year 1994/1995**

The **Chairman of the Finance Committee** drew attention to the draft Budget for 1994/1995 (Doc. C.M. 1994/Del:5), and an amendment which had been produced by the General Secretary. The amendment indicated the preferred manner in which the necessary DKK 25 000 for covering the costs of the Council having its own, private accountants could be met.

In the Budget as dealt with by the Finance Committee, it was pointed out that figures presented in the Budget and Estimated Accounts would be simply net of VAT (c.f. the terms of the 1968 Host Agreement). It was noted that the Budget did not reflect some income and expenditures associated with the Council's potential involvement in projects related to AMAP and the European Commission. An item for Staff Courses and Training had been introduced to improve efficiency and productivity.

The Finance Committee had approved the draft Budget for 1994/1995.

The Delegates were also informed of the Finance Committee's unanimous recommendation that the Council should obtain the services of an independent firm of international chartered accountants (c.f., agenda item 6 of the Report of the Finance Committee). The benefits of having independent auditors acting on behalf of the Council would outweigh the relatively modest costs. *[On the basis of this unanimous recommendation by the Finance Committee, it was possible to revert to agenda item 7 regarding Change of Rule of Procedure 20(vii)]*

The Finance Committee recommended that the draft Budget be amended to include the necessary associated costs. Hence, a new item "Accounts and Auditing", had been introduced under expenditure, to cover (DKK 25 000) the services of KPMG C.Jespersen. In order to meet the costs, it was proposed that there be a) a DKK 34 000 decrease in Office Maintenance, bringing this item to a level of DKK 151 000, and b) an increase of DKK 16 000 (to a level of DKK 21 000) in budgeted income.

The Council had no questions or comments and the draft Budget for 1994/1995 was unanimously approved by a roll call vote.

### **Item 13.4 Forecast Budget for Financial Year 1995/1996**

The **Chairman of the Finance Committee** referred to Doc. C.M. 1994/Del:6, noting that the National Contributions were estimated to increase by only 2.61%. It was hoped that the implementation of 100% cost-recovery in the Council's dealings with its customers would lead to even smaller increases in the future. Progress with the Timesheets and Costing Systems (TACS) was progressing well, and tangible steps in increasing cost-recovery percentages could be expected in the Financial Year 1996/1997. The number of shares in the Council's scheme of contributions for the Budget would be 52½, reflecting the decrease in Russian shares and the increase in Latvian and Estonian contributions.

The Finance Committee recommended that the draft Forecast Budget for 1995/1996 be adopted.

The **Delegate of Canada**, at the Presidents invitation to comment on the draft Forecast Budget, commended the General Secretary for having presented a budget with modest increases in National Contributions, compared with those seen several years previously. The moves made towards increased percentage cost-recovery were also very positive.

There being no further comments or questions, the draft Forecast Budget for 1995/1996 was unanimously approved by a roll call vote.

### **Item 13.5 Contributions to ICES Budgets**

The **Chairman of the Finance Committee** reported that the accession of Latvia to the ICES Convention in 1993, as well as the accession of Estonia since the 1993 Council Meeting in Dublin had satisfactorily balanced the agreed decrease in Russian shares.

The **President** having asked for and then received the endorsement of the Council for the Report of the Finance Committee, expressed the thanks of the Council for the professional and conscientious manner in which Mr Cendrero had conducted his duties as Chairman of the Finance Committee during his period of office.

### **Agenda Item 14 AUDITING OF THE COUNCIL'S ACCOUNTS AND RELATIONSHIPS WITH THE AUDITOR GENERAL OF DENMARK**

The **President** drew the attention of the Delegates to Doc. C.M.1994/Del:9, and the letter that had been sent jointly by him and the General Secretary on 12 July 1994 to the Contracting Parties. He pointed out that Del:9 provided the appropriate background material,

while the letter to the Contracting Parties (which had been copied to the Delegates at that time) provided them with the necessary two months' notification that a proposed change to Rule of Procedure 20(vii) was to be put on the agenda and specified the proposed new text for this particular Rule of Procedure. The President explained that several former misunderstandings between the Council and the Auditor General had been resolved with regard to pensions, and that in his view the way was now clear for future auditing arrangements. He considered that the past was 'water under the bridge' and one should look to the future.

The **President** summarised the situation up to 1978 where the auditing of the Council's accounts was in the hands of a firm of private but state approved accountants. In 1978, it was proposed and agreed for convenience, and as a money saving initiative, that the Auditor General of Denmark would carry out the audit free of charge. The Council was very appreciative of this arrangement. However, for reasons that were explained in Doc. C.M. 1994/Del:9 and which some Delegates had been already aware of from the 1993 Delegates meeting and related discussions, the Bureau now firmly recommend that the Council reverted to the pre-1978 situation, whereby ICES accounts would be audited by a firm of private accountants. This proposal from the Bureau took into consideration a series of discussions between representatives of the office of the Auditor General, including the Auditor General himself, and representatives of ICES. At the June 1994 meeting of the Bureau, it was unanimously agreed that the Council and its Secretariat would be best served by having recourse to private accountants of the highest national and international standards. In this context, the question of the need for ICES to get advice on financial management was raised. The Auditor General of Denmark's office made it clear that regretfully it was not possible for them to provide such services. It was important to emphasise the benefits of maintaining good working relationships with the Danish authorities. The Bureau had accordingly proposed that the Auditor General of Denmark be given an observer status as indicated in Doc. C.M. 1994/Del:9. In this relationship, the Council's accountants would inform the Auditor General of Denmark where the accounts were considered not acceptable or in some way defective, what steps were being taken to remedy matters and when it had been redressed. In discussions between the General Secretary and the Auditor General it was apparent that observer status was not attractive. The Auditor General had informed ICES that, in his view, it would be "appropriate to inform the Council that the costs of the audit so far have been covered by the Auditor General and that private accountants do not normally perform management audits." There was obviously some misunderstanding as the accountants approached (KPMG C.Jespersen) indicated that this was not the case and, moreover, the office of the Auditor General had already informed the former and the current General Secretaries

that it was not in a position to give such management advice. Thus it was firmly proposed that ICES reverted to having its own private accountants and accordingly the proposed new Rule of Procedure 20(vii) read

'The Council's Auditor shall check the invested and liquid funds as of 31st October each year as soon as possible after that date for the purpose of preparing the Balance Sheet, and they shall annually, at such time as they may choose, inspect the Council's funds. The Council's Auditor may consult the Danish Delegate or Delegates on any question in connection with the accountants.'

It was proposed that not only would the Rule of Procedure be changed but that one should proceed on the understanding that the two aspects, namely the move to a firm of accountants and the agreement on the future role of the Auditor General of Denmark, be dealt with as two separate issues. The latter issue could be resolved at a later date. The matter was open to Delegates to discuss and comment on.

The **Delegate of Sweden** suggested that it might be premature to make a decision before the Finance Committee had been able to discuss the matter, which was also on their agenda. In his view, the budgetary implications and costs needed further clarification. It was appropriate that such a discussion be taken up in the Finance Committee.

The **Delegate of Spain** supported the view of the Delegate of Sweden.

The **Delegate of Denmark** expressed his desire that this complex matter be examined in the Finance Committee before a decision was taken by Delegates to change the relevant Rule of Procedure. He considered that this course of action would open matters up for establishing good auditing and advisory services for the ICES Secretariat. Thus, he moved that the matter be returned to after it had been examined by the Finance Committee.

The **President** replied that, in principal there appeared to be agreement on the proposal but that matters required to be addressed by the Finance Committee.

In response to a query from the **Delegate of Norway** as to whether the new auditing arrangements would apply to the Financial Year 1994/1995, the **President** replied that it was intended to implement the new arrangement for the 1993/1994 Audited Accounts. The Delegates had received the preliminary statement of accounts for 1993/1994 but, as the financial year did not terminate until 31 October, the audited accounts would not be presented to the Council until the 1995 Annual Science Conference (83rd Statutory Meeting).

On being requested by the President to provide additional information, the **General Secretary** explained

that the Secretariat had already engaged the services of the accountants KPMG C.Jespersen in order to provide the new presentation seen in the Estimated Accounts for the Financial Year 1993/1994 (Doc. C.M. 1994/Del:4). This was necessary in order to provide the long sought after services required for meeting the costing demands of an increasing number of customers, such as the regulatory commissions. It was also important that KPMG C.Jespersen be acquainted with ICES accounts should they be required to speedily audit the accounts after 31 October 1994. The cost implications of using the eminent international group KPMG were about DKK 20 000 - 25 000 per annum. Management advice would be included for this sum. The costs of the new arrangement would probably be partly met by customers, as a fair proportion of the auditing costs could be included in 'overheads'.

The **Delegate of the Netherlands** expressed his gratitude for the clarification provided by the President and General Secretary. He concluded that the Delegates should be able to make an informed decision after the meeting of the Finance Committee.

The **President** summed up that one would return to the matter of Auditing of the Council's Accounts after the meeting of the Finance Committee. He looked forward to receiving advice from the Finance Committee in due course.

[See Agenda item 7 for conclusion of change to Rule of Procedure 20(vii), and Agenda item 13.3 for views of the Finance Committee]

#### **Agenda Item 15 APPOINTMENT OF CHAIRMAN AND TWO MEMBERS OF PUBLICATIONS COMMITTEE**

The **General Secretary**, noting that Mr J. Sigurjónsson (Iceland) would be concluding his three-year term of office on 31 October 1994 after having served the Council excellently, requested that Delegates give their approval to the Bureau's proposal that Dr Michael P. Sissenwine (USA) be appointed as Chairman of the Publications Committee for the three-year period commencing 1 November 1995, and that Dr Kenneth Foote (Norway), Dr Olafur Asttorsson (Iceland), and Prof. Peter Boyle (United Kingdom) be appointed to replace Dr M.P. Sissenwine, M A. Forest (France) and Prof. A. Post (Germany) as members of the Publications Committee.

The Council endorsed the Bureau's proposals.

#### **Agenda Item 16 REPORT OF PUBLICATIONS COMMITTEE**

The **Chairman of the Publications Committee** presented the Committee's report and drew attention to

several main points of the extensive discussions that had taken place. Concern was expressed at production delays associated with the publication of the *ICES Journal of Marine Science* during the course of the last year. However, the flow of material had increased and technical problems had apparently been overcome. There was still a cumulative loss in finances of the *ICES Journal*, which was not in accord with the prognoses originally provided by Academic Press on its taking over publication responsibilities. However, increases in the numbers of pages published per volume matched by an increase in subscription rates were expected to improve matters. The proceedings of the ICES Zooplankton Production Symposium held in August 1994 in Plymouth (UK) were expected to generate about 350 additional pages in the *ICES Journal of Marine Science* as the first edition of the *ICES Marine Science Symposia* series to be published in this manner. The Publications Committee appreciated the Bureau's decision to set aside money to act as a possible buffer to restore the *ICES Marine Science Symposia* series in the eventuality of having to publish the series in its own right.

The proceedings of the Cod and Climate Change Symposium, held in Reykjavik (Iceland) in August 1993, were expected off-press in the *ICES Marine Science Symposia* series in October 1994. The proceedings of the Shellfish Lifehistory and Shellfish Models Symposium, held in June 1990 in Moncton (Canada) were, after substantial difficulties, expected to be published in mid 1995. The General Secretary would take steps to prevent further delays in publishing the proceedings of the Symposium on Mass Rearing of Juvenile Fish, held in June 1993 in Bergen (Norway).

The Publications Committee expressed its frustration at the late submission and poor reliability of fishery statistics from Member Countries, and supported the view of the Statistics Committee that publication of Volume 74 of the *ICES Fishery Statistics* should take place as soon as possible, with the forward noting that data from specific Member Countries had not materialised. The Committee was pleased to note that the Bureau had proposed that problems associated with declining quality and submission of fishery statistics be communicated to the European Commission with the request that the matter be placed on the agenda of its Fishery Council.

The publication of the *North Sea Quality Status Report 1993* was of great significance and the efforts of the ICES Secretariat and its Environment Secretary were commended in its successful completion.

The revenue from ICES publications had declined in 1993/1994 owing to transfer of the *ICES Journal of Marine Science* to Academic Press. The General Secretary was requested to review the complimentary distribution list for the Council's various publications, especially in the case of the *ICES Journal*. Targeted and suc-

cessful marketing was considered to be vital for increased sales, and the Secretariat were requested to examine ways in which this could be achieved, including updating the Catalogue of ICES Publications. The potential co-sponsorship by ICES of the *Aquatic Science and Fisheries Abstracts (ASFA)* was looked upon favourably, and would likely increase the visibility of Council reports and publications.

The Committee were grateful that the Editor and two Assistant Editors of the *ICES Journal* were willing to accept a further three-year appointment. It was not considered necessary to establish an Editorial Board for the ICES Journal, preferring for the meanwhile to encourage support through a dedicated and supportive Publications Committee. The desirability of establishing the principle of Guest Editors for dealing with the proceedings of ICES Symposia to be published as special editions of the *ICES Journal* was examined, with the Editor and the General Secretary agreeing to pursue the matter further together with Dr Andrew Richford of Academic Press. The scope of the *ICES Journal* received substantial discussion without arriving at a firm conclusion. However, it was clear that ICES required to give the matter serious attention, particularly with regard to expanding areas of scientific interest within the current biological domains as well as in supplementary areas such as bioeconomics.

In addition to the future publication of the Symposium on Fisheries and Plankton Acoustics, to be held in June 1995 in Aberdeen (UK), and that of the Symposium on Changes in the North Sea Ecosystem and their Causes: Århus 1975 Revisited, to be held in July 1995 in Århus (Denmark), in the *ICES Journal*, the Committee responded positively to an informal inquiry by the Convenors of the 1995 NAFO/ICES Symposium on the Role of Marine Mammals in the Ecosystem that these proceedings be considered for publication by ICES, either in the *ICES Journal* or in the *ICES Marine Science Symposia* series.

The Publications Committee recognized the needs of the Secretariat to acquire modern equipment (e.g., desktop publishing, appropriate software and electronic scanners) to speedily and professionally produce the many types of Council publications (e.g., Cooperative Research Reports and other in-house series) and Working/Study Group reports. The Publications Committee emphasised that publications reflect the end-product of the Councils activities, and with the encouragement of the General Secretary, the Committee was eager to play a greater and more proactive role in expanding its activities and area of influence.

In conclusion, the Chairman of the Publications Committee, in approaching the end of his three-year term, expressed his appreciation of the hard work, stimulation and support of the Secretariat and the Committee.

The **President** thanked the Chairman of the Publications Committee for the energetic leadership he had provided during his office. The report of the Committee was opened for discussion, comments and questions.

The **Delegate of Canada** concurred that it was important to examine the scope of the *ICES Journal* as this was currently narrower than the activities of the Council. Compared with fisheries science, for example, relatively little emphasis was apparently placed on environmental matters. The question of the future scope of the *ICES Journal* could be considered within the broader remit of the considerations of the Bureau Working Group on the Structure of ICES.

The **President** supported the thrust to strengthen the activities of the Publications Committee with a view to bringing ICES publications into the centre of Council affairs. The Rule of Procedure governing the Publications Committee stated, among other things, that the Committee reported to the Bureau. A closer and more active relationship between the Publications Committee would be encouraged. However, the Bureau Working Group had a considerable task dealing with its major terms of reference related to the possible restructuring of ICES without including publication matters. However, as Publication matters would be on the Bureau's mid-term agenda and as the Bureau Working Group would provide a progress report at the same time, an attempt would be made to link these affairs.

The **Delegate of Finland** pointed to their being both pros and cons regarding expanding the scope of the *ICES Journal*. Increasing the scope would also necessitate expanding the Editorial fields of competency as well as that of the referee system. The Editor and the Assistant Editors of the *ICES Journal* ought to work together with the Publications Committee in determining the question of scope.

The **Delegate of Norway** noted with approval the statement of the Publications Committee regarding the significance of ICES publications. It was clear that publications could be a vital medium for the future evolution of the Council as an organization. He was anxious about the implication that the Committee had apparently been little more than an approval body rather than making a more active contribution to the goals of ICES. Further expansion on the subject of previous and current views concerning the Committee's function would be appreciated.

The **General Secretary** was of the firm opinion, through personal experiences of the Publications Committee as an ordinary member and as Chairman of the Consultative Committee, that the Committee's potential had not been harnessed adequately. Thus, he and the ICES Technical Editor (Ms Judith Rosenmeier) had been instrumental in setting up an agenda intended to

rouse the Committee's activities. The Publications Committee had provided a very engaged response.

The **Chairman of the Publications Committee** wished to have sustained effort given increasing the members appreciation of the Council's publication affairs via intersessional exchange of information and contact. The Secretariat and the Council's publications, including the *ICES Journal* required enduring support. Furthermore, it would be advantageous to improve the co-operation between the Committee and the Consultative Committee as well as the Bureau.

The **President** looked forward to seeing impetus shown by the Publications Committee further focused at the mid-term meeting of the Bureau. Dr M.P. Sissenwine, the incoming Chairman of the Publications Committee, in also having been appointed to the Bureau, would ensure that Publications issues received increased attention by the Bureau. The Delegates evidently gave their full support to these initiatives, which were expected to be followed up through the activities of the newly appointed members of the Committee.

The **Delegate of France** inquired as to the approach, mentioned in the Report of the Publications Committee, by FAO to the General Secretary as to potential co-sponsorship of ASFA. Some background information regarding likely advantages and disadvantages, as well as financial and manpower implications would be appreciated.

The **General Secretary** had met and otherwise communicated with representatives of FAO, the chief sponsor of ASFA together with IOC. ICES would be expected, as a co-sponsor, to contribute the titles and abstracts of papers and reports it published, including Working/Study Group reports and the contributions presented at the Annual Science Conference and Symposia. Although such an engagement would appear to place demands on the Secretariat's human resources, this type of information was already being stored in various types of electronic media via word-processing and so the necessary resources required were moderate. In return, ICES would receive the whole of ASFA on Compact Disc for use by the Secretariat and by ICES scientists working at ICES Headquarters. ASFA were distributed throughout the world, including China and the developing countries, thereby actively profiling ICES. Further contact with FAO was scheduled to explore matters further before a firm proposal as to ICES commitment would be submitted to the Bureau.

The report and proposals of the Publications Committee were accepted by the Council.

## **Agenda Item 17 REPORT AND RECOMMENDATIONS OF CONSULTATIVE COMMITTEE**

The Chairman of the Consultative Committee presented the Committee's mid-term (June 1994) and current Annual Science Conference reports. His comments, the ensuing discussion, and the Council's actions on the various items and recommendations are summarised below.

### **a) Mid-Term Meeting of the Consultative Committee**

The Committee had, with the assistance of the General Secretary and Professional Secretaries, implemented a number of changes to the Statutory Meeting, now called the Annual Science Conference. These had addressed various organisational matters, including paper presentations and scheduling of the scientific sessions with agenda, orders of the day, and timetables printed as a Green supplement to the Yellow List. Although the Theme and Joint Sessions had generally become very successful, concern was expressed about the lack of time available for reviewing Study/Working Group reports in the Committee sessions. The Programme Planning had culminated in the 1994 Annual Science Conference agenda and sessions, which appeared to have been well received, although specific difficulties were noted in the Committee's Annual Science Conference report.

Despite some Committees wishing to continue with their Reports of Activity, a firm proposal had been made that these no longer be made mandatory (c.f., Rule of Procedure 36(iii)).

Although some time had been devoted to discussions on changing Subject/Area Committee Structure, little agreement had been reached with the possible exception of possible revamping and change of name for the Statistics Committee.

The Committee had otherwise devoted its attention to reviewing the document on ICES Policy on Marine Mammals before it was submitted to the Bureau.

### **b) Report of the Committee at the Annual Science Conference**

#### Election of New Committee Chairmen

Dr H. Benke (Germany), Dr R.M. Cooke (UK), Dr K. Friedland (USA), Mr H. Loeng (Norway), and Dr R. Stephenson (Canada) were elected Chairmen of the Marine Mammals, Statistics, Anadromous and Catadromous Fish, Hydrography, and Pelagic Fish Committees, respectively, for three-year terms.

c) **Code of Practice on Introductions and Transfers of Marine Organisms**

After a number of revisions the Code had been approved by the Consultative Committee, with a recommendation that it be endorsed by the Council.

It was pointed out by the **General Secretary** that difficulties had arisen in dealing with requests for advice arising from within the United States. As individual States within the Union addressed their requests to the Council without recourse to the USA Administration as Contracting Party this had recently resulted in more several States becoming embroiled in clear *a priori* differences in opinion making it well-nigh impossible for ICES advice to be accepted across the board. From now onwards, any requests for advice would only be dealt with directly by ACME through the Working Group on Introductions and Transfers of Marine Organisms once the legitimacy and viability of being able to provide an appropriate response had been determined; this particularly applied to requests from States within the USA.

On the **President** querying whether the individual States within the USA could legitimately request advice in the spirit of the ICES Convention (i.e., as a Contracting Party), the **Delegate of the United States** agreed that this was an internal problem for the USA and accepted that requests for advice received by the Council on introductions and transfers from States within the USA, rather than from the Federal Administration, should be sent to NMFS/NOAA in Washington D.C. Such requests would only be dealt with after having been officially endorsed by NMFS/NOAA.

d) **Request from NAMMCO for ICES input at NAMMCO 1995 Marine Mammals Conference**

The Consultative Committee, in response to a request addressed to ICES by NAMMCO to contribute a paper to be presented by a designated representative, proposed that Dr A. Bjørge (Norway, currently Chairman of the Marine Mammals Committee) provide a scientific review of the Council's work on Marine Mammals, especially with regard to contaminant levels and their effects, at their Conference in Shetland in April 1995.

e) **Open Lecture and Mini-Symposium for 1995 and 1996 Annual Science Conferences**

The Consultative Committee had agreed that the Open Lecture at the 1995 Annual Science Conference would be given by Prof. J.T. Carlton (USA) on "Ballast Water: the Ecological Roulette of Marine Biological Invasions". The General Secretary had approached IMO and IOC with regard to their co-sponsorship, to which both organizations had agreed.

The Committee had not endorsed any proposals for the Open Lecture or Mini-Symposium in 1996. It was understood, however, that it was advantageous to have an approximately two-year preparatory time to ensure successful events. It was expected that the Committee would be able to endorse proposals made at its June 1995 mid-term meeting.

The Committee proposed that the 1995 Mini-Symposium be on "Arctic Oceanographic Processes" with Mr H. Loeng (Norway), Dr J.M. Bewers (Canada) and Mr L. Føyn (Norway) as Co-Convenors.

No decision was made regarding the 1996 Mini-Symposium.

The Council approved both these recommendations.

f) **Theme and Joint Sessions for 1995 Annual Science Conference**

The Consultative recommended Theme and Joint Sessions for 1995 included under Agenda Item 10 in Report of the Consultative Committee for approval by Delegates.

After some discussion in which it was acknowledged that there was a deficiency of environmentally related scientific sessions scheduled for the 1995 Annual Science Conference, a proposal by the **Delegate of the Netherlands** to replace g) Joint Session of the Pelagic Fish and ANACAT Fish Committees on "Homing, Learning, and Migration: Observations and Hypotheses regarding Pelagic and Anadromous Species" with the Theme Session originally scheduled for 1996 on "Consequences of Manipulation/Management of Nutrient Fluxes on Nutrient - Foodweb Interactions" was agreed to by Delegates.

With the amendment noted above, the Council approved these recommendations.

g) **ICES Symposia in 1996 and 1997**

The Council approved the recommendation that a Symposium on "The Interactions of Wild and Reared Salmon, including Fish from Ranching, Farming and Enhancement" be held in the United Kingdom for 4 days in April 1997, with Mr A. Youngson (UK) and Dr L.P. Hansen (Norway) as Co-Convenors.

A recommendation that a Symposium on "The Role of Physical and Biological Processes in the Dynamics of Marine Populations" be held in Crete (Greece) in 1996 was not approved by Delegates on the grounds that insufficient planning had taken place and it was uncertain to what extent facilities were available in Crete. In order to redress these matters a Planning Group was established to report to the 1995 mid-term meeting of the

Consultative Committee and the 1995 Annual Science Conference.

Two Symposia, approved in previous years, will be held in 1995. A Joint NAFO/ICES Symposium will also be held in 1995.

#### **h) Recommendations by Advisory and Subject/Area Committees**

The Chairman of the Consultative Committee drew attention to the various comments made by the Consultative Committee when considering the recommendations submitted by the various Subject/Area Committees and Advisory Committees (see Report of Consultative Committee, Agenda Item 13). Reference was made to the various Groups that had been dissolved, established or renamed, as well as the overview of ICES Committees and their subsidiary Groups.

#### Consultative Committee

The various recommendations originating from the Consultative Committee were adopted by the Council as C.Res.1994/2:2 - 2:5:2

#### Fish Capture Committee

The recommendations originating from the Fish Capture Committee were adopted by the Council as C.Res.1994/2:8 - 2:11.

#### Hydrography Committee

The **Delegate of Finland** emphasised the importance of C.Res.1994/3:3 regarding ICES co-sponsorship of a Conference on Baltic Marine Research, which had been recommended jointly by the Hydrography and Marine Environmental Quality Committees. He considered it vital that the Baltic Marine Biologists (BMB) be involved. The **Oceanography Secretary** replied that, to his knowledge, BMB would probably provide co-sponsorship.

The recommendations originating from the Hydrography Committee were adopted by the Council as C.Res.1994/2:12 - 2:15.

#### Statistics Committee

The recommendations originating from the Statistics Committee were adopted by the Council as C.Res.1994/2:16 - 2:17.

#### Marine Environmental Quality Committee

The **Delegate of Finland** expressed frustration at the apparent degree of overlap between the operations of ACME and its Subsidiary Groups on the one hand and

the operations of the MEQC on the other hand. He requested clarification as to the specific remit of the Marine Chemistry Working Group (MCWG). The **Chairman of the Consultative Committee** noted that the Chairman of MEQC was a member of ACME and contributed actively to the formulation and discussion of the terms of reference of ACME's groups. The **Environment Secretary** explained that the MCWG worked primarily in seawater and biota and not in sediments as they had limited competence in the area. The Working Group on Marine Sediments in Relation to Pollution dealt with chemical analytical issues, specifically with regard to sediments and suspended particulate matter. The two Working Groups were complimentary, not overlapping in their work.

The recommendations originating from the Marine Environmental Quality Committee were adopted by the Council as C.Res.1994/2:18 - 2:22.

#### Mariculture Committee

The recommendations originating from the Mariculture Committee were adopted by the Council as C.Res.1994/2:23 - 2:28.

#### Demersal Fish Committee

The recommendations originating from the Demersal Fish Committee were adopted by the Council as C.Res.1994/2:29 - 2:34.

#### Pelagic Fish Committee

The recommendations originating from the Pelagic Fish Committee were adopted by the Council as C.Res.1994/2:35 - 2:38.

#### Baltic Fish Committee

The recommendations originating from the Baltic Fish Committee were adopted by the Council as C.Res.1994/2:39 - 2:40.

#### Shellfish Committee

The recommendations originating from the Shellfish Committee were adopted by the Council as C.Res.1994/2:41 - 2:47.

#### Biological Oceanography Committee

The **Delegate of the United States**, noting reference to examining the possibility to gain funding from the European Commission in the original recommendation pertaining to the Study Group on Methods of Spatial and Temporal Integration, desired that reference to funding attempts of this type be deleted in principle. This pro-

posal was supported by the **Delegate of Canada** and the **Delegate of Finland**, and approved by the Council.

The recommendations originating from the Biological Oceanography Committee were adopted by the Council as C.Res.1994/2:48, 2:49 (jointly with Hydrography), and 2:50 - 2:55.

The **Delegate of Finland** noted the seemingly large number of proposals for publication of Study/Working Group reports etc. by the *Council in the Cooperative Research Report* series, and queried the cost implications and who could approve them. The **President** replied that it was traditionally the prerogative of the Consultative Committee to approve these matters; the Secretariat could be expected to raise appropriate alarms through the budgetary process.

With respect to the proposal by the Biological Oceanography Committee and the Hydrography Committee, subsequently supported by the Consultative Committee, that ICES establish a Project Office for the North Atlantic Regional Programme of GLOBEC, the **Delegates of the United States and Norway** indicated their firm support for the idea and pledged substantial economic support for the venture. They urged other Delegates to examine ways of contributing to the proposed Project Office, viewing the initiative as being a necessary and innovative move for ICES in profiling itself in the international scientific community. It was understood that contributions to the Project Office would not be levied through increased annual Member Country contributions. The **President and General Secretary** indicated their clear support for the move. The **Delegate of Canada** noted that although the North Sea Task Force had been financially supported by external contributions, a substantial amount of subsidy must have been provided for it by ICES Member Country contributions as a whole. Hence, the same could be expected to apply to the Project Office. In response to the uncertainty of the **Delegate of Germany** as to whether GLOBEC had an international science plan, the **General Secretary** replied that this would be submitted to IGBP by the co-sponsors (SCOR, IOC, PICES and ICES) in the late autumn. If accepted, GLOBEC would eventually become a Core Programme of IGBP. The Council endorsed, in principle, the establishment of the Project Office as C. Res. 1994/4:7.

#### Anadromous and Catadromous Fish Committee

The recommendation originating from the Anadromous and Catadromous Fish Committee were adopted by the Council as C.Res.1994/2:56.

#### Marine Mammals Committee

With reference to C.Res.1994/4:8 regarding ICES Member Countries being urged to report all by-catches of marine mammals in the ICES area and report the figures

to the ICES Secretariat by 1 June 1995, the **Delegate of Finland** wished it to be noted that it would be nearly impossible to report on by-catches before early 1996 as it would take time to arrange the appropriate registration process.

The other recommendation originating from the Marine Mammals Committee were adopted by the Council as C.Res.1994/2:57.

#### ACME

The **Environment Secretary** pointed out that ACME had proposed that the Working Group on the Statistical Aspects of Environmental Monitoring be transferred from the parentage of ACME to that of the Statistics Committee. The Council agreed that the Working Group would henceforth report to the Statistics Committee.

With respect to C.Res.94/4:1 regarding ICES organising an intercalibration exercise on the analysis of trace metals in seawater, the **Delegate of Finland** requested confirmation that this was necessary and appropriate as he was aware that such exercises had been arranged previously. The **Environment Secretary** explained that the last exercise had occurred in the mid-1980s and that methodologies had developed and needed to be tested, and exercises of this type needed to be carried out frequently for the sake of comparability. The **Delegate of the Netherlands** recollected that monitoring of metals should be conducted in sediments and not in seawater, and so queried the need for costly exercises regarding metals in seawater. The **Environment Secretary** emphasised that the recommendation originated from the MCWG, and was concerned with trace metals in estuaries and fluxes from rivers via estuaries to the sea.

The **Delegate of the Netherlands** argued that the name of the Working Group on the Effects of Extraction of Marine Sediments on Fisheries be changed to acknowledge the wider implications of these effects than on fisheries alone. The **President** proposed, and Delegates agreed, that the name be Working Group on the Effects of Extraction of Marine Sediments on the Marine Ecosystem. It was also agreed to include an additional term of reference dealing with navigational dredging. Delegates, after some discussion, agreed that the Working Group should continue to report to ACME, but that ACME should specifically review and justify the reporting and patronage of the Group.

In response to a proposal from the **Delegate of Finland** that ICES and HELCOM reduce the overlap caused by having several groups dealing with similar matters, Delegates agreed that C.Res.1994/3:7 and 3:8 should propose merging of groups under joint sponsorship. The Secretariat would communicate this proposal to HELCOM.

The recommendations originating from ACME were adopted by the Council as C.Res.1994/2:7 - 2:7:11.

#### ACFM

The **General Secretary** drew the attention of Delegates from the Baltic Member Countries of ICES to countries in IBSFC being aware that the hydroacoustic surveys conducted in the Baltic were of such a character that ACFM had not been able to accept them recently for advisory purposes. This had been used in some quarters as an argument for substantial flexibility in accepting ACFM advice. He requested all possible assistance to be given to improving the survey results.

The recommendations originating from ACFM were adopted by the Council as C.Res.1994/2:6 - 2:6:20.

The **Delegate of the United Kingdom**, commenting in general about quality and quantity in ICES, expressed concern about the proliferation in the number of ICES Study/Working Groups during the last several years. He requested that the Consultative Committee should in future provide statistics as to the longevity of all groups in existence, particularly for Study Groups which were supposed to have a finite life-span. He also considered it desirable to give serious thought to producing reports for the lay public, either through ICES acting alone or through co-operation and co-sponsorships with other organizations. The **Chairman of the Consultative Committee** conceded that this was important and agreed to provide the information requested at the 1995 Annual Science Conference. The **President** supported the view on popular scientific reports for the public, noting that Agenda Item 15 of the Report of the Consultative Committee referred to the interest shown by the World Wide Fund for Nature in such an enterprise.

The **President** felt frustration at the seemingly increasing trend for long names of ICES Groups, which in some cases were so unwieldy as to resemble a term of reference. He requested that the Consultative Committee react appropriately.

#### **Agenda Item 18 ACFM MATTERS**

The **Chairman of the Consultative Committee** referred Delegates to the mid-term report of the Consultative Committee (Doc. C.M. 1994/Gen:4) and the report of the Consultative Committee from the 1994 Annual Science Conference as sources of pertinent information regarding the two Advisory Committees.

ACFM was continuing to examine ways to rationalise the manner in which it used the results from the Study/Working Groups on which its advice depended, as well as the move away from single species based groups to area based ones. The format of the ACFM report was undergoing substantial change, including the

insertion of figures and tables in the relevant parts of the text using integrated software, in order to improve user-friendliness. ACFM science revolved around the concept of minimum biologically acceptable levels, highlighting the need to further develop stock-recruitment related research. Otherwise, technical, multispecies and ecological interactions were of major importance. In order for ACFM to provide its advice on time, it was vital that attention be given to the proper timing of the meetings of its subsidiary groups, and to the timely completion of their reports early enough for these to be made available sufficiently early for ACFM review.

#### **Agenda Item 19 ACME MATTERS**

The **Chairman of the Consultative Committee** reported that ACME was examining ways to have technical issues, topics and reports reviewed on an intersessional basis without the need to bring additional expertise into the Committee itself. ACME was giving further emphasis to strategic issues on an interdisciplinary and ecosystem related basis, e.g. fishing and ecosystem interactions, biodiversity and habitats, seabird - fishery relationships, eutrophication, harmful algal blooms, introductions and transfers including ballast water related traffic, evaluation of monitoring programmes and protocols, and the value of and potential to contribute to international programmes such as GOOS. Further development of statistics and modelling as key tools in the work of ACME and its co-operating groups was being encouraged.

ACFM and ACME had arranged an inaugural joint meeting in May 1994 to address possible areas of future co-operation and working arrangements for dealing with issues which required the common attention of both Advisory Committees.

The **Delegate of Finland** recollected that he and others had urged that the Consultative Committee examine, *inter alia*, the roles of ACME and the Marine Environmental Quality Committee (MEQC) with a view to avoiding overlap or collision of interests. It had further been requested by the Council that the matter of Study/Working Groups reporting to ACME and MEQC be reviewed. It did not appear, from the reports of ACME or the Consultative Committee, that much progress had been made.

The **Chairman of the Consultative Committee** replied that discussions had occurred in ACME and the Consultative Committee in the broader contexts of possible restructuring and renewal of the Subject/Area Committees. MEQC Working Groups represented a specific and important expertise which, although frequently associated with chemistry, was clearly pollution and environment related. However, fish disease was also of importance in the considerations of MEQC. A concrete decision on the future of MEQC or its replacement(s) and its relation-

ship with ACME, should await further information and debate, of a generic nature, on what were the current and future challenges and issues. This appeared to be a matter, among others, for the consideration of the Bureau Working Group on the Structure of ICES.

The **President** agreed that the question of ACME and its relationships with Subject/Area Committees and Working Groups was an appropriate subject for the attention of the Bureau Working Group.

The **Delegate of Spain** drew the attention of the President and Delegates to it being necessary, according to Rule of Procedure 26, for the national representatives to the Advisory Committees to be approved by the Council. He queried whether this was taking place.

The **General Secretary** replied that the Report of Administration, which had been presented to the Council as Agenda Item 1, indicated which changes in Advisory Committee membership had occurred since the previous Statutory Meeting. However, he was open to advice as to whether Delegates wanted to confirm Advisory Committee membership for the year 1994/1995 in a more formal way at the Statutory Meeting. He emphasised that the General Secretary traditionally sent a letter to Delegates in November each year requesting details of any amendments Member Countries wished to propose for the new membership lists.

The **President** considered that the Report on Administration fulfilled the spirit of Rule of Procedure 26. Member Countries were, however, free to provide new nominations whenever they desired, with approval being given on behalf of the Council through the authority of the President in accordance with standard practice.

#### **Agenda Item 20 1995 AND 1996 ANNUAL SCIENCE CONFERENCES (83RD AND 84TH STATUTORY MEETINGS)**

The **General Secretary** reminded Delegates that the 1990 (78th) Statutory Meeting in Copenhagen was the last occasion that there had been a Danish venue. As no invitations had been received from Member Countries to host the 1995 Annual Science Conference (83rd Statutory Meeting), the Bureau were of the opinion that it was appropriate to hold the meeting in Denmark. Increases of over 50% in the costs of hiring the traditional Copenhagen venue of Moltkes Palæ since 1990 had necessitated looking at several other facilities both inside and outside Copenhagen. The final choice had been the excellent Aalborg Hall (Conference and Congress Centre). The 1995 Annual Science Conference was proposed to start on Tuesday 21 September (General Assembly and Open Lecture) and conclude on Friday 29 September (final session of Delegates meeting). With regard to the 1996 Annual Science Conference (84th Statutory Meeting), an invitation had been received from Iceland to

host the meeting in Reykjavik. The Bureau was aware, however, that a Statutory Meeting had last been held in Iceland in 1977 and that the Icelandic preference would have been to hold the next Council Meeting in Reykjavik, 20 years after the former one. The Icelandic invitation had, however, been for 1996 in order to avoid having successive Annual Science Conferences held in Denmark.

The **President** asked the Council to endorse the dates and venue for the 1995 Annual Science Conference, which it did.

The **Delegate of Iceland** reaffirmed that his country would be pleased to welcome ICES to Reykjavik in 1996.

The **President** thanked the Delegate of Iceland for the kind invitation to host the 1996 Annual Science Conference. He recollected that a desire had been expressed by the Iceland Delegates that the meeting be held earlier than usual in order to gain potential advantages of more clement weather.

After taking into account logistic concerns (e.g., dispatching documents and equipment, overlap with dates already fixed for meetings of other international organizations) expressed by the **Delegates of Sweden, Spain and Canada** associated with moving a Statutory Meeting forward by several weeks, the **President** moved, and the Council approved, that the 1996 Annual Science Conference be held in Iceland at the customary time. The General Secretary, working in conjunction with the Delegates of Iceland, was requested to finalise the dates in time for the 1995 mid-term meeting of the Bureau.

The **Delegate of Denmark** requested that, although it was hard to change the timing of the Annual Science Conference, serious consideration be given to shortening the Council Meeting. It was appreciated that necessary time be set aside for preparing reports and Recommendations for the Delegates, but in an average year it should be possible to conclude all Council business by the end of the final Thursday.

The **President** agreed with the sentiments of the Delegate of Denmark and urged that the General Secretary and the Chairman of the Consultative Committee review ways for reducing "housekeeping" to a minimum while still ensuring that sufficient time be maintained for relevant querying of Council Resolutions and terms of reference.

#### **Agenda Item 21 ANY OTHER BUSINESS**

Inquiry from Prof. Eleftheriou about observer status for Greece

The **General Secretary** introduced Doc. C.M. 1994/Del:15, a letter from Prof. A. Eleftheriou (Director of the Institute of Marine Biology of Crete) inquiring whether "ICES would investigate the possibility of allowing Greece to acquire observer status in the Council's many and diverse activities." In return, Prof. Eleftheriou pointed out that all the available information and data on fisheries and the marine environment in Greek Seas and the Northeastern Mediterranean stored in the different research institutes would be available to ICES, if requested. As ICES currently had South Africa, through the auspices of the Sea Fisheries Research Institute, Capetown, and Australia, through the auspices of its Commonwealth Scientific and Industrial Research Organization (CSIRO) as scientific observers there did not appear to be any hindrance, in principal, to Greece being granted scientific observer status. Dr Eleftheriou had a good working knowledge of ICES from when he was based in the Marine Laboratory, Aberdeen (UK) and previously chaired the Benthos Ecology Working Group.

The **President** considered the approach from Prof. Eleftheriou as very positive and promising not only in terms of future observership for Greece but also for opening up better links to Mediterranean scientific organizations.

The **Delegate of the Netherlands** fully supported the President's views in responding positively to the inquiry from Prof. Eleftheriou. As the CIESM (Commission International pour l'Exploration Scientifique de la Mer Méditerranée) had apparently been active in seeking new members among non-Mediterranean countries, with Germany having become a member, to what extent would Greece be encouraged to become an ICES Member Country?

The **President** did not envisage Greece becoming a full member of ICES. If Greece did eventually apply for ICES membership it would be viewed by the Council as being complementary to existing international activities and arrangements in the Mediterranean; ICES would not seek to disturb the situation. It would be necessary to determine, in the near future, where the boundary between scientific observer status and full Member Country accession ought to be drawn. It would be beneficial to ICES and potential applicants, to have objective criteria applied. In the meanwhile, the President requested, and was granted, the Council's approval for the Bureau to encourage Greece to apply for scientific observer status.

#### Lithuanian interest in Council membership

The **General Secretary** reported that a meeting had

been arranged with the Lithuanian Ambassador to examine necessary steps forward towards a possible future accession to the ICES Convention. It was clear that Lithuania was keen on membership, but financial difficulties needed to be taken into consideration. It was presumed that similar annual financial payments during the three initial years of membership would apply to Lithuania as had applied to Latvia and Estonia. However, there might be necessary to examine ways of providing economic co-sponsorship; it would be appreciated if this could be noted by Member Countries.

#### Closing

The **President** thanked Canada, through the excellent support provided by its Minister of Fisheries and Oceans, Delegates and the DFO North West Atlantic Fisheries Centre, for having hosted an extraordinary successful Annual Science Conference.

The **Delegate of Canada** appreciated the kind sentiments expressed by the President, explaining that it had been a great pleasure to welcome scientists and administrators from Europe, the USA and the Council's observers and guests to Newfoundland, for the first Canadian hosted Statutory Meeting since that held in 1975 in Montreal.

The **President** expressed his gratitude at having served the Council since November 1991. He thanked the Secretariat, his fellow Council officers and the Bureau for their assistance and splendid work and co-operation. He was happy to relinquish his position as President to M Alain Maucorps, knowing that it was in excellent hands. He looked forward to the report of the recently established Bureau Working Group on the Structure of ICES, emphasising that caution and objectivity were essential in implementing improvements while maintaining the heart of the organization.

The **Delegate of France**, speaking on behalf of Delegates, thanked the President for his leadership in making many innovations and dealing with numerous challenges in his term of office. His consideration and humanity, while also being highly effective in dealing with difficult issues, served as a model for the future.

The **President** wished everyone well in returning home and in the year to come, expressed the hope of seeing them as Delegate of Ireland at the 1995 Annual Science Conference in Denmark, and adjourned the meeting.

## DOCUMENTS

- Del:1 Final Accounts for Financial Year 1992/1993
- Del:2 Progress Report on Administration
- Del:3 Report on Activities, 1993
- Del:4 Estimated Accounts for Financial Year 1993/1994
- Del:5 Draft Budget for Financial Year 1994/1995 + Amendment
- Del:6 Draft Forecast Budget for Financial Year 1995/1996
- Del:7 Elections and Appointments by the Council at the 1994 Annual Science Conference (82nd Statutory Meeting)
- Del:8 Proposal for an ICES Policy on Marine Mammals
- Del:9 Auditing of the Council's Accounts and the Relationship with the Auditor General of Denmark
- Del:10 Status, Rules and Procedures Governing Oceanographic, Environmental, and Fisheries Data Bases Maintained at the ICES Secretariat
- Del:11 Cooperation with other International Organizations: Working Relationships and Financial Arrangements
- Del:12 ICES Role in Promoting, Participating in, and Coordinating Major International Scientific Programmes  
Ref.A
- Del:13 Conclusion of the North Sea Task Force and Succeeding Developments
- Del:14 Annotated Draft Agenda for Delegates "Extra" Meeting
- Del:15 Letter of Inquiry from Prof. Eleftheriou about Observer Status for Greece
- Del:16 Summary Report on High-Level Discussions between Representatives of ICES and FAO's Fisheries Department, in Rome on 7 September 1994
- Del:17 Letter from the United States National Science Foundation and National Oceanic and Atmospheric Administration Expressing Support for the Establishment of a GLOBEC Coordination Office in the ICES Secretariat
- Del:18 Future ICES Committee Structure - a Means to Improve the Quality of Advisory Services and the Scientific Profile (Paper by the Danish Delegates)

## REPORT OF FINANCE COMMITTEE

Chairman: Mr. O. Cendrero

The Committee met on Friday 23 September from 09.05 - 10.35 hrs. All members, with the exception of Dr A.A. Elizarov, were present. The First Vice-President, representing the Bureau, the President (part-time), the General Secretary, Ms J. Andersen-Rosendal, and Ms I. Lützhøft also attended the meeting.

### **Agenda Item 1      APPROVAL OF AGENDA**

The draft Agenda was adopted as presented.

### **Agenda Item 2      AUDITED ACCOUNTS FOR FINANCIAL YEAR 1992/1993**

The Chairman drew attention to the Audited Accounts and Balance Sheet for 1992/1993 contained in Doc. C.M. 1994/Del:1. The Committee had no questions or comments and approved and signed the Accounts and Balance Sheet.

### **Agenda Item 3      ESTIMATED ACCOUNTS FOR FINANCIAL YEAR 1993/1994**

The Chairman introduced the Estimated Accounts for Financial Year 1993/1994 contained in Doc. C.M. 1994/Del:4. He noted that although there were some minor differences between the budgeted amounts and the estimated amounts there was a conformity between the important items regarding both income and expenditure.

The General Secretary drew the Committee's attention to the slightly greater amount likely to be spent on staff salaries than budgeted, but emphasised that this would be more than offset by savings on staff pensions as a result of staff opting for membership of a private pension scheme. He noted that there was likely to be a welcome excess of income over expenditure for 1993/1994. Moving on to the presentational format of the document, he stressed that a new layout had been developed compared with previous ICES Estimated Accounts documents, and that this reflected the recent engagement and advice of the international firm of accountants (KPMG). The new style accounts, as a result of the change, were now less cluttered and easier to follow than previous ones: the first three pages of Del:4 provided the essential overview of the Profit and Loss Account for the period and the Balance Sheet at 31 October 1994. The following Notes to the Annual Accounts and Notes to the Balance Sheet provided all the necessary background details, while the final section contained the customary Explanatory Notes in which attention was drawn to items of particular interest. He firmly recommended the new method of presentation which was in accordance with modern accounting prac-

tice. It was proposed that only the Profit and Loss Account and the Balance Sheet on 31 October be reproduced in future Audited Accounts in the Annual Report. The complete C.M. document, however, would continue to be presented to the Delegates and Contracting Parties.

The Chairman had no objection to either the style or the content of the accounts.

The Committee had only several minor comments and questions regarding the Estimated Accounts for Financial Year 1993/1994. In response to an inquiry about the excess of income over expenditure and the manner in which it could be used, the General Secretary considered it difficult to determine whether this was the start of a positive long-term trend or whether it was simply a short-lived feature of the current year. Unbudgeted miscellaneous income provided a significant contribution to the excess, and the interest received had been greater than budgeted. The General Secretary also informed the Committee about the decision of the Bureau at their Mid-Term, June 1994 Meeting to agree to his request that up to DKK 300,000 be made available from the Computer Equipment Fund to cover the purchase of a number of new, more powerful personnel computers (PCs) and associated software at ICES Headquarters. This would enable visiting Study/Working Groups and Advisory Committees, as well as the Secretariat staff, to work with a range of programme packages and integrated software (e.g., Microsoft Office containing Word for Windows and Excel) that were currently lacking at ICES Headquarters. The necessary procurements and improvements would be carried out by the end of the year. There would, however, be a need to replenish the Computer Equipment Fund next year.

The Chairman inquired whether the amounts budgeted for Secretariat staff overtime for assisting the Groups meeting at ICES Headquarters were sufficient. In reply, the General Secretary noted that normally staff worked standard hours, but in May and June it was necessary for him to sanction appreciable overtime for supporting the meetings of ACFM, ACME and the Consultative Committee as these now tended to meet "back-to-back" or have joint meetings. The Meeting Organization and Documentation (MOD) group and the Scientific Requirements and Policy (SCRAP) groups of the Secretariat were those which worked most overtime. As the Council looked for greater cost-recovery percentages from customers it was necessary to accept that a professional service, in proportion to remuneration, would also be expected. It may be necessary to establish an additional, permanent secretarial position in the not too distant future.

In response to a request for clarification regarding the depletion of the Reserves by DKK 299,000 owing to purchase of new equipment, the Committee were informed that this was due to an upgrading of the HP Unix computer work-stations which had been approved at the 1993 Council Meeting. Next year, the costs associated with the Bureau sanctioned upgrading of the personal computers and software would appear in the accounts in a similar manner.

The Committee approved the Estimated Accounts and recommended their acceptance by the Council.

**Agenda Item 4      DRAFT BUDGET FOR FINANCIAL YEAR 1994/1995**

The Chairman drew attention to the draft Budget for Financial Year 1994/1995 contained in Doc. C.M. 1994/Del:5.

The Chairman and the Committee requested some points of clarification regarding the draft Budget for 1994/1995. In reply to it being noted that the Office Expenses were generally markedly less in the Draft Budget than in the Approved Forecast Budget, it was pointed out that as the Council did not pay VAT, in accordance with the Host Country Agreement, it had been decided to dispense with the previous, practice of first including sums with VAT and then secondly "reimbursing" these in another part of the accounts. Figures from now onwards would be presented as being VAT-free in the accounts. With regard to it being noted that Office Cleaning was now estimated as costing less than a third of that cited in the Approved Forecast Budget, the Committee was informed that the savings were due to the Secretariat ceasing to use the services of a firm of office cleaners and going over to employing its own part-time cleaning staff.

The General Secretary further pointed out that the amounts under Income were the same as in last years' approved Forecast Budget, but a number of figures under Expenditure were changed relative to those in last year's approved Forecast Budget. The Draft Budget did not reflect income and some expenditures stemming from the Council's potential involvement in activities in AMAP, and the European Commission. NASCO's decreased annual contribution reflected the decrease approved at the 1993 Council Meeting. Under Expenditure, increases in Personnel Services were matched by an equivalent decrease in the ICES Pension Scheme as staff contributed to their own private pension schemes. He also drew the Committee's attention to the new, Bureau approved item budgeted for Staff Courses and Training which would contribute to improved efficiency and productivity in the long-term.

The General Secretary, in responding to a request for further details about the intimated possibilities for

increased income from AMAP and the European Commission, stated that the income from AMAP was currently quite small but that further funding of AMAP may result in further tasks and income for the Council, whereas the establishment of the European Environment Agency (EEA) close to the Secretariat in Copenhagen may result in the EEA becoming a customer of ICES. The current estimated cost-recovery level from AMAP was about 80%.

The Committee approved the draft Budget for 1994/1995.

**Agenda Item 5      DRAFT FORECAST BUDGET FOR FINANCIAL YEAR 1995/1996**

The Chairman introduced the draft Forecast Budget for Financial Year 1995/1996 (Doc. C.M. 1994/Del:6), observing with satisfaction that National Contributions were estimated to increase by only 2.61% in that year. He reflected that with increased cost-recovery levels from customers it may be possible to attain even smaller increases in National Contributions in the future. The Committee were invited make relevant comments.

In response to a query as to the progress with the Time-sheets and Costing System (TACS), the General Secretary informed the Committee that a new and improved menu-driven PC-system had been implemented in the Secretariat, providing greater concord in staff recording hours and costs in the case of both ICES and customer activities and projects. It was hoped that by the end of the current calendar year, all staff would be up to date with recording the hours that they had spent over the last two years on Council tasks and on those conducted for customers (e.g., regulatory commissions). In June 1994, when ICES had submitted its costing of OSPARCOM's 1995 ICES Work Programme and the Council's services for Data Handling to the Commissions, this was based on using existing information and data registered in the TACS in order to make an informed prognosis of the real costs involved. It had been pointed out to OSPARCOM that the current so-called "retainer" arrangement, where the Commissions annually paid ICES about DKK 720,000, would represent a cost-recovery for the Council of only about 60% for the 1995 Work Programme (i.e., providing scientific information and advice only). For the 1995 Work Programme and the Data Handling together, however, the cost recovery was about 70%. OSPARCOM had been informed of the decision at the 1993 Council Meeting to move towards 100% cost-recovery as quickly as possible.

The General Secretary informed the Finance Committee of the Bureau's conclusion that a tangible step in increased percentage cost-recovery would be expected from customers by the year 1996/1997. The particular timing was aimed to allow customers the necessary

warning in order to mobilise the relevant funds in their budget systems. From then onwards ICES would expect further, regular step-wise progress by customers with the aim of reaching 100% cost recovery.

The Committee noted that the total number of shares determining Member Country contributions in 1995/1996 would be 52 ½, reflecting the agreed decrease in Russian shares to 3 with Latvia and Estonia having each reached one full-share.

The Committee recommended that the draft Forecast Budget for 1995/1996 be adopted by the Council.

#### **Agenda Item 6      AUDITING OF THE COUNCIL'S ACCOUNTS**

The Chairman requested that the Committee refer to the document (C.M. 1994/Del:9) prepared by the General Secretary and that comment and discussion be limited to the financial aspects of the matter. He recollected the difficulties experienced by the previous General Secretary in attempting to come to a positive solution with the Auditor General of Denmark. He was pleased to note that previous disagreements had now been amicably settled and expressed his gratitude to the General Secretary for his efforts towards this end. Furthermore, he was in no doubt that there was a clear need, as recommended by the General Secretary in document Del:9, for the Council to obtain the services of an independent firm of international accountants. Accordingly, having been informed that the cost of hiring a firm of accountants (i.e., KPMG) was only about DKK 20,000 per year, he was firmly in favour of the proposal for change outlined in Doc. C.M. 1994/Del:9. He viewed the cost as moderate and that this could easily be absorbed in the budget. However, he wished to receive the Committee's views on the matter.

The Committee requested clarification firstly with regard to exactly what kind of advice the Council would receive in the future that it did not receive at present from the Auditor General of Denmark, and secondly with regard to whether the estimated costs of DKK 20,000 for hiring the services of a firm of international accountants included various forms of management services over and above standard auditing.

The General Secretary noted that national Auditors General were, almost exclusively, the custodians and "watch-dogs" of codes of practice as determined by their various parliaments and government administrations. It had been made clear to him, and various Bureau members who had taken part on several occasions in discussions with representatives of the Auditor General of Denmark, that the Auditor General of Denmark was unable to provide constructive advice on either strategic auditing-planning with project related auditing loops or with respect to improving returns from investments. As

ICES was providing consultancy related services in return for remuneration, it was important that the TACS be fully integrated with project management and the auditing of accounts. Thus he was not convinced that this could be adequately conducted by the Auditor General of Denmark. The firm of international accountants (KPMG) had originally stated that DKK 20,000 would be the cost for conducting a standard audit and that additional requirements would be associated with additional costs. However, after KPMG had worked with the Secretariat in preparing the Estimated Accounts for Financial Year 1993/1994 in the new format, the General Secretary had been informed by KPMG that the type of management services identified as being necessary could be conducted with no additional cost. The General Secretary explained that this was very probably due to the relative simplicity of ICES financial operations compared with that of KPMG's other clients. He pointed out that costs associated with accounting and auditing would be shared on a fair basis with the Council's customers in the form of "overheads". A small increase in percentage cost-recovery from a customer would adequately cover auditing costs.

The Delegate of Denmark acknowledged the need for upgrading the accounting advice and related management services to meet ICES current and future requirements, and recognized that the Auditor General of Denmark did not do this without working in conjunction with a subsidiary accounting institution, e.g. firm of accountants as proposed in Doc. Del:9. Thus, it was important to determine the details of an arrangement affecting the Auditor General of Denmark and the firm of accountants.

The General Secretary noted that the discussion regarding the future relationship between the Council and the Auditor General of Denmark would be concluded in the Delegates Meeting as pointed out by the President.

The Finance Committee endorsed the recommendation that the Council obtain the services of an independent firm of international accountants and also recommended that the draft Budget for Financial Year 1994/1995 be amended to include the necessary associated costs.

#### **Agenda Item 7      COOPERATION WITH OTHER INTERNATIONAL ORGANIZATIONS: WORKING RELATIONSHIPS AND FINANCIAL CONSIDERATIONS**

The Chairman introduced Doc. C.M. 1994/Del:11, which provided an overview of the various international organizations ICES either had established, or was in the process of developing, working and financial relationships with. He found the details highly informative and thanked the Secretariat for its work in producing the document. It was, however, evident that all cost-recov-

ery was appreciably below 100%, but found it not surprising considering the short time that had elapsed since the Council adopted its recent policy on this matter. Nevertheless, it was important for ICES to achieve 100% cost-recovery as quickly as possible.

The General Secretary drew the Committee's attention to a subtle but nevertheless important difference between the terms "100% cost-recovery" and "full cost-recovery" as understood by the Bureau. The former term (i.e., 100% cost-recovery) referred to ICES policy in only charging for requests and associated costs that are channelled through the Secretariat (e.g., ACFM and ACME travel and per diem, and the time that Secretariat staff spend on customer tasks), whereas the latter term (i.e., full cost-recovery) also included extra substantial costs that are met directly by ICES Member Countries in sending their scientists to Working/Study Group meetings in order to provide the appropriate information for ACFM and ACME. Thus, even when "100% cost-recovery" was achieved this would be substantially less than "full cost-recovery". ICES was providing a service to intergovernmental customers at a very reasonable price, as it represented only a fraction of the real costs involved. By the end of the calendar year, all ICES customers would be notified in writing of the Council's decision on cost-recovery matters. The General Secretary also noted that "overheads" were currently documented on the basis of several years data as being about 53% of the cost of Secretariat staff salaries and the customary running costs (e.g., heating, lighting, insurance, security, computing) of ICES Headquarters. The "overheads" were low when contrasted with institutions carrying out similar operations. A contributory reason for the low "overheads" was that ICES did not include the costs of office/building rental as the Danish authorities kindly provided the building free of charge. The actual amount of "overheads" that a customer would be charged would reflect the number of hours that the Secretariat staff worked on the particular customer related request/task expressed as a fraction of the total number of hours worked by all staff.

During the ensuing comments and discussion it was noted that it would probably involve some time and

difficult negotiations in order to achieve 100% cost recovery. Although approaching 100% cost-recovery was important, this should be seen in the context of the need to maintain positive and mutually beneficial relationships with other intergovernmental organizations. Several Committee members considered that the "overhead" percentages were of the same order of magnitude as that in their own laboratories or institutions.

The General Secretary considered it particularly important to obtain improvements in cost-recovery from those organizations that had an apparently good economic footing and which already requested ICES for substantial amounts of advice or services but from which cost-recovery percentages were currently low.

The Committee fully supported the steps taken by the General Secretary regarding cost recovery and the further development of the TACS.

#### **Agenda Item 8      MATTERS REFERRED TO COMMITTEE BY BUREAU OR COUNCIL**

The Chairman stated that he was not aware of any matters referred to the Committee by the Bureau or the Council except that already dealt with regarding the financial aspects of accountancy and auditing under Agenda Item 6.

#### **Agenda Item 9      ANY OTHER BUSINESS**

There being no other business, the Chairman thanked the Committee members for their attention and cooperation.

The General Secretary noting that this was the last meeting during the Chairman's term of office expressed his gratitude and that of the Committee for the diligence with which the Chairman had conducted his duties.

The Chairman adjourned the meeting at 10.35 hrs.

## **DOCUMENTS**

Fi:1    Agenda for the Finance Committee

Del:1   Audited income and expenditure account for the financial year 1992/1993 with balance sheet at 31/10 1993.

Del:4   Estimated accounts for the financial year 1993/1994.

Del:5   Draft budget for financial year 1993/1994.

Del:6   Draft forecast budget for the financial year 1995/1996.

Del:9   Auditing of the Council's account and the relationship with the Auditor General of Denmark.

## REPORT OF PUBLICATIONS COMMITTEE

The Committee met on Monday 26 September from 09.00 to 13.00 hrs and in an unscheduled session on Tuesday 27 September from 09.05 to 09.45 hrs. All members were present at the first session, together with Dr P. Mälkki, representing the Bureau, the General Secretary, Mr S. J. Smith, Assistant Editor of the *ICES Journal of Marine Science*, and Mrs J. Rosenmeier, Technical Editor. All members except the Chairman of the Consultative Committee attended the second session, along with Dr P. Mälkki, Mr S. J. Smith, and Mrs J. Rosenmeier.

### Agenda Item 1 APPROVAL OF AGENDA

The draft Agenda was accepted. The Chairman announced that Agenda Item 4 would be extended to include a discussion of the scope of the *ICES Journal of Marine Science* and that Agenda Item 14 would include a proposal concerning the production of a flyer containing the Code of Practice on the Introductions and Transfers of Marine Organisms. Since the consideration of the scope of the *ICES Journal* could not be accommodated during the time allotted for the meeting, an informal discussion of this topic took place during the session on 27 September. It was noted that the accompanying Notes on the Draft Agenda, presented for the first time this year, would be useful in focusing discussion.

### Agenda Item 2 REVIEW OF PUBLICATION ACTIVITIES IN 1993/1994

Doc. C.M.1994/Pub:2 summarizing publication activities in 1993/1994 was presented by the General Secretary, who pointed out that specific topics would be reviewed in greater detail under subsequent agenda items.

Three of the four volumes of the *ICES Journal of Marine Science* published during the year had failed to meet their cover dates, most notably Vols. 51(1) and (2) with delays of respectively three and two months; Vol. 51(3) was issued during its cover month but was approximately 40 pages short of the usual page budget. In recent months, however, the flow of material available had increased and various technical problems had been overcome so that production was back on schedule. Following a proposal approved by the Council at the 1993 Statutory Meeting, the *ICES Journal* would be expanded by approximately 500 pages annually through the inclusion of the proceedings of ICES Symposia, beginning with "Zooplankton Production—Measurement and Role in Global Ecosystems Dynamics and Biogeochemical Cycles", which was held in Plymouth, 15–19 August 1994. The increase in the size of the *ICES Journal* from ca. 512 to ca. 1012 pages

would make it possible to raise the institutional subscription rate from GBP 103.00 to GBP 215.00. A favourable price of GBP 11.00 per volume would be available to Symposium Conveners for participants and to the Council for other special purchases.

In the *ICES Marine Science Symposia* series, Volume 198, the proceedings stemming from the meeting on "Cod and Climate Change" held in Reykjavik in August 1993, was on schedule for publication in October/November. The 51st and final manuscript from the Symposium on "Shellfish Life Histories and Shellfishery Models" held in Moncton, New Brunswick, in June 1990 had just been delivered to the ICES Secretariat, and it was anticipated that Volume 199 would be published in mid-1995. In view of the problems and delays attending this publication, the Committee endorsed a proposal that the General Secretary notify those authors whose papers were scheduled for publication of the current state of progress. In addition, the Chairman of the Consultative Committee would see that a brief Introduction to the volume was prepared and would invite the Convener of the Symposium to furnish a quick draft, barring which he himself would prepare it. Only six of about 35 papers had been received from the Symposium on "Mass Rearing of Juvenile Fish" held in Bergen in June 1993. The Editor had been encouraged to submit material as promptly as possible but not pressed to do so, owing in part to the existing work burden in the Secretariat. However, the General Secretary would now urge those involved to take steps to prevent any further delay in the publication of the proceedings as Volume 200.

For the first time, notes on the *ICES Cooperative Research Report* series would be presented in an Editor's Report prepared by the General Secretary.

The last number of *ICES Fisheries Statistics* to be published was Volume 73 (data for 1988). Volume 74 continued to be delayed by the absence of data from Spain and the incorrect format of data from France. The Secretariat had approached the Copenhagen Embassies of Member Countries in December 1993 to call their attention to the grave consequences of the respective lack of data or submission of unreliable data from certain countries. Some positive signals had been received, but no measurable results could yet be reported. Although the Statistics Committee considered that it would be advisable to proceed with the publication of Volume 74 on the basis of the available material, with a note on the absence of particular data in the Foreword, questions might be raised about the advisability of publishing incomplete data from as long ago as 1989. Such organizations as FAO, for example, published more up-to-date information, but it was

subsequently corrected and revised in later issues. Given the development and availability of electronic data, the continued usefulness of the publication in its present form should be weighed. Recognizing the need for generalized, overview statistics, which are of particular use to the interested public, it might be possible to produce summaries based on ACFM material, through the mediation of the Fishery Secretary. Such material could include by-catch and discard information that is valuable but not generally available in the more "official" statistics. The Committee was pleased to note that the Bureau had decided that the General Secretary should make overtures to the European Commission, requesting that the matter of poorly reported and unreliable fishery statistics be placed on the agenda for the Fisheries Council; this decision reflected the common understanding between the Council and DG XIV of the European Commission and FAO that accurate reporting of fisheries statistics, which was of overriding concern and importance in many contexts, had become extremely precarious.

It was envisaged that one more number in the *Oceanographic Data Lists and Inventories* series would be printed in the current format, but paper publication had been outstripped by the development of CD-ROM, diskettes, and similar electronic means that would replace it in future.

The Committee considered the publication of the *North Sea Quality Status Report* to be of primary significance in underlining the vital importance and leading role of ICES in European marine science and wished to commend the Secretariat, and in particular the Environment Secretary, for their contribution to its successful completion. In addition, the essential role of the Advisory Committees and others in the quality and completion of the work was acknowledged with thanks. It was noted that the 12-page *Guide to the North Sea Quality Status Report* was a most useful and readable summary for a more general public.

### **Agenda Item 3 SALES AND PROMOTION OF ICES PUBLICATIONS IN 1993/1994**

#### **3.1 Sale of ICES Publications during the Last Three Years**

The General Secretary briefly reviewed Doc. C.M.1994/Pub:3 and explained that the drop in the Council's income from sales of the *ICES Journal* which could be seen after 1990/1991 was attributable to the transfer of the publication to Academic Press. As a means of increasing subscription revenue from the *ICES Journal* in particular and the other publications in general, it was decided that the Secretariat should review the free distribution lists with an aim to eliminating those names that might be likely to

subscribe. When Academic Press took on the publication of the *ICES Journal*, the list had been reduced from nearly 300 to about 80, but it should be reduced even further if possible, at the discretion of the General Secretary.

#### **3.2 Promotion of ICES Publications**

The Committee recognized the great importance of effective marketing in increasing sales of the publications. While the current format of the "Catalogue of Publications" provided a good historical record and continued to serve a useful function, it should be supplemented by a smaller version concentrating on the more recent publications and focusing on those apt to be of greatest interest. A newer version that could be widely distributed would also help to increase awareness of the Council's expanding role in population dynamics, ecosystem interactions, and related interdisciplinary studies as reflected in its publications. A marketing organization with an international orientation and experience in handling publications on marine science would undoubtedly be able to promote the Council's publications, especially those in the *ICES Cooperative Research Report* series, more effectively than the current bookseller. The General Secretary had been approached concerning the Council's possible interest in becoming a co-sponsor of the *Aquatic Sciences and Fisheries Abstracts* (ASFA) series, which would clearly help to increase the visibility of ICES publications. The Committee felt that such co-sponsorship, under acceptable conditions, could be a useful step.

### **Agenda Item 4 ICES JOURNAL OF MARINE SCIENCE**

#### **4.1 Editors' Report**

Doc. C.M.1994/Pub:4 was presented by Professor J.H.S. Blaxter, who called the attention of the Committee to the continuation in the gradual upward trend in the submission of papers. It was difficult to explain the late appearance of recent numbers of the *ICES Journal*, and there was a certain disparity in the figures and information presented by the Editors and by Academic Press, a situation that might be ameliorated by closer monitoring and tracking of the manuscripts. At present, approximately 80 papers were submitted each year, which was adequate for the production of four issues averaging fifteen papers each, with a rejection rate of about 25%. Although the rate of submission was satisfactory, the late return of papers by referees was a persistent problem. There was some possibility that paying a fee could prompt quicker responses, but it was also pointed out that many referees would be prevented by their governments from accepting any sort of emolument, and further, that it might be most effective to concentrate on establishing a clear and formal agreement with each referee. Although an effort was

made to spread the papers among a great number of referees, the same experts were in high demand for the same sort of work by other journals. After papers were sent to Academic Press, delays could be caused by the late return of authors' proofs as well as by technical and other production problems. It was noted that some authors were not familiar with publication procedures and that it might be helpful to furnish them with clear instructions and deadlines. The Editor preferred not to impose time limits on authors during the editorial phase, but it was agreed that it was essential for Academic Press to continue to set strict deadlines for the return of proofs. It was important that there be a sufficient backlog of papers in the pipeline so that the late return of a few proofs would not delay publication. In general, the Committee did not consider the late publication of recent numbers to be a serious problem but viewed the continued submission of high-quality material to be of the greatest importance.

#### **4.2 Publisher's Report**

The Committee considered Doc. C.M.1994/Pub:5 and was pleased to note, among the information provided, the increase in subscription figures. With respect to the costs of publication, it was pointed out that the subsidization of editorial costs by the Editors' institutes was considerable and should be recognized by Academic Press. The General Secretary offered to pursue this matter and encouraged the Editors to furnish information that would constitute a basis for proceeding.

#### **4.3 Financial Status for 1993**

Doc. C.M.1994/Pub:6 was presented by the General Secretary. The loss incurred in 1993 was somewhat smaller than that for 1992, but the cumulative loss since Academic Press had taken on publication of the *ICES Journal* had now reached the substantial figure of nearly GBP 58,000. It was important that the Committee be aware of the great disparity between this figure and the original prognosis made by Academic Press in the autumn of 1990. These figures underlined the importance of increasing revenue as quickly as possible. The most effective way of accomplishing this was by the inclusion of ICES Symposium proceedings in the *ICES Journal*, which would double the number of pages and lead to an approximate doubling of the subscription price. It was expected that a net profit would result in 1995 with the publication of the proceedings of the "Zooplankton Production" Symposium and that a cumulative profit, based on successive years of similar publication, would occur in 1998. In the meantime, the Bureau had agreed that it was important to reserve funds provided for the *ICES Marine Science Symposia* series in order to ensure that there was no break in the publication of ICES Symposium proceedings.

#### **4.4 Editor's and Assistant Editors' Terms of Office**

The Committee noted with appreciation that the Editor and two Assistant Editors were willing to accept further three-year terms and recommended that they be reappointed.

#### **4.5 Editorial Assistance and Consultation**

The possibility of providing the Editors with additional support through the establishment of an Editorial Board was drafted. In general it was felt that such a board could be of help in establishing a new journal, but that its usefulness in the present case was uncertain. While a panel of eminent scientists in particular fields might conceivably increase the resources available, it was thought that a dedicated and supportive Publications Committee would provide as much assistance as was required and that an Editorial Committee would be redundant.

#### ***Continuation of Agenda Item 4: ICES Journal of Marine Science***

It was proposed that a discussion of the scope of the *ICES Journal* be added to the Agenda, and in view of time constraints, an informal meeting was held on 27 September in order to explore the subject in a preliminary way.

The basic question posed by the Editor of the *ICES Journal* was whether it should continue to function primarily as a "house journal" or whether it should widen its scope to encompass topics and geographical areas not previously touched upon except peripherally. The need to consider ways of increasing circulation, including suggestions made by Academic Press to make the journal more attractive to readers interested in particular subjects and regions, was also contributing to a build-up of pressure to define its proper extent.

In the course of the ensuing discussion, a wide range of views was expressed on the pros and cons of expanding the scope of the *ICES Journal*.

The current Editors had certain areas of expertise, including in particular marine biology, statistics and population dynamics, and hydrography and acoustics. They were, however, concerned about their competence to handle certain other topics, including those of a philosophical cast or those dealing principally with management, sociology, or economics. It might be possible to take on another Assistant Editor to cover such material, but a more basic consideration was whether or not it was desirable for the *ICES Journal* to expand its scope to include such subjects at all. As a case in point, the participants in a 1993 ICES Theme Session had been encouraged to submit their papers for

publication. Two of the papers subsequently received dealt with philosophy and economics, subjects not central to ICES concerns in the past. Quite apart from the general competence of the Editors in dealing with this material, should papers on such topics be accepted or rejected? If a paper were accepted on the basis of its having been presented and well received at an ICES meeting, would not all papers on similar topics have a reasonable claim to inclusion?

Among the comments made in response there were several agreeing that it would be appropriate for the *ICES Journal* to widen its scope to reflect the Council's expansion into certain areas, as might be seen in the presentation of papers on "newer" topics in the Theme Sessions. It would be helpful if papers in these fields could be grouped and presented en bloc or otherwise labelled with a special heading to signal that they were outside the usual range, so as to avoid their diluting the impact of the material that had constituted the journal's traditional strengths. Conveners of Theme Sessions might be asked to assist with the editing and refereeing of such papers.

There was divided opinion as to whether circulation could be increased by broadening the scope of the *ICES Journal*, but it was assumed that any increase would be modest, since established specialist periodicals already covered the principal market for these subjects. Some concern was voiced that widening the range of papers might detract from the areas where the *ICES Journal* has held an elite position. However, the Committee generally agreed that it would be in ICES' interest to be able to include topics beyond its usual range, particularly when the work in question had been presented at ICES Conferences and Symposia. Through its involvement in Dialogue Meetings the Council had already made a commitment to communicating across borders and beyond its narrowest interests, and the inclusion of Symposium proceedings in the *ICES Journal* would automatically tend to broaden its geographical frame of reference.

One way of widening the scope of the *ICES Journal* in an unambiguously positive way would be to place greater emphasis on papers on interdisciplinary studies, an ICES strong point and an area not dealt with by many other periodicals. In addition, an effort could be made to publish papers of a more generic nature.

Although the Committee recognized the importance of trying to increase circulation and of giving the expressed preferences of Academic Press the greatest consideration, there was a general feeling that the *ICES Journal* should remain a house journal in the sense that it would be tailored to reflect the needs of ICES as an organization. This would certainly not entail the routine acceptance of all manuscripts pertaining to ICES interests since it was understood that a high degree of

selectivity was crucial. It was clear, for example, that Open Lectures and other ICES material were all subject to peer review before publication. There should be no difficulty in continuing to accommodate the obituaries of scientists who had played significant roles in the affairs of the Council, with the choice of whom to include remaining in the hands of the General Secretary.

The Chairman pointed out that the examination of the scope of the *ICES Journal* was of prime importance and should be pursued in greater detail after members of the Publications Committee and other members of the ICES community at large had given the matter serious consideration.

#### **Agenda Item 5 ICES COOPERATIVE RESEARCH REPORT SERIES**

The Chairman introduced Doc. C.M.1994/Pub:7, noting that the presentation this year of an Editor's Report was a most useful innovation. Reference was made to Agenda Item 10 concerning the upgrading of in-house publications, which could be discussed with advantage in conjunction with this series. Pub:7 illustrated the increasing range of publications being issued in the *ICES Cooperative Research Report* series and, in particular, the importance of following up the Council Resolutions concerning them. The statistics provided showed that a number of projected publications had not actually been completed. In view of the wide interest of many of the topics announced, and the great potential for development, particularly with the use of modern technology, it was important to exploit the possibilities inherent in this series.

#### **Agenda Item 6 ICES IDENTIFICATION LEAFLETS FOR PLANKTON**

Doc. C.M.1994/L:33 reported the progress to date in soliciting new material for this series and furnished an appended list of previously published leaflets ordered taxonomically in order to assist potential contributors. The Committee was pleased to note that the Secretariat had received two manuscripts and the prospect of a third in the near future, which would be put into production as soon as possible after the set was complete.

#### **Agenda Item 7 ICES IDENTIFICATION LEAFLETS FOR DISEASES AND PARASITES OF FISH AND SHELLFISH**

Doc. C.M.1994/F:32 reported that it had been suggested at a meeting of the Working Group on the Pathology and Diseases of Marine Organisms that several earlier leaflets be upgraded, and in addition that a number of authors had made formal commitments to produce new material. The Committee expressed an

interest in drawing this series to the attention of the Consultative Committee in order to ensure that publication of this series could be resumed in the near future.

#### **Agenda Item 8 ICES TECHNIQUES IN MARINE ENVIRONMENTAL SCIENCES**

Doc. C.M.1994/E:2 reported that five numbers were in various stages of preparation, two of which were expected off press by the end of this fiscal year. One of the numbers, a training guide on the identification of common diseases and parasites of fish in the North Atlantic, would be the first in the series to contain colour photographs.

#### **Agenda Item 9 PUBLICATION OF ICES SYMPOSIA PROCEEDINGS**

The General Secretary briefly reviewed the background for Doc. C.M.1994/Pub:8 in the context of the decision made at the 1993 Statutory Meeting to publish Symposium proceedings in the *ICES Journal* and its subsequent implementation. A meeting had been held at ICES Headquarters in May 1994 with Academic Press in order to clarify our respective positions and to discuss the operational procedures and numerous details that had not been settled when the decision was made. General agreement had been reached to the mutual satisfaction of both parties, and the approach laid out was subsequently endorsed by the Bureau. The Secretariat would prepare a set of guidelines, including checklists of responsibilities, as an aid to defining the Council's role in planning and conducting Symposia, concluding in the final production of the proceedings volumes. Publishing the proceedings as regular numbers of the *ICES Journal* would make it essential to maintain the flow of papers on a predetermined schedule in order to produce the approximately 500 pages required to fill the allotted budget each year.

The scientific content of the proceedings would be the principal responsibility of a Guest Editor or Editors appointed by the Steering Committee for the Symposium. The Editor of the *ICES Journal* would survey the papers but would expect to concentrate on monitoring the progress of the work and providing advice, intervening if necessary to make sure that goals were met. The question of an honorarium for the Guest Editor(s) was debated, without a definitive conclusion being reached. In order to gain a better appreciation of the possible need for mobilizing resources, the General Secretary requested the Editor in consultation with the Assistant Editors to furnish him with detailed information on the responsibilities to be undertaken by a Guest Editor.

Two ICES Symposia would take place in 1995: "Fisheries and Plankton Acoustics", to be held in Aberdeen in June, and "Changes in the North Sea Ecosystem and Their Causes: Århus 1975 Revisited", to be held in Århus in July, and the proceedings were scheduled for publication in the *ICES Journal* in 1996. The Committee was open to the possibility of publishing the proceedings of the 1995 NAFO/ICES Symposium on "The Role of Marine Mammals in the Ecosystem" in early 1997 and would be pleased to entertain an eventual proposal from the Conveners. The Chairman of the Consultative Committee mentioned the tentative plans for ICES Symposia to be held in 1996 and 1997, which would be expected to conclude with the publication of the proceedings in the *ICES Journal*.

#### **Agenda Item 10 UPGRADING IN-HOUSE REPORTS**

Given the increasingly wide availability of improved printing technology and the importance attached to maintaining the Secretariat's ability to produce printed material of a high standard and to respond to the needs of its cooperating institutions, the views of members of the Committee were sought. The Bureau had agreed to make funds available for the purchase of more powerful PCs and integrated software at ICES Headquarters, and while goals and procedures were being established, they were still in the planning stage. Members of the Committee suggested the possibility of making use of material in the public domain, commented on the need to maintain flexibility throughout the system, and issued a reminder that certain facilities required special training. The Committee generally concurred with the view that it was essential for the Secretariat to equip itself to provide the service and capabilities that were rapidly becoming a routine matter among other institutions and encouraged the Secretariat to continue to look into ways of improving its publications through the introduction of newer facilities and technology as quickly as possible.

#### **Agenda Item 11 SELECTION OF NEW MEMBERS OF THE COMMITTEE**

The terms of office of the Chairman and two members of the Committee would expire in 1994, and proposals were invited for the names of candidates who could be expected to make an active contribution to fostering and improving all aspects of current and future ICES publications. A number of proposals were put forward and would be presented to the Bureau for consideration.

#### **Agenda Item 12 ROLE OF MEMBERS OF THE COMMITTEE**

In opening discussion of this topic, the Chairman expressed his own view of the publications as the single

most important end-product of the Council's work. The role of members of the Committee could be of vital importance in both shaping and reflecting the aims of the organization. During the ensuing discussion, the hitherto rather incidental make-up of the Committee was noted, along with a corresponding lack of knowledge as to what was expected of members, which was further compounded by the lack of any inter-sessional communication. The learning curve was accordingly slow, and it was not unlikely that by the time members had grasped something about the range and complexity of the Council's publications, their terms of office were about to expire. It was important to consider ways of bringing together the right group and of supplying them with more information between the annual meetings. The Committee appeared to have the role of an approval body, but as it had been constituted in the past, it had rarely made an active contribution, relying instead on any initiatives to come from the Secretariat.

However, if the publications were seen as reflecting and displaying the most important aspects of the Council's work, as they ought to be, the Publications Committee should be a driving force behind that work. The Committee should be able to work effectively with the ICES Secretariat and with the Editors to develop a strategic plan through the publications and to function as a policy-making body. The publications were too important to be handled on an *ad hoc* basis and ought to be a primary component of the Council's overall strategies and goals. The Consultative and Publications Committees should be more closely linked, and a mechanism was needed to make this feasible. The Chairman of the Consultative Committee pointed out that certain mechanisms were in place and could be activated. As an aid to increasing the flow of information, following the mid-term Bureau Meeting as well as that of the Programme Planning Committee, it would be possible for the Chairman in consultation with the General Secretary to provide members of the

Publications Committee with notes on matters of common interest; in addition, the Chairman of the Publications Committee could be invited to attend the mid-term Bureau Meeting. There was strong agreement among members that the publications were of such importance to the work of the Council that the strengthening of the Publications Committee ought to be explored and pursued.

#### **Agenda Item 13      MATTERS REFERRED TO COMMITTEE BY BUREAU OR COUNCIL**

No specific issues were referred to the Committee for consideration.

#### **Agenda Item 14      ANY OTHER BUSINESS**

It had been proposed that a flyer be produced containing the Code of Practice on the Introductions and Transfers of Marine Organisms, excerpted from the more comprehensive document to be published in the *ICES Cooperative Research Report* series. It was agreed that the Secretariat would look into the possible advantages and disadvantages of publishing the material in this way.

The Chairman of the Committee thanked those present for their participation in the meeting and, in particular, the editors for their devoted work during his term as Chairman and those members who were completing their terms of office in 1994. Speaking on behalf of the other participants, the General Secretary thanked the Chairman, who was also completing his own term of office, for his extremely valuable contribution to the Committee over the past three years, and those in attendance concurred.

There being no other business, the Chairman adjourned the meeting at 13.00 hrs.

### **DOCUMENTS**

Pub:1	Agenda for the Publications Committee
Pub:2	Publication activities in 1993/1994
Pub:3	Sale of ICES publications during the last three years
Pub:4	Report of the Editors of the <i>ICES Journal of Marine Science</i> for 1993/1994
Pub:5	Academic Press publisher's report for 1994: <i>ICES Journal of Marine Science</i>
Pub:6	Financial status of <i>ICES Journal of Marine Science</i> for 1993
Pub:7	<i>ICES Cooperative Research Report</i> series: Editor's report 1993/1994
Pub:8	Publication of ICES Symposium proceedings: future developments with Academic Press
E:2 Ref. Pub	Editor's report on <i>ICES Techniques in Marine Environmental Sciences</i> for 1994
F:32 Ref. Pub	<i>ICES Identification Leaflets for Diseases and Parasites of Fish and Shellfish</i> : Editor's report 1993/1994
L:33 Ref. Pub	<i>ICES Identification Leaflets for Plankton</i> : Editor's report 1993/1994

# REPORT OF MID-TERM MEETING OF CONSULTATIVE COMMITTEE

ICES Headquarters, 1-2 June 1994

## INTRODUCTION

In accordance with C.Res.1993/2:1, the Consultative Committee met at ICES Headquarters from 1-2 June 1994. All members of the Committee, as well as the President, General Secretary, Environment Secretary, Oceanography Secretary, and Fishery Secretary, participated in the meeting.

The Chairman, Dr R.C.A. Bannister, opened the meeting at 09.05 hrs and welcomed all participants.

## ADOPTION OF AGENDA AND TIMETABLE

The following materials were available as documentation for the meeting:

- 1) Draft Agenda;
- 2) Report of Programme Planning Group Meeting;
- 3) Draft programme of scientific sessions;
- 4) Contributions to be presented at the 82nd Statutory Meeting, St John's (Canada);
- 5) Supplement to list of contributions to be presented at 82nd Statutory Meeting;
- 6) "Shadowing document", showing ICES Committees and their Subsidiary Groups, timing and venue of ICES Meetings, coding of Committee/Group/Workshop reports and documents, and Secretariat staff (Professional Secretaries and General Secretary) acting as responsible "shadowers" and contact points for ICES Groups;
- 7) Papers from the Consultative Committee Chairman addressing ordering and grouping agenda, and committee structure and related matters;
- 8) Report of the 1993 Mid-Term Meeting of the Consultative Committee;
- 9) Report of the Consultative Committee from the 1993 Statutory Meeting;
- 10) Annex to 1993 ACME Minutes: Proposal for a Strategic Framework for ACME;
- 11) Minutes of the May 1994 ACME Meeting;
- 12) Section of Minutes of 1994 ACFM Meeting referring to ICES data base matters.

The Chairman referred to the Draft Agenda sent to the Committee on 25 April 1994 by the General Secretary. With respect to the proposed order and grouping of agenda items, he had placed a paper in the pigeon-holes of Committee members providing his suggestions for these. With the agreement of the Committee, he planned to structure the meeting by grouping agenda items as Sections A through to H, with A to C to occupy Day 1, leaving sections D to H for reflection overnight and a fresh start on Day 2.

### A. Introduction

Agenda Items 1 & 2. Opening, Adoption of Agenda, and "housekeeping".

### B. 1994 Statutory Meeting

Agenda Items 3, 4, & 5.

In this section it was proposed to discuss the principles and details outlined in the Chairman's autumn circular: agree those which one felt could be passed on as recommendations to the Bureau; and receive, discuss and agree the preliminary Draft of the 1994 Scientific Programme as proposed by the Programme Planning Group. The Planning Group had recommended restricting the number of papers to be presented orally. It was intended to adopt a prescribed time schedule for presentations. Committee Chairmen would be given the opportunity to discuss these issues fully, and would get the available Abstracts and current coding of the titles submitted. He requested that the Chairmen vet these and also identify any submissions for rejection.

### C. Scientific activities and directions

Items 11, 8, 9, & 15

In this section, the Committee could first of all discuss an existing policy issue (item 11); review the main thrust of activities in ACME and ACFM (items 8 & 9); and the wider role of ICES (item 15). It would be possible to split into sub-groups to deal with some of this if necessary.

From this, the Chairman planned to develop a quite detailed overview of the main tactical and strategic areas of ICES scientific activity, both now with regard to current obligations, and in the medium and long term, as one previewed pro-actively where ICES can or should go in the future. The Committee could then focus more coherently on the following two sections, D & E.

#### D. Future meetings

Items 6, 7, & 13.

Here one would pick up on ideas already in the pipeline from previous Committee discussions, and above all from the previous section. The intention was to develop a longer term approach to some of the main ICES meeting themes.

#### E. ICES structure and function

Item 10.

The intention here was to focus this section round the question "Does ICES have the correct structure to meet the present and long-term objectives deduced in section C?" Sub-questions were:

Does ICES have the right set of Working/Study Groups, are they reporting to the right place, and are the working and reporting protocols adequate to deal with ICES "customers" in an evolving world?

Has one got the remit and goals of the Advisory Committees right, or is there still fine tuning to do, and should one establish a joint ACFM/ACME sub-group to co-ordinate joint issues?

How well do the existing Subject/Area Committees meet the Council's objectives and enable ICES business to be adequately conducted? Is the system of nationally nominated Subject/Area Committee members effective? Will the proposed changes to the Committee structure bring real benefits? Can Committee business and the formulation of recommendations at the Statutory Meeting be made more effective?

Finally, many Committee members felt that Communication within ICES is defective, and that there are too many layers.

These important questions may require the Committee to set up an *Ad Hoc* Sub-Group to reach an intersessional draft proposal.

#### F. Data base questions

Items 12 & 14.

The Chairman believed that British Marine Fishes Data Base is an operating example with implications for how one could view item 14.

#### G. Delegates: extra meeting

Item 16.

The Bureau and Delegates would naturally be interested in the whole of the outcome from the Consultative

Committee Meeting, but sections C and E would probably be particularly useful as feeders for item 16.

#### H. Any other business

The Committee accepted the Chairman's proposal regarding the grouping and order of the agenda.

#### **APPROVAL OF DRAFT PROGRAMME OF SCIENTIFIC SESSIONS FOR THE 1994 STATUTORY MEETING**

The General Secretary briefly reviewed the facilities and meeting rooms that would be available at the Radisson Plaza Hotel in St John's, Canada. It was noted that the rooms for the scientific sessions were all relatively large.

The Chairman quickly described the reasoning behind the move to get papers into Theme Sessions as being to give presentations more time than previously allocated in Committees, and to provide an incentive for authors to produce and present good papers. In line with earlier Consultative Committee decisions, relatively more time would be devoted in the Committees to presenting and reviewing SG/WG reports and business, and less time would be spent on the presentation of scientific papers.

At the request of the Chairman, the Oceanography Secretary reviewed the Report of the Programme Planning Group (Annex 1). The number of papers in 1994 was 358, appreciably lower than the previous high in 1993 and markedly lower than in 1992. The numbers of contributions were quite large for the Fish Capture, Demersal Fish, and Shellfish Committees, while for Statistics, Marine Environmental Quality, Mariculture, Pelagic Fish Baltic Fish, Biological Oceanography, ANACAT and Marine Mammals Committees the numbers were lower but adequate. The low number of papers in the Hydrography Committee was generally viewed with some concern. The goal of getting more papers into Theme Sessions had largely been achieved, but there was still a problem to allocate sufficient time to Committee Sessions and to schedule the various sessions at optimal and non-conflicting times.

The number of Working/Study Group reports had increased over the years and MEQC and the Biological Oceanography Committee had more reports than other Committees. It was noted that the estimated time available for presentation of Theme Session papers was 15 minutes, while 20 minutes per paper were available in the Mini-Symposium. Papers for presentation in Committees were allocated 10 minutes.

The draft programme of scientific sessions was presented. The Chairman and the Oceanography Secretary, reviewed the various Theme Sessions and the number of papers assigned to them. Theme Session T had received an excellent response in terms of numbers, but there was

some concern that the total duration of the session was unduly long. After some discussion, it was agreed to accept Theme Session T as scheduled, bearing in mind the aim of introducing fisheries economists, sociologists, and behavioural scientists to the work of ICES. Most of the Theme Sessions were seen as being sound and viable, with the exception of Theme Session Q, which had required assistance in increasing the number of papers by bringing in other relevant papers from some of the Committee sessions. It was suggested that Theme Session Q, whose papers were all coded to MEQC, might be changed to a Special Committee Topic and thus save a little time, but this was not accepted.

The Committee generally agreed that there was a disappointing response in the number of posters submitted, considering the intention of giving these greater pride of place at the Statutory Meeting. It was pointed out that, to get more posters submitted, probably required future meetings to advertise a named Theme Session solely for posters (c.f. "Computers in Fishery Research" Theme Session at the 1993 Statutory Meeting).

To allow the Committee Chairmen to vet individual submissions for their Committees, the Chairman adjourned the Committee meeting in plenum for 30 minutes. On returning, it was agreed to reject several submissions, either because they lacked abstracts or the abstracts were too short to be informative about the content and purpose of the paper. It was noted that the "Call for Papers" had clearly emphasised the need for informative abstracts.

For the Joint Sessions, it became clear that Conveners had not been identified, as for example had been done with the Theme Sessions. It was proposed, and agreed that these should be the Chairmen of the Subject/Area Committees which were involved in promoting the given Joint Sessions. It was further suggested, and endorsed by the Committee, that all future Theme and Joint Sessions should have supporting information provided with the "Call for Papers", thereby removing speculation by the Planning Group as to their relevance and suitability when selecting papers for these sessions.

Several proposals regarding the content of Theme Session U were examined. The Chairmen of ACME and ACFM felt that this session should reflect interdisciplinary work carried out in connection with fisheries and environmental issues, e.g., further progress in the work of the WG on the Ecosystem Effects of Fishing Activities and the SG on Seabird/Fish Interaction, and marine mammals and fish/fishery interactions. The General Secretary pointed out that although Theme Session U had been a joint forum for ACFM and ACME affairs in 1992, it had been used in 1993 for addressing strategies

and for improving communication within ICES. It was agreed to return to the matter of deciding the title and content of Theme Session U after ACFM and ACME matters were presented and discussed.

Various alterations were made to the programme to eliminate some obvious conflicts (e.g., overlap of certain Committee and Theme Sessions).

The final agreed version of the programme is contained in Annex 2.

The Chairman strongly urged the Committee to support his proposal that the Order of the Day for the scientific programme at the Statutory Meeting be anchored through a clear time-scheduling of individual presentations. By doing so, it would be known when a paper or report presentation would start and end, and meeting participants could then decide on exactly what they wished to follow and move around the various sessions accordingly. The ensuing discussion indicated that this could be done for the St John's meeting, but that it would be too early to agree on having synchronous, equal length presentations in all the Committee sessions. It was agreed that the Chairmen and Conveners would provide the General Secretary with a suitably detailed time-table for their sessions by 15 August 1994. The General Secretary pointed out that as there were five elections for Chairmen (Hydrography, Statistics, Pelagic, ANACAT, and Marine Mammals Committees) in St John's it would be necessary to determine when the elections would be conducted before the time-tables could be finalized. In order to allow announcements to be made, it was concluded that elections should be conducted at the start of the second session of each of the above mentioned Committees. The General Secretary would telefax the Chairmen of the involved Committees, by the end of June 1994, with the exact time for holding the particular elections.

It was agreed to abide by a deadline of 15 June 1994 for Chairmen to reclassify any papers as posters.

#### **IMPROVEMENTS TO THE FORMAT AND CONDUCT OF THE 1994 STATUTORY MEETING.**

In autumn 1993, the Chairman solicited written views from Consultative Committee members about the Statutory Meeting, the presentation of papers, and the suitability of the present Subject/Area Committees for the scientific work of ICES. In the light of these views, and others expressed publicly at the 1993 Statutory Meeting (Theme Session U and in the questionnaires returned later), there was clearly an overwhelming desire for changes to the format of the meeting and the presentation of papers. Thus the Chairman had circulated corresponding proposals, which were fully discussed at the present meeting.

Regarding the General Assembly, the Consultative Committee despite recognising the need for them, was unanimous in its view that past Assemblies had generally been turgid and ineffectual in stimulating the scientific imagination. The Symposia and Theme Session reports usually lacked scientific bite, and previous Open Lectures had largely been disappointing in both content and quality of presentation. The Committee was unified in its view that, in addition to implementing the changes outlined below, care should be taken wherever possible not only to find vital topics but also to find speakers with proven presentational credentials, and that the letter of invitation from ICES should specify clearly the standards required.

Bearing in mind that ICES needs the participation of young scientists at Statutory Meetings, better publicity about the Meeting and its goals would be desirable.

*As an indicative first step the Consultative Committee unanimously and firmly recommended that the following changes be made immediately:*

- 1) Give the Statutory Meeting a stronger and more meaningful image. Amend the title to:

*International Council for the Exploration of the Sea*  
**Annual Science Conference**  
(82nd Statutory Meeting)

- 2) Strengthen the interest and scientific character of the General Assembly.
  - a) Relegate the much criticised verbal reports of past Symposia and Theme Sessions to document form only.
  - b) Replace them with a brief preview of the scientific highlights of the current meeting by the Chairman of the Consultative Committee.
  - c) Reduce the Open Lecture to 40 minutes, but follow it with an organised response to set a pattern of dialogue, and allow a few minutes of comments from the floor. In 1994, the response could, for example, come from a fisheries manager appointed by the Canadian Government.
  - d) For the first scientific session following the Open Lecture, create an option to feature a corresponding Theme Session, attended by the Open Lecturer.
  - e) For newcomers, identify key ICES personnel in photographs displayed in the area of the pigeon holes, and adopt much larger, easily visible name tags.

## QUANTITY AND QUALITY OF STATUTORY MEETING PAPERS

Following from the preamble in the previous section, the Committee discussed the Chairman's proposals for change regarding papers. It was agreed that changes were highly desirable, but that it would be wise to avoid undue confusion by proceeding in steps. As a first step it was agreed to:

- 1) Schedule specific times for the oral presentation of papers. This will be implemented using information to be supplied by Committee Chairmen to the Secretariat by 15 August 1994 at the latest. With this approach, acceptance of a paper implies an absolute commitment to produce it to the deadlines. The schedule will form an annex to the Yellow Pages. Time slots can be grouped for discussion or business purposes, but this must be listed. In 1994, times will not be synchronous for all Committees or Theme Sessions, but it is recommended to experiment with standard, synchronous 15 minute slots for all sessions in 1995, in conformity with many major science meetings in the academic world. Future adoption of standard times will substantially reduce the number of papers that can be presented, and will require a selection process at the Programme Planning Meeting. This will need to be announced with the Call for Papers, and will in turn require strict adherence to the Rules and Guidelines on Abstracts. As a start, titles submitted without abstracts this year were not accepted.
- 2) Reduce the required number of copies of papers to 75 for ICES Headquarters, and 75 (or even less for the majority of "assessment" reports") for the "Science Conference". This will reduce both costs and the need to shred unused papers after the Conference. The additional demand for the infrequent popular paper will be met either by photocopying at charge at the Conference or by requests being addressed to authors after the Conference is finished.

Some members of the Consultative Committee asked whether papers as documents were really necessary at all, and also pointed to the scope for introducing electronic (E-mail) bill-boarding. There were substantial arguments both for retaining texts and for eliminating them. Therefore, it was agreed that the matter should be reviewed intersessionally by an "Ad Hoc Group on the Submission and Documentation of ICES Papers and Reports", to report to Committee members by 1 September 1994.

## 1995 STATUTORY MEETING

It was emphasised that it was necessary to decide on a person, and title for the 1995 Open Lecture, as one traditionally allowed more than a year for the lecture and

accompanying manuscript to be prepared. It was also noted that all the necessary Theme and Joint Sessions, as well as a Mini-Symposium needed to be proposed and accepted by the Committee at the Statutory Meeting, at the latest, in order to get the Delegates endorsement.

### Open Lecture

The Committee noted that the Open Lecture at the 1994 Statutory Meeting would be given by Prof. J. McGlade (UK) on "Putting Fishermen into Fishery Models".

At the 1993 Statutory Meeting, the Committee received a single proposal for the 1995 Statutory Meeting, whereby it was tentatively agreed that Dr J.T. Carlton (USA) should be invited to present the 1995 Lecture on some aspect of introductions and transfers of marine organisms. It was agreed, however, to defer the final decision to the June 1994 Mid-Term Consultative Committee Meeting.

The Chairman invited the Committee to make a firm proposal for the presenter and title of the 1995 Open Lecture. In response, the Chairmen of ACME and the Mariculture Committee drew attention to the consensus within ACME, after Dr Carlton had attended their May 1994 Meeting, that the 1995 Open Lecture should be presented by Dr Carlton on "ballast water" and its association with marine introductions and invasions. The Committee agreed that the theme was very timely and of importance to the work of the Council, and the interests of Member Countries and regulatory commissions. It was agreed that Dr Carlton should be telefaxed to confirm his acceptance of the proposal, subject to endorsement by the Delegates, and with the request that he provide the General Secretary with a title for his lecture. The title subsequently provided by Dr Carlton was "Ballast Water: the Ecological Roulette of Marine Biological Invasions".

### Theme Sessions and Mini-Symposium

The General Secretary, at the request of the Chairman, reminded the Committee that two Sessions had previously been nominated and accepted for 1995:

- a) Theme Session on "Causes of Observed Variations in Fish Growth"; Convener: Mr S. Sundby (Norway);
- b) Theme Session on "Intermediate-Scale Physical Processes and their Influence on the Transport and Food Environment of Fish"; Co-Conveners: Dr F. Werner (USA) and Dr B. MacKenzie (Denmark).

The Chairman then asked the Committee for further proposals for Sessions. The following suggestions were noted, without the Committee making a final endorsement:

- i) Theme Session on "Ballast Water: Ecological and Fisheries Implications"; Convener: Dr J.T. Carlton (USA).
- ii) Theme Session on "Mariculture: Monitoring, Modelling, and Understanding Environmental Interactions"; Conveners: Dr R.M. Cook (Canada), Dr S. Carlberg (Sweden), Prof. T. Osborn (USA), and Dr M. Héral (France).
- iii) Theme Session on "Reproductive Disturbance of Marine Species ¾ Causes and Effects"; Conveners: Dr J. McDowell Capuzzo (USA) and Dr M. Heath (UK).
- iv) Theme Session (Posters) on "Marine Science Activities and Breakthroughs in ICES Member Countries"; Convener Mr E. Kirkegaard (Denmark).
- v) Theme Session "Results of the Baseline Study of Contaminants in Baltic Sediments"; Conveners: To be decided.

It was understood that this list was not an endorsement, and would not exclude the possibility that additional proposals would be forthcoming when the Consultative Committee met in St John's. There was a perception that the finalized and agreed Theme Sessions should be relevant to Danish interests and those of the surrounding geographical area. In this context, there was accord that environmental protection, coastal zone management, biodiversity, protect or closed areas, introductions and transfers, and M-74 were appropriate general topics of interest for the 1995 venue.

### Mini-Symposia and Symposia

The following Symposia had been approved in previous years by the Council for 1994 and 1995:

- a) "Zooplankton Production-Measurement and Role in Global Ecosystems Dynamics and Biogeochemical Cycles"; Co-Conveners: Dr M. Reeve (USA) and Mr H.-R. Skjoldal (Norway); to be held in Plymouth, UK, from 15-18 August 1994;
- b) "Fisheries and Plankton Acoustics"; Convener: M E.J. Simmonds (UK); to be held in Aberdeen, UK, from 12-16 June 1995;
- c) "Changes in the North Sea Ecosystem and their causes: Århus 1975 Revisited"; Co-Conveners: Prof. N. Daan (Netherlands) and Dr K. Richardson (Denmark); to be held in Århus, Denmark, from 11-14 July 1995;
- d) "Role of Marine Mammals in the Ecosystem" (co-sponsored by NAFO and ICES); Co-Conveners: Mr J. Sigurjónsson (Iceland) and Dr G. Stenson

(Canada); to be held in Dartmouth, NS, Canada, from 6-8 September 1995.

No proposals had been received by the Committee for Symposia to be held in 1996. This will be taken up intersessionally.

The Chairmen requested suggestions for future Mini-Symposia and Symposia. The Chairman of ANACAT proposed that a Mini-Symposium on "Interactions of Wild, Ranched (Enhanced) and Reared Salmon" be held in 1996. The Chairman of the Statistics Committee proposed investigating the possibilities of promoting a Symposium on "Recruitment Processes", concentrating on biological-physical coupling.

The Chairman and the Committee emphasised that, in accordance with long-standing practice, these suggestions must be presented in a professional manner, with details of Conveners, and supporting preamble and arguments before they could be considered as firm proposals and then possibly be accepted. He urged that the desired information and documentation be provided in time for the 1994 Statutory Meeting.

## **ACFM AND ACME**

### **ACME matters**

The Chairman of ACME described selected aspects of the recent meeting of the Committee, including topics where there had been significant progress or development, and reviewed a number of strategic and operational items. The Strategic Framework for ACME incorporated as Annex II of the 1993 Report of the Committee was still on the table as the main statement of its remit, awaiting outside comment. There had so far been little comment, perhaps partly because production of the 1993 Report had been delayed by ICES involvement with the North Sea Quality Status Report. ACME highlighted the need to produce future Reports much sooner after the meeting and had made significant progress towards facilitating this by getting agreed drafts completed at the meeting. Discussion at ACME pointed to the need to send copies of the report to Chairmen of the relevant ICES Working Groups.

The Agenda for the 1994 meeting had included questions from the Commissions, reviews of ICES Working Groups, items specific to the ACME agenda, and several items which were of joint interest to ACME and ACFM. In some cases the Commission requests had required to be reformulated before they could be dealt with, whilst a number of other items had been assigned to the Committee for convenience rather than because they were fundamentally of interest or relevance to the ACME remit. The Chairman intended that in the future there should be a greater degree of quality control of the questions and the Agenda to avoid these problems. The time saved

should allow the Committee more leeway to discuss strategic issues. The Consultative Committee agreed that this would be helpful, and also pointed out that it was open to ACME itself to interpret its remit within the bounds of its strategic framework document, giving though due importance to the questions coming from those customers having written agreements with the Council.

On operational matters, ACME had made progress in using nationally nominated ACME members to communicate more effectively with its Working Groups, as well as to prepare documentation on particular agenda items. Holding Working Group meetings in April and May, with consequent arrival of reports only just prior to the ACME meeting, made this more difficult to achieve. It would probably be better to hold Working Group meetings outside these months if possible. Some of the scientific information received and reviewed by ACME was not appropriate to append in its entirety to its report, and ACME intended that in future material of this kind would be submitted as a text to the Statutory Meeting.

*The following issues were of particular interest:*

A Sub-Group on Monitoring Strategies had corresponded intersessionally and the ACME report would contain a summary outlining the possible bounds for ICES' role in advising on monitoring strategies. The wide range of monitoring activities being undertaken in relation to contaminants, biological effects, and eutrophication in different sea areas and under different auspices; the statistical problems associated with analysis of trends; and the existence of wider global ocean and ecosystem monitoring programmes, means that this is an important strategic issue for ICES and the Consultative Committee.

ACME had discussed a working paper presented by the member from the Netherlands describing progress towards defining ecological quality objectives, and identified this as an important topic requiring additional study intersessionally.

Dr J. Carlton (USA), Chairman of the ICES Working Group on Introductions and Transfers of Marine Organisms (WGITMO), had addressed ACME on the work of his Group. He had described the final modifications to the Code of Practice on the Introductions and Transfers of Marine Organisms, including the section on genetically modified organisms. The Working Group recommendation that this now be adopted by the Council had been endorsed by ACME, which had also recommended publication as a brochure, a Cooperative Research Report, and in the scientific literature. Dr Carlton had also given an important summary of the ballast water issue, leading ACME to recommend him as a speaker on this topic for the 1995 Open Lecture, and to recommend the

topic as a Theme Session for the same meeting. Shellfish transfers and diseases had also been discussed. This is a politically sensitive issue, centred on the need to balance the freedom of movement of bivalves for commercial reasons under European Union regulations, and the continuing concern of some cultivators about the potential for some species to act as carriers of known diseases, or to be infected with newly discovered herpes-like viruses, or for shipments of permitted stock to contain other unsuitable associated flora and fauna likely to cause unwanted introductions. ACME had endorsed its previous recommendation for ICES to make direct contact with the European Commission on this topic.

The Benthos Ecology Working Group had reviewed and accepted a feasibility study by the Secretariat's environment data scientist on the establishment of a benthos data bank. ACME had reviewed and endorsed this case, but could not assess its relative priority among other potentially new ICES data bases. It was suggested that it might be helpful for ICES to establish a strategic review of future data base priorities. ACME had also discussed the requirement for different data bases used in interdisciplinary studies to be made compatible, for example in relation to the spatial scale based on the statistical rectangle used in the fish data bases. ACME recommended that an *Ad Hoc* Study Group on the ICES Data-bank should meet to provide an overview of this issue, and to recommend ways of dealing with it. On the question of the rules for the use of data, ACME endorsed the ACFM view that data submitted to ICES data-banks should be available to all persons carrying out scientific activities endorsed through Council resolutions.

The report of the Steering Group on Fisheries/Environmental Management Objectives and Supporting Research Programmes in the Baltic Sea, presented at the 1993 Statutory Meeting, was still open for discussion and action, and would be included as an annex to the ACME report.

ACME highlighted the Working Group on the Ecosystem Effects of Fishing Activities and the Study Group on Seabird/Fisheries Interactions as examples of interdisciplinary work, which were also discussed at the joint ACFM/ACME session held at Charlottenlund on 25 May (see below).

### **ACFM matters**

The Chairman of ACFM reported that his Committee, having made the switch from single-species to area-based assessment Working Groups, and having developed a new form of advice, was now tackling the matter of the format of the ACFM Report.

ACFM considered that the readability of its Report could be improved regarding general "user friendliness"

for the end users, who are primarily bureaucrats and managers in the ICES Member Countries and in the fisheries regulatory commissions. It was felt that embedding figures and tables strategically in the appropriate part of the text of the Report was preferable to having to find these at the end of the Report. This also reduced the necessity for having a wordy text to describe trends in data that were visually presented, thus saving time and effort.

The Chairman of ACFM drew attention to the logistic difficulties in implementing such new changes to the format of the ACFM Report. In their May meeting, ACFM had used Word for Windows coupled with Excel to carry out the desired presentational changes. However, as the Secretariat worked almost exclusively with DOS based WordPerfect, it was necessary for the ACFM Chairman, in advance of their meeting, to request the General Secretary to provide special periodic assistance and guidance regarding the desired skills from outside the Secretariat in order to assure the success of the exercise.

In response to the above comments, the General Secretary stated that recent developments in computers, both with software as well as hardware, meant that it was no longer appropriate for the Secretariat to rely to the same extent as previously on a single word-processing package, particularly in a non-integrated medium; it was clearly necessary to acknowledge the increasing ascendancy of Windows and Microsoft in the field. He pointed out to the Committee that he would be presenting a paper to the Bureau in their June 1994 Meeting, in which he requested that suitable funds be made available to purchase the required software to meet the desires of the groups and committees working in the Secretariat as well as the more powerful PCs necessary to run such software. In conclusion, the General Secretary asked the Chairman of ACFM whether he was satisfied with the results of his Committee's endeavours.

The Chairman of ACFM indicated that, given the lack of time for the Secretariat to prepare itself and the speed with which his Committee had moved into the matter, he was satisfied with the present result. Nevertheless, it was necessary that the initiative taken by ACFM with regard to its Report be given further support by the Secretariat so that one could work in an optimal environment next time around. He drew the Consultative Committee's attention to some pages of the ACFM Report which had been distributed for their information.

With regard to the current difference between ACFM and ACME, the Chairman of ACFM acknowledged that his Committee generally worked with the same type of issues and methods from year to year. This did not mean, however, that innovations did not occur; there were a substantial number of these that could be referred

to during the last decade. Although ACFM had initiated a move away from single stock towards more area based assessments, it was a complex affair and would take some time to achieve in a completely satisfactory manner. ACME was obviously starting its life and accordingly had to conduct a substantial amount of research and developmental work before being able to deal with the range of environmental issues that presented themselves.

ACFM currently gives advice based on assessing the historical development of exploited stocks in the ICES area taking into account expected impacts of various management measures. The objectives can be seen as providing the advice necessary to maintain viable fisheries within sustainable ecosystems. The concept of the minimum biologically acceptable level (MBAL) of spawning stock size is central to ACFM's philosophy. However, bearing in mind that MBAL hinged on the implied statistical relationship between spawning stock size and recruitment, it was necessary for ACFM to give further thought to these factors. He considered it particularly appropriate for "recruitment" related aspects to figure strongly in the scientific sessions at future Statutory Meetings.

The ACFM Chairman emphasised that his Committee's advice would increasingly recognize the importance of taking into account technical, multispecies and other ecological interactions. It was becoming increasingly important to have a wider range of links to Working/Study Groups and the Subject/Area Committees. In extending this view, he envisaged the inevitable need for the current interface between the two Advisory Committees to be reappraised at some time in the future. As advisory matters became increasingly interwoven, the distinction between "fisheries" and "environment" would become less distinct. He thus reaffirmed the marked need for coordination between ACFM and ACME so that the advice that is given through the Advisory Committees is "unanimous" Council advice rather than that of a particular Advisory Committee.

### **Joint ACFM/ACME matters**

The Chairman of ACME reported on the historical first joint session of ACFM and ACME, held on the afternoon of 24 May at the Danish Research Institute, Charlottenlund, and on subsequent discussion of joint issues at ACME.

The Report of the Working Group on the Ecosystem Effects of Fishing Activities had been presented at both the joint session, and at ACME, by its Chairman Mr H Gislason. This report was ICES' response to a request made by the December 1993 Intermediate Ministerial Meeting to the Commission of the European Union with particular reference to the North Sea. The report reviewed the literature on closed areas; the objectives

and hypotheses to be tested in future closed area experiments; criteria for selecting an area; the consequences for users of the area; and the scientific monitoring strategies required to evaluate the results of closing an area to fishing. The Report, a proposal to nominate Dr S Hall (UK) as the next Chairman of the Working Group, and a proposal to meet in 1996, were endorsed by both Advisory Committees.

The Chairman of the Marine Mammals Committee outlined proposals for possible Working Groups on stock assessment, trophic interactions, and contaminants and epizootics. These groups should report to his committee, but could pass recommendations to the Advisory Committees, to which he could be co-opted as required. Discussion emphasised the unique contribution ICES could make to studies on trophic relationships, but raised questions about the overlap of assessment work with that taking place in other fora, or for which the expertise lay predominantly outside immediate ICES scientific circles. The draft ICES Marine Mammal Policy recognises these last two issues. Draft minutes of the subsequent ACME meeting, available to the Consultative Committee, indicated concern about the possible impact of by-catches and direct harvesting on several species of seals and small cetaceans in the North Sea and the Baltic Sea.

There were extensive discussions at the joint session, at ACME itself, and at the Consultative Committee, on how to deal with issues requiring the expertise of both Advisory Committees, in particular how to coordinate the work, communicate reports, and give advice. For medium- and long-term issues there is scope for better interdisciplinary tasking of some existing Working Groups and Study Groups, or for the formation of new joint Working Groups and Study Groups when required. It was also agreed to issue a joint ACFM/ACME report on some issues, although the actual advice will still, as now, have to be given by one or other Committee as seems most appropriate. However, the response to urgent short-term issues is much more problematic. At present this is expedited by the location of the two Advisory Committee Chairmen in the same institute, but this is a short-term accident. The Consultative Committee is persuaded that more formal arrangements for joint working are urgently required to ensure that ICES interdisciplinary work at the interface between both Committees can be made more effective, timely, and scientifically credible.

*The Consultative Committee therefore recommends the formation of an Advisory Committee Coordination Group, comprising the Chairman of the Consultative Committee, the Chairman of ACFM, the Chairman of ACME, plus six nominated expert members (three from each Advisory Committee), but with the power to co-opt particular specialists as required. The Coordination Group will operate under the auspices of the two Advi-*

sory Committees, to meet requests for advice in the sphere of either or both committees, but which cannot be dealt with quickly or effectively under the normal arrangements. It should have delegated authority to task existing Working Groups, or to set up urgently required expert Study Groups with a specific limited life-span and nominated membership. Where necessary or unavoidable, and in consultation with the General Secretary, reports will be submitted to the Coordination Group, who may make them available as advice on an interim basis. However, the reports will subsequently be reviewed at the next meeting of the Advisory Committees and the advice approved by them in the normal way for adoption by the Council at the next Statutory Meeting. This Coordination Group is not expected to require additional expenditure. Business will be conducted by E-mail, and formal meetings will occur only as part of the Statutory Meeting, and in the margins of the summer Advisory Committee meetings.

In conclusion, the Chairman of the Consultative Committee thanked both Advisory Committee Chairmen for the most useful reviews of their May meetings and general activities, and invited any further questions, comment or other input regarding Advisory Committee affairs.

In the ensuing discussion, several Subject/Area Committee Chairmen, especially those of the Fish Capture and Marine Mammals Committees, drew attention to their present situation and lack of representation in the Advisory Committees. It was felt that more assistance to the work of the Advisory Committees could be provided through the auspices of the Subject/Area Committees.

#### **Rule 26 and 26<sup>A</sup>**

The General Secretary reminded the Committee that last year's Mid-Term Consultative Committee Meeting had drawn attention to the need to amend Rule 26<sup>A</sup> of the Council's Rules of Procedure to give ACME the same freedom as ACFM, authorizing it to give scientific advice on such matters as the Council or the Committee may consider relevant or appropriate.

The Chairman of ACME queried why, having arrived at this conclusion, the Rules of Procedure had not been modified. The General Secretary pointed out that in order to do this a recommendation would have to be directed in the normal manner to the Delegates, and that this should preferably originate from ACME themselves.

The matter of how long one should wait after the conclusion of the ACFM before individuals could release information was raised. It was felt that having a 24-48 hr moratorium on the dissemination of information was insufficiently long to allow ACFM members to report back to their laboratories and associated ministries. After some discussion on diverse aspects of "freedom of

information" to the press, it was agreed that this was a policy matter for the General Secretary and the Bureau to decide on.

#### **INTERDISCIPLINARY SCIENCE — THE NEXT STEPS**

At the conclusion of the ACFM and ACME sections of its agenda, the Chairman of the Consultative Committee initiated a wide ranging discussion on the future of interdisciplinary work. Based on the autumn correspondence about the structure of the Subject/Area Committees, he felt that structural change should be based on a proper evaluation of the future objectives and needs of ICES science, rather than on *ad hoc* views and preferences, which could change according to the particular individuals elected at any one time. A strategy would include the existing tasks and needs of the Advisory Committees, particularly in relation to customers with formal memoranda of understanding WITH ICES, but should also include a pro-active appreciation of where ICES science could or should develop in the future. A strategy would make it easier to evaluate whether the present suite of ICES Committees, Working Groups and Study Groups was adequate and effective. It could also identify future goals for relations with other bodies outside ICES, and might help the Secretariat to assess future ICES financial and administrative priorities. He had already invited ACME members to list priority topics which might feature pro-actively in future ACME work.

The Chairman circulated the following statement from the Chairman of the Statistics Committee, which contained the basis for a unified view of the remits of both ACFM and ACME:

*"The primary focus of ACME should be to provide advice on the probable effects of anthropogenic factors (contaminants, habitat degradation, eutrophication) and natural factors (physical transport processes etc.) on the dynamics of marine populations. It should consider the consequences of anthropogenic influences in a broad sense at the population level and in the context of a variable natural environment. Framed in this way the ACME remit would complement that of ACFM with its focus on the effect of direct removals through harvesting. A full assessment of marine populations and their response to man-induced stress requires an understanding of the joint effects of these factors, and ICES could take the lead in providing such an holistic approach to ecosystem management. Interdisciplinary approaches to these problems would of necessity be required under this unifying theme, and would foster collaboration across committee boundaries."*

It was recognised that this was a long-term objective, but that steps in this direction could be taken now. Some

existing interdisciplinary topics are already in place, notably studies on the ecosystem effects of fishing, seabird/fisheries interactions, and the Cod and Climate initiative. The latter will give major impetus to the analysis of change in fish populations in the ocean/climate milieu, but there is still considerable scope for the development of more focused relations between biologists and hydrographers at the working level. Examples are in studying the role of transport mechanisms influencing the distribution and fluctuation of all marine populations, and the influence of circulation patterns in coastal water on the nutrient fluxes associated with plankton productivity, eutrophication effects, and algal blooms. The Chairman pointed to topics such as fish diseases, interactions between fisheries and other seabed users, and the monitoring of the biological effects of contaminants, as examples where it could be fruitful to appreciate the importance of distribution, life history, population dynamics and genetics, and trophic relationships. The modelling approach could also be extended to a much wider range of fisheries and environmental studies. The Chairman of Biological Oceanography suggested that ICES should consider undertaking a detailed cost-benefit analysis of the Continuous Plankton Recorder programme.

The Chairman of ACFM suggested that the development of an holistic approach was probably best carried out on an area basis. He cited the new area-based fish stock assessment working groups, although at the moment these were still conducting assessments individually, since integration across stocks had not yet begun. In looking at future scientific questions holistically, one had the choice either to split the question up and pass each part to one of the specialist working groups, or to treat the question as an entity and create the new working groups needed to function in this way. From this point of view a change to the structure of the Subject/Area Committees might be less important than a change in our approach to constituting and tasking the Working Groups where the science is actually undertaken. The Consultative Committee could play a key role in adopting this approach, although this might require that Working Group members were nominated less on national grounds and more on grounds of expertise. The various elements of this discussion will be pursued interessionally and the findings reported at the next meeting.

It was noted that although the questions and advice considered in ACFM are more specific and standardised than those in ACME, and have a common report format, ACME will ultimately move towards a more prescriptive phase, and the ACME Chairman was considering whether the ACME report could also have a more unified reporting format.

The joint ACFM/ACME Theme Session at the 1994 Statutory Meeting will be entitled "*Interdisciplinary*

*links — the Next Steps*". It will provide feedback on the above discussion by the Chairmen of the Consultative Committee and the Advisory Committees, followed by reviews of the Working Group on the Ecosystem Effects of Fishing Activities and the Study Group on Seabird/Fisheries Interactions, whose chairmen will also be present.

## SUBJECT/AREA COMMITTEE STRUCTURE

The Chairman summarised the main points raised by Consultative Committee members in reply to his autumn request for views about structure and function, as follows.

- a) The Committees have changed several times in history, but their general subject matter has tended to remain the same, e.g., biology, parameter estimation, surveys, gear, recruitment, hydrography. It might be wise to settle on the scientific strategy first, before changing the structure.
- b) New names were suggested, however, including a Fish Ecology Committee, a Fisheries Management Systems Committee (to include social and economic aspects of management), and Committees on Population Dynamics, Ecosystem Dynamics, and Biological-Physical Interactions.
- c) Specific arguments were made for maintaining traditional 'homes' centred on ANACAT, Baltic Fish, Fish Capture, Hydrography, Mariculture, Marine Mammals, and Shellfish Committees.
- d) A number of areas of work had no obvious Committee at present, e.g., genetics and diseases.
- e) All agreed that cross-fertilisation could continue by way of Theme Sessions and or Joint Sessions. The former were best for more generic items, whereas Joint Sessions had the advantage of making Committee members recognise particular opportunities for linkage. On the other hand, a true interdisciplinary approach was best achieved at the Working Group level.
- f) There was concern about the irregularity of attendance, particularly from nationally nominated Committee members.
- g) There was concern about the number of layers in the ICES structure, which slowed down effective communication and complicated the management of the science.

The Consultative Committee then discussed proposals from the Chairman aimed at testing reactions to change, as follows:

- a) Rename the Statistics Committee as the Population Dynamics and Assessment Committee (to include fish and shellfish, recruitment processes, and assessment methods).
- b) Create a new Fisheries Management Systems and Economics Committee (to include risk assessment).
- c) Merge the Demersal and Pelagic Committees into a single Fish Biology and Ecology Committee (and include life history, ecosystem aspects, diseases and genetics here).
- d) Ensure that these continue to cater for traditionalists by having identifiable special topics of a "statistics, demersal and pelagic" nature.
- e) Rename the ANACAT Committee to drop the eel part, and rename the Baltic Fish Committee by removing the "Fish" part, to make it a general interdisciplinary area committee.
- f) Formalise the interdisciplinary links with Joint Sessions on a routine basis.
- g) Change the Rules to clarify and extend the aims and focus of Committees. Create a topic list and identify which Committee is the preferred parent for each topic.
- h) Maintain the existing national member system in Committees for the purpose of communication between the Chairman and each country, but actively improve this communication. Create a steering group for each Committee based on the active attenders. Review the way ICES should communicate with experts outwith the normal government institute framework.
- i) Discontinue the Activities and Literature Reports.
- j) Pursue possible changes to the environmental Committees once the joint ACME/ACFM strategy is better defined.
- k) Create an *ad hoc* group to review the business of communication between the different levels of the ICES system.

*The Consultative Committee unanimously agreed to discontinue the requirement to submit activities and literature reports, and proposes that the changes to the Rules of Procedure be made.*

The Chairman of the Statistics Committee supported the general intention of the proposals to change the names of Committees, but suggested that a better title for his Committee would be Modelling and Statistics (as noted in the 1993 Report of the Mid-Term Meeting of the

Consultative Committee), so that the statistics contributions would be retained. There was general agreement that the aims and workings of Committees should be better defined, but in general members of the Consultative Committee felt that the options for changing the Subject/Area Committees needed further thought and discussion, bearing in mind that the scientific strategy was not yet fully formulated, and that the interdisciplinary links might best be achieved at the Working Group level, rather than the Committee level. The above proposals and points will be further assessed intersessionally, and discussed again at the next meeting.

## ACCESS TO ICES DATA BASES

The Committee discussed the Secretariat working paper (Bureau Doc. No. 924) on ICES data bases, and the question of who should have access to them. The Committee was unanimous in the view that data which had been submitted to an ICES data bank should be available for use by the providing institute and by scientists of Contracting Parties undertaking scientific studies approved by the Council. The Consultative Committee noted that it was important to avoid key scientific data from being withheld because of sensitivities regarding the intellectual property rights of providing countries, or the provision of data to non-governmental organisations, and therefore endorsed the view that the Secretariat should devise a code of practice which would safeguard ICES and contributing countries against the scientific or commercial misuse of ICES data. It was suggested that the difference between data bases and the use to which they are put (fisheries versus oceanographical versus environmental) might require an individual rather than a global approach to this problem, particularly where data are held under the terms of a contract with an outside body.

## TENTH DIALOGUE MEETING

The Fishery Secretary, who was present at the planning meeting from 22-23 March 1994 in Vigo (Spain), provided a short summary of the preparations for the Tenth Dialogue Meeting on "Fisheries and Marine Environmental Problems in the Bay of Biscay and Iberian Area".

The Fishery Secretary informed the Committee that the planning meeting, under his Chairmanship, had been instructed by Council Resolution to establish a Steering Group, and to discuss the format and subject area of the Dialogue Meeting, as well as discuss the logistic requirements for the Dialogue Meeting. In introducing the matter, he pointed out that Dialogue Meetings were different from other Council meetings in that their purpose was to provide a forum for discussion between scientists, administrators and representatives connected with fishing and environmental affairs. Usually the President of ICES has acted as Chairman of Dialogue Meetings, and intergovernmental commissions (e.g.,

European Commission, NASCO) had been involved as co-sponsors.

The planning meeting had been attended by M A. Maucorps (First Vice-President, France), the Chairmen of ACFM and ACME, and representatives from France, Spain, Portugal, and the European Commission. These persons, referred to as the Planning Committee, finally agreed on the title for the Tenth Dialogue Meeting as being:

"Fisheries and environment in the Bay of Biscay and the Iberian region: Can the living resources be better utilised?"

The Planning Committee determined that the Dialogue Meeting should deal with the management objectives and strategies for the area taking into account:

- the nature of these fisheries. Are they controlled by environmental, economic or social factors?
- the implication of the fisheries in this area for fisheries elsewhere (shared stocks, ownership);
- the impact of the fisheries on the ecosystem. Does an intensive juvenile fishery increase the risk of the stock collapsing and does it change the nature of the ecosystem?
- the impact of the fishery on the socioeconomic structure of the area.

The Planning Committee agreed to recommend to the Bureau that the Dialogue Meeting be held at the Centro Cultural Caja de Ahorros de Vigo, located in the city of Vigo, Spain. The Planning Committee also recommended that the Dialogue Meeting should be held in 1995, if possible, preferably in the latter half of October, in advance of the ACFM meeting which is likely to begin around 24 October. The Dialogue Meeting was envisaged as lasting for one and a half days, resulting in the provisional suggestion of 17-18 October 1995.

As the success of the meeting is probably dependent upon persons being able to use their own languages, it was proposed that simultaneous translation should take place for French, Spanish, Portuguese and English. Short abstracts would be produced in advance of the meeting, but the full proceedings of the meeting would be recorded and edited transcriptions of the paper and discussions would later be prepared for the report in their original language by the ICES Secretariat with the assistance of the Steering Group. It was proposed that the report of the Dialogue Meeting should be published in the *Cooperative Research Report* series.

As the meeting and associated arrangements would be expensive it was recommended that co-sponsorship for

the Dialogue Meeting should be sought. Invitations to provide patronage or co-sponsorship should be directed to the European Commission, the national and other authorities of the host country (Spain), and any others as determined by the Bureau.

The Steering Committee was proposed as consisting of M. A. Maucorps (France, Chairman), representatives of the ICES Secretariat, Representatives of the Advisory Committees nominated by the Committees, representatives of the co-sponsoring organisations, M. A. Forest (France), Mr Gonzalez-Garcés (Spain), Ms G. Pestana (Portugal), and Mr R. Robles (Spain).

The Steering Committee had been given terms of reference for it to detail the themes and subjects for the Dialogue Meeting, including identifying speakers from the management and scientific sectors who will be invited to provide papers. They would also identify logistic issues and estimate the costs to be covered by the co-sponsors.

The Chairman asked the Consultative Committee to offer any views and comments that it may have on the Dialogue Meeting.

The Chairman of ACFM announced that his Committee would not be nominating a separate member for the Steering Committee as M A. Forest, a member of ACFM, was already among those proposed as being a member of the Steering Committee. The Chairman of ACME proposed that Dr M. Héral from her Committee be the nominee from ACME and ACFM, this having been agreed by the Chairmen of the Advisory Committees.

The General Secretary pointed out that it was the Bureau's prerogative to oversee the Dialogue Meeting. He also emphasised that it was the task of the Steering Committee to determine the actual content and plan for the Dialogue Meeting within the framework proposed by the Planning Committee. Several persons outwith the Consultative Committee had approached him with the misconception that this had been done by the Planning Committee.

The Chairman and the Committee endorsed the work of the Planning Committee.

## ICES MARINE MAMMAL POLICY

The Chairman, also being Chairman of the *Ad Hoc* Group on ICES Marine Mammal Policy, introduced the Group's report. He acknowledged the hard work and assistance of the other members of the Group.

The report consisted of two parts, firstly a Preamble summarising the background for and the Groups dis-

cussion of the present issues, and secondly the Proposed ICES Policy on Marine Mammals Issues.

The Preamble points out that, at the 1992 and 1993 Statutory Meetings, the Consultative Committee agreed that ICES should include marine mammal research in its portfolio of ecosystems orientated science. However, when a request was received by the North Atlantic Marine Mammal Commission (NAMMCO) for management advice on long-finned pilot whales, some Delegates were concerned that research on cetaceans might potentially be redundant to activity by other international organizations, particularly the International Whaling Commission (IWC). Concern was also expressed about the Council being involved in jurisdictional disputes between IWC and NAMMCO over management competence for small cetaceans, as some ICES Member Countries recognize NAMMCO while others do not. When ICES, after considerable debate among the Delegates, established the Study Group on Long-Finned Pilot Whales it was obvious that there was both reluctance and inability on the part of some Member Countries to provide persons and associated resources to join the group's membership. Accordingly, there was doubt as to whether ICES can maintain a credible marine mammals programme if the necessary resources are not sufficiently forthcoming. In order to attempt to resolve the matter, the Council established the *Ad Hoc* Group to develop a comprehensive policy on the handling of marine mammals issues within the ICES Structure.

The Proposed ICES Policy on Marine Mammals Issues argues that the ICES Convention established several general responsibilities of the Council with regard to research related to living resources and its geographical area of operations. Further, it emphasises that the Contracting Parties, as far as reasonably possible, will assist in carrying out the programmes of research coordination by the Council. The Group reiterates the position, held by the Consultative Committee, that the Council has a legitimate role in conducting research on all aspects of marine mammal biology and ecology, including population dynamics, contaminants and pollution, parasites and diseases, and food web interactions. Marine mammals are vulnerable to incidental fishing-induced mortality, and some stocks are harvested directly; thus knowledge of the status and dynamics of marine mammal populations is also needed for assessing these aspects.

The Group deduct that *"ICES will therefore promote and facilitate marine mammal research important to a scientific understanding of the marine environment and marine living resources"*, that *"ICES will pursue scientific work on marine mammals in the ICES area from an ecosystem perspective"*, and that *"It shall be the policy of ICES to provide a scientific understanding of the role of marine mammals in the marine ecosystem, and to de-*

*velop an ability to detect or predict threats that jeopardise this role."*

Constraints clauses were also included in the document. These, among others, reiterate:

- the process of recommendations which come through the Consultative Committee and are endorsed by the Delegates,
- the accepted vetting and validation arrangements through appropriate Advisory Committees when responding to management advice,
- the necessity to avoid international jurisdictional disputes when conducting stock assessments,
- responding to requests for scientific advice on management only from regulatory agencies recognised as having management competency,
- the avoidance of usurping the role of regulatory bodies with regard to harvesting or by-catch levels when assessing the impact on marine mammal stocks of harvesting levels or incidental fishing-induced by-catch,
- the avoidance of duplicating research or assessment activities conducted by or in support of regulatory bodies,
- the right to respond, with the agreement of the Delegates, to requests for scientific information (excluding management advice) from not universally recognized international bodies only if ICES is not compromised with regard to science or independence, jurisdictional disputes, or if such action will be construed as a public statement about the regulatory competency of a body.

Having presented the report, the Chairman asked the Committee for its views.

The Committee congratulated the Group on producing a comprehensive yet concise report which clearly rendered their convictions on the legitimate scientific operations of ICES. These were noted as being in accordance with the views expressed in previous years by the Committee.

Most of the discussion within the Committee revolved around the Constraints section of the report. The Committee agreed that the clause originally numbered as 3.2 by the Group be deleted as being unnecessary. Several relatively small, but important, deletions and insertions were made, in order to avoid misunderstanding and to otherwise generally improve the text. The Committee agreed to transmit their modifications, made visible in the report under "Revision 1, incorporating the comments of the Consultative Committee", to the Bureau.

## RECORDING OF "RARE FISHES" FROM THE ICES AREA

The Chairman asked the Fishery Secretary to provide a short overview of the Report of the *Ad Hoc* ICES - British Marine Fishes Data Base (BMFDB) Group, as he had been present at the meeting of the Group on 23 February 1994 at Charlottenlund.

The Fishery Secretary reminded the Committee of the history of this initiative, originally proposed by Prof. R.J.H. Beverton in 1991 when he was Editor of the *ICES Journal of Marine Science*. One of the aims establishing a data base on "rare fish" was to replace the section of the *Annales Biologiques* when this ICES publication was suspended.

When the matter was raised in the Consultative Committee in 1992 and in 1993 it was felt that the registration of "rare fish" should preferably be founded on proper documentation and science rather than occasional "sightings" alone. Noting that the BMFDB had been established by the Marine Biological Association of the United Kingdom, the Council resolved that a meeting should take place between ICES representatives and Dr G.W. Potts and Ms S. Swaby, the originators of the BMFDB.

The 23 February Meeting discussed questions relating to the management, analysis and quality control of the data base and practical details associated with the project. The meeting was considered to have been a success, the following general objectives for an ICES data base being considered to be important:

- a) to provide an accessible data base of records of non-commercial species in the ICES area in order to enhance the ability of ICES to provide advice on biodiversity and ecosystem management;
  - i) the status of endangered species in relation to species and habitat directives;
  - ii) trends in abundance and distribution as indicators of environmental change;
  - iii) the ecosystem effects of fisheries;
- b) to improve the knowledge of biological parameters of individual fish species and other fish stocks.

The Report suggests that the geographical units used to summarise data in the data base could be the ICES Fisheries Statistical Areas. It was further proposed that the project should not be restricted to the area around the British Isles, but that it should be expanded to other ICES areas.

The Report examined aspects related to data sources, the reliability of data, logistics, access to the data base, and publication matters. It was felt that the costs associated with preparing and maintaining an ICES fish data base to both MBA and ICES would have to be assessed.

Although the BMFDB already has a Steering Committee to evaluate and coordinate progress, it was considered essential for ICES to be involved in the control and development of a data base using data provided by ICES. This could be achieved by requesting an existing group, such as the International Bottom Trawl Survey (IBTS) Working Group to assume this role, by setting up a new group or by asking the ICES Secretariat to take the responsibility on behalf of ICES.

The Group recommended that a Pilot Project be carried out by the BMFDB in collaboration with the ICES Secretariat using the IBTS data for 1985 and 1986 and that a report be prepared for the Consultative Committee prior to its meeting in September at the 1994 Statutory Meeting.

The Committee expressed its approval at the progress made by the Group, and agreed to await the results of the Pilot Project before making further decisions.

## ICES ROLE IN INTERNATIONAL SCIENTIFIC PROGRAMMES

The Chairman referred to Bureau Doc. 927 which the General Secretary had prepared for the June 1994 Bureau Meeting. He considered that this was a most useful paper reviewing a range of Council activities in the area of oceanography and marine ecology. It drew, among other things, attention to the dominance of ICES in this area of science during the first half of this century and the changing nature of funding of marine science whereby relatively less money was available from national and governmental sources and more was channelled through international consortia such as the European Commission.

In response to the Chairman's invitation for comment and discussion, attention was drawn by the Chairman of the Hydrography Committee and the Chairman of the Shellfish Committee to the absence of particular programmes from those listed in the document, e.g., the very important interdisciplinary harmful algal blooms (HAB) programme, and the European Commission's AIR programme.

The General Secretary agreed that, owing to the magnitude of programmes in existence, it was practically impossible to do justice to all programmes in the area of oceanography and marine ecology. He referred to the HAB programme being noted under collaboration with IOC on page two of the document, and acknowledged the importance of the AIR programme which was to a

large extent also aimed at mariculture and fisheries related issues. The document did not aspire to be a definitive listing of all the relevant programmes, it was rather a reminder that the Council needed to be aware of the changing environment of funding and associated alliances, and accordingly the need to develop a strategy for ensuring that ICES maintained its position towards the "centre of the stage". Attention was placed on profiling international programmes more satisfactorily in relevant ICES arenas, such as in Theme Sessions or Mini-Symposia at the Statutory Meeting.

The Committee considered the document to be thought provoking, particularly with regard to the increasing dominance of the European Commission in scientific affairs; this was particularly obvious in Europe but it also had various implications for those ICES Member Countries outside of the European Union. Particular interest was directed at the recent tendency for the Commission to strategically secure its presence in ICES meetings or activities through supporting participants from EU countries. The General Secretary informed the Committee of the proper way for this to proceed through the Secretariat in an "above board" manner (e.g., by applying the Category 3 recommendation procedure) where suitably beneficial results could be achieved both for the Commission and ICES. Chairmen must avoid negotiating with the Commission with regard to ICES reports etc. bearing the Commissions logo or other acknowledgements of extraneous "assistance", as this is outside their mandate. The General Secretary had

provided the Commission's DGXIV with some guidelines for developing correct procedures for gaining patronage or co-sponsorship in ICES meetings or activities. He reported that the first response from the Commission had been encouraging.

The Committee thanked the General Secretary for drawing their attention to the important matters reflected in the document. Depending on the response received in the Bureau later, the possibility for extending the review to encompass environmental and fisheries related programmes was raised.

#### **EXTRA DELEGATES MEETING**

The Committee gave the Chairman a mandate to draw the Bureau's attention to the issues that he most saw fit to recommend for topics for discussion at the Extra Delegates Meeting in St John's, Newfoundland.

#### **ANY OTHER BUSINESS**

The Chairman asked the Committee whether there were any points to be dealt with under Agenda Item 17 "Any other business".

In the absence of any response, the Chairman thanked everyone for their hard work in addressing the various issues and adjourned the meeting at 17.30 hrs on 2 June 1994.

## ANNEX 1

### REPORT OF PROGRAMME PLANNING GROUP MEETING

ICES Headquarters, 29 May 1994

#### Introduction

The Consultative Committee Chairman together with the ICES Professional Secretaries and the General Secretary met on 29 May 1994 from 1300 to 1900 to review the allocation of papers, posters, and reports submitted for the 1994 Statutory Meeting, and to prepare a draft programme of sessions. This draft programme is to be submitted for the consideration of the Consultative Committee which will meet at ICES Headquarters from 1-2 June 1994

#### Review of Coding of Contributions

The General Secretary explained that he had revised the method of coding contributions in order to simplify the identification of theme session papers. Papers identified as being destined for a theme session were coded only for that session, and not for a relevant Committee. Thus contributions have been coded for the Committees A to N as usual, and additionally codes for sessions O to T have also been allocated. As usual the Mini-Symposium titles have been coded "mini:"

A small number of changes were made to the codes which had been allocated by the General Secretary. Following detailed examination of abstracts, some titles originally allocated as papers were re-allocated as posters and some were transferred from theme sessions to Committees and vice-versa. The Group noted that Theme Session T (Improving the Link between Fisheries Science and Management: Biological, Social and Economic Considerations) had been extremely well subscribed to, as was the Mini-Symposium. However some of the other theme sessions and the three Joint Sessions had a disappointingly low number of contributions. In the case of the latter it was clear that if Joint Sessions were to be increasingly used at future meetings then a more aggressive approach to commissioning contributions would seem desirable. The person responsible for convening these sessions would also have to be clearly identified, and a preamble explaining the purpose of these sessions should be included in the Call for Papers.

In allocating Committee and Theme session times, the Group took note of the need to avoid overlapping sessions. The overlaps that were considered important to avoid are listed in an attached table. This also provides a list of Theme and Committee session relevant to the 1994 meeting. This list includes one additional session to that agreed at the 1993 Statutory Meeting, viz. Theme Session U (Joint ACFM/ACME session). The need for this Theme session had become apparent during the

Joint ACFM/ACME meeting (Charlottenlund, 25 May 1994). This meeting had identified a number of items relevant to this session, including the topic of closed areas.

As usual, four meeting rooms are available for Committee and Theme Sessions (Plan attached). These are labelled, in order of size, Salon A2, Salon B, Salon C, and Salon D. All of these rooms are substantial in size, with the smaller of the four (C and D) having a capacity of at least 80 seats.

#### Time Allocations

Included in the attachments to this report are tables giving details of the number of documents submitted to Committees, Theme Sessions, Joint Sessions and the Mini-Symposium. A total of 477 documents have been submitted for the 1994 meeting which is substantially down on last year and slightly down on 1992. An allocation of 63 Sessions was made which is two fewer than in 1993 and the same as in 1992. In general time was allocated to allow for approximately 10 minutes for scientific papers presented to Committees, and 15 Minutes for reports. For theme sessions 15 minutes was estimated for each paper, and 20 minutes was estimated for each presentation in the Mini-Symposium. No specific time has been allocated for short introductions to the 33 Posters that have been submitted.

The Chairman of the Consultative Committee indicated that he would like Chairmen of sessions to prepare detailed timetables for their sessions in good time, and to do everything in their power to adhere to these timetables during sessions. These timetables should be submitted to the Secretariat as soon as possible after the Consultative Committee meeting.

The Consultative Committee may wish to note that the trend from Committee to Theme-/Joint-session papers continues. In 1994, 68% of the Contributions were designated to Committees, and this compares with 78% in 1993 and as much as 84% in 1992.

The timetable of Sessions for the consideration of the Consultative Committee is attached. Comments explaining additional background related to certain of the session allocations are as follows:

#### Hydrography Committee

The Group noted the very low number of papers submitted to this Committee. Nevertheless two sessions were allocated as this was considered the minimum that

would be desirable for the Committee to effectively conduct its business

#### Session Q (1993 Baltic Inflow)

Only three papers have been submitted for this session, and in spite of assurances by the convener that more titles would be forthcoming before the end of this meeting, no more titles have been submitted. However the Group recognised the importance of this session, and transferred three titles relevant to its theme from the Baltic Fish Committee. The Group were however unhappy that this was the second year in the row that it has had to take exceptional action to safeguard this session.

#### Session T (Improving the link between fisheries science and management)

Prior correspondence between the Chairman of the Consultative Committee and the Convener of this session had established that quite a number of the contribu-

tions to this session could be converted into posters (only two have been submitted as posters). Thus the Group allocated enough time for 35 presentations to the Session on the assumption that the remainder would be submitted as posters.

#### **Joint Session on Quality Assurance of Marine Measurements**

Following discussion with the Chairman of MEQC it was decided that four of the titles submitted to this session were inappropriate to the theme of the session. Consequently these titles were transferred to relevant Committees.

#### Mini-Symposium

A larger than usual number of titles had been submitted for the Mini-Symposium which meant that the usual morning slot could not be adhered to. As a result this session has been extended to a preceding afternoon session.

## 1994 Meeting – Session Codes

<b>B</b>	<b>Fish Capture Committee</b>
<b>C</b>	<b>Hydrography Committee</b>
<b>D</b>	<b>Statistics Committee</b>
<b>E</b>	<b>Marine Environmental Quality Committee</b>
<b>F</b>	<b>Mariculture Committee</b>
<b>G</b>	<b>Demersal Fish Committee</b>
<b>H</b>	<b>Pelagic Fish Committee</b>
<b>J</b>	<b>Baltic Fish Committee</b>
<b>K</b>	<b>Shellfish Committee</b>
<b>L</b>	<b>Biological Oceanography Committee</b>
<b>M</b>	<b>ANACAT Fish Committee</b>
<b>N</b>	<b>Marine Mammals Committee</b>
<b>O</b>	<b>Theme Session on Non-Target Species</b>
<b>P</b>	<b>Theme Session on Multispecies Interactions of Importance to the Groundfish Abundance Fluctuations</b>
<b>Q</b>	<b>Theme Session on Impact of the 1993 Major Inflow to the Baltic Sea</b>
<b>R</b>	<b>Theme Session on Pelagic Fish and Plankton Interactions in Marine Ecosystems</b>
<b>S</b>	<b>Theme Session on Large-Scale Circulation Changes in the North Atlantic on Time Scales of Climatic Changes</b>
<b>T</b>	<b>Theme Session on Improving the Link between Fisheries Science and Management: Biological, Social and Economic Considerations</b>
<b>JS1</b>	<b>Joint Session on Occurrence and Effects of Contaminants in Marine Mammals (E+N)</b>
<b>JS2</b>	<b>Joint Session on Quality Assurance of Marine Measurements (C+E+L)</b>
<b>JS3</b>	<b>Joint Session on Estimating Abundance from Fishing Surveys and Acoustic Measurements (B+D+G+H)</b>
<b>Mini</b>	<b>Mini-Symposium on Fish Migration</b>

### Overlap avoidance (if possible):

<b>B</b>	with D, G and H
<b>C</b>	with E and L
<b>D</b>	with G and H
<b>E</b>	with F, L and C
<b>F</b>	with E, K and M
<b>G</b>	with J and H
<b>H</b>	with J and G
<b>J</b>	with G and H
<b>K</b>	with G, H and L
<b>L</b>	with C, E and K
<b>M</b>	with F
<b>N</b>	with
<b>O</b>	with B, G, H and L
<b>P</b>	with D, G, H and N
<b>Q</b>	with C, J and L
<b>R</b>	with L, G, H and M
<b>S</b>	with C and L
<b>T</b>	with D, G and H
<b>Mini</b>	with all

ICES Statutory Meeting — 1994  
Documents submitted to Committees

	Papers	Reports	Posters	Total	No of Sessions			
					1.5 hr	2 hr	Total	Hours
B	32	9	0	41	5	0	5	7.5
C	3	5	0	8	2	0	2	3
D	15	2	0	17	3	0	2	4.5
E	11	10	1	22	3	1	3	6.5
F	14	8	3	25	3	0	3	4.5
G	35	6	2	43	4	0	4	6
H	17	7	2	26	3	0	3	4.5
J	13	5	1	19	3	0	3	4.5
K	35	9	5	49	4	1	5	8
L	15	15	2	32	3	1	4	6.5
M	21	6	0	27	3	1	4	6.5
N	12	4	1	17	1	1	2	3.5
Total	223	86	17	326	37	5	42	65.5

ICES Statutory Meeting — 1994  
Documents submitted to Theme/Joint Sessions/Mini-Symposium

	Papers	Reports	Posters	Total	No of Sessions			
					1.5 hr	2 hr	Total	Hours
O	8	0	5	13	0	1	1	2
P	12	0	0	12	2	0	2	3
Q	6	0	0	6	1	0	1	1.5
R	9	0	3	12	2	0	2	3
S	10	0	0	10	1	1	2	3.5
T	53	0	2	55	5	1	6	9.5
U	-	-	-	-	1	0	1	1.5
JS1	6	0	3	9	0	1	1	2
JS2	7	0	0	7	0	1	1	2
JS3	6	0	0	6	1	0	1	1.5
Mini-	17	0	3	20	2	1	3	5
Total	135	0	16	151	15	6	21	34.5

# ICES Statutory Meetings — 1992 to 1994

## Total Number of Papers/Reports/Posters

Year	Papers	Reports	Posters	Total	No of Sessions			
					1.5 hr	2 hr	Total	Hours
1994	358	86	33	477	52	11	63	100.0
1993	527	79	-	606	53	12	65	103.5
1992	417	79	-	496	51	12	63	100.5

# ICES Statutory Meetings — 1992 to 1994

## Total Number of Committee and non-Committee Documents

Year	Committee	Non-Committee	% Non-Committee
1994	336	151	32
1993	470	136	22
1992	415	81	16

# PROGRAMME OF SCIENTIFIC SESSIONS

Thursday 22 September			
09.00-11.00	11.30-13.00	14.30-16.00	16.30-18.00
<b>GENERAL ASSEMBLY</b>  and  <b>OPEN LECTURE</b>  "Putting Fishermen into Fishery Models"  by  Prof J. Mc-Glade  <b>Salon A2</b>	Theme Session T "Improving the Link between Fisheries...."  <b>Salon A</b>	Theme Session R "Pelagic Fish and Plankton Interactions in Marine Ecosystems"  <b>Salon A</b>	
	Shellfish Committee  <b>Salon B</b>	Fish Capture Committee  <b>Salon B</b>	
	Biological Oceanography Committee  <b>Salon C</b>	Demersal Fish Committee  <b>Salon C</b>	
	Baltic Fish Committee  <b>Salon D</b>	Statistics Committee  <b>Salon D</b>	

# PROGRAMME OF SCIENTIFIC SESSIONS

Saturday 24 September			
09.00-11.00	11.30-13.00	14.30-16.00	16.30-18.00
Mini-Symposium "Fish Migration"		Biological Oceanography Committee	
Salon A		Salon A	
Shellfish Committee	Theme Session T "Improving the Link between Fisheries Science and Management: Biological, Social and Economic Considerations"		
Salon B	Salon B		
Marine Environmental Quality/ Marine Mammals Committees "Occurrence and Effects of Contaminants in Marine Mammals"	Marine Environmental Quality Committee	Statistics Committee	Pelagic Fish Committee
Salon C	Salon C	Salon C	Salon C
		ANACAT Committee	
		Salon D	

# PROGRAMME OF SCIENTIFIC SESSIONS

Tuesday 27 September			General Information  See plan on back of card for location of meeting rooms.
09.00-10.30	11.00-12.30	12.30-13.00	
Theme Session P "Multispecies Interactions of Importance to Groundfish Abundance Fluctuations"	Theme Session U "Interdisciplinary links - the next steps"	CLOSING OF THE SCIENTIFIC SESSIONS	
Salon A	Salon A	Salon A	
Mariculture Committee	Copies of meeting papers are available in the Documents Room (Salon A).		
Salon B			
Pelagic Fish Committee			
Salon C			
Shellfish Committee			
Salon D			

Friday 23 September			
09.00-11.00	11.30-13.00	14.30-16.00	16.30-18.00
Theme Session S "Large Scale Circulation Changes in the North Atlantic on Time Scales of Climatic Change"  <b>Salon A</b>	Fish Capture/Statistics/Demersal/Pelagic "Estimating Abundance...."  <b>Salon A</b>	Mini-Symposium "Fish Migration"  <b>Salon A</b>	
Theme Session T "Improving the Link between Fisheries Science and..."  <b>Salon B</b>	Theme Session Q "Impact of the Major Inflow..."  <b>Salon B</b>	Hydrography Committee  <b>Salon B</b>	
Biological Oceanography Committee  <b>Salon C</b>	Statistics Committee  <b>Salon C</b>	Mariculture Committee  <b>Salon C</b>	
Marine Environmental Quality Committee  <b>Salon D</b>	Shellfish Committee  <b>Salon D</b>	Fish Capture Committee  <b>Salon D</b>	

Monday 26 September			
09.00-11.00	11.30-13.00	14.30-16.00	16.30-18.00
Hydro/MEQ/Biological Oceanography Committees "Quality Assurance of Marine Measurements."  <b>Salon A</b>	Pelagic Fish Committee  <b>Salon A</b>	Statistics Committee  <b>Salon A</b>	Theme Session P "Multispecies Interactions of Importance to Groundfish Abundance Measurements"  <b>Salon A</b>
Theme Session O "Non-Target Species"  <b>Salon B</b>	Demersal Fish Committee  <b>Salon B</b>	Marine Environmental Quality Committee  <b>Salon B</b>	
ANACAT Committee  <b>Salon C</b>	Fish Capture Committee  <b>Salon C</b>		
Marine Mammals Committee  <b>Salon D</b>	Baltic Fish Committee  <b>Salon D</b>	Hydrography Committee  <b>Salon D</b>	

# OTHER SESSIONS attended by members only

<b>Wednesday 21 September</b> 09.00-16.00 09.00-16.00 09.00-16.00 17.00-	Bureau ACFM Consultations ACME Consultations Consultative Committee	<b>Bonavista Bay</b> <b>Salon C</b> <b>Salon D</b> <b>Salon C</b>
<b>Thursday 22 September</b> 14.30-17.00	Delegates	<b>E.B Foran</b>
<b>Friday 23 September</b> 09.00-13.00	Finance Committee	<b>Bonavista Bay</b>
<b>Monday 26 September</b> 09.00-13.00 14.30-18.00	Publications Committee Delegates	<b>Bonavista Bay</b> <b>E.B. Foran</b>
<b>Tuesday 27 September</b> 14.30-	Consultative Committee	<b>Salon C</b>
<b>Wednesday 28 September</b> 09.00- 09.00-13.00	Consultative Committee Delegates ("Extra" Mtg.)	<b>Salon C</b> <b>Salon B</b>
<b>Thursday 29 September</b> 14.30-	Delegates	<b>Salon B</b>
<b>Friday 30 September</b> 09.00-12.30	Delegates	<b>Salon B</b>

## REPORT OF CONSULTATIVE COMMITTEE

Chairman: Dr R.C.A. Bannister

The Committee met during the following three sessions:

Wednesday 21 September	17.00 - 19.15 hrs
Tuesday 27 September	14.30 - 19.45 hrs
Wednesday 28 September	09.00 - 18.35 hrs

All members of the Committee as well as the General Secretary, Fishery Secretary, Environment Secretary, and Oceanography Secretary were present at each session. The President, the Chairmen elect of the Hydrography, Statistics, Pelagic Fish, Anadromous and Catadromous (ANACAT) Fish, and Marine Mammals Committees, and Ms I. Lützhøft variously attended the second and third Sessions.

### Agenda Item 1 ADOPTION OF AGENDA

The Chairman welcomed the members and drew attention to the various reports which would be considered by the Committee under Agenda Item 5. He pointed out that he had a number of matters to include under Any Other Business, otherwise the draft Agenda was adopted without change.

### Agenda Item 2 ARRANGEMENTS FOR STATUTORY MEETING

#### Item 2.1 General Arrangements and Review of Programme of Sessions, List of Papers and Orders of the Day

The General Secretary pointed out that there were about 450 declared participants which was likely to place some strain on miscellaneous meeting room space, paper supplies, pigeon holes, and the like. He drew attention to the general layout of rooms, particularly the location of the rooms for scientific, Consultative Committee and Delegates sessions, as well as those to be used by the President and himself, the Professional Secretaries, the Chairman of the Consultative Committee, the Secretariat, and the Editor and Assistant Editors of the *ICES Journal*. He briefly noted the receptions and social activities involving the members.

The General Secretary reported that the programme of sessions listed on the Blue Card was unchanged. He also determined, with the assistance of the Committee members, the numbers of papers which had been withdrawn subsequent to the printing of the "Yellow and Green Lists," as well as papers which had not been received by that time. In general, withdrawals and non-appearance of papers were not causing a major problem for the running of the sessions, with the

exception of those in the Demersal Fish and Shellfish Committees. In the case of these specific Committees, it was agreed that their Chairmen would be allowed to rearrange a few of the timetables for paper and report presentations in order to better deal with large gaps in the itinerary.

The Committee was notified that the Secretariat had recognised a "model" template which could be used for constructing an Agenda and associated Order(s) of the Day for Committees, Theme/Joint Sessions and Mini-Symposia at the planning stage. This would be distributed to the Consultative Committee later, and was intended to be an aid to setting up the Green List in the future.

#### Item 2.2 Discontinuing Report of Activities: Change of Rules of Procedure

The Chairman reminded the members that they had agreed, at the 1994 mid-term meeting of the Consultative Committee, to discontinue the Report of Activities for the various Subject/Area Committees. Although they had done this with the approval of the Bureau, it was still necessary for Rule 36(iii) to be changed or revoked. He would be seeking the approval of the Delegates towards this end. Several members of the Committee informed the Chairman that they would, however, still intend to continue with the practice of producing a Report of Activities as they considered it to be useful for their own purposes. Nevertheless, it was understood that such a continuation was at the discretion of the various Committees and was no longer obligatory.

#### Item 2.3 Best Paper Presentation Award, Best Poster Presentation Award, and Young Scientist Award

The Chairman asked members to propose candidates for the three awards from within their respective Committees and to turn in these nominations by no later than Monday evening to enable the President and himself to make the selections. The winners would be announced and the prizes (framed certificates accompanied by small gifts) awarded at the Closing Session on Tuesday.

### Agenda Item 3 CONDUCT OF ANNUAL SCIENCE CONFERENCE, COMMITTEE STRUCTURE, AND OUTCOME OF MID-TERM MEETING

The Chairman reminded the members of the contents of the Report of the Mid-Term Meeting of the Consult-

ative Committee (Doc. C.M. 1994/Gen:4) that included a synthesis of the discussions and consensus on the need to change the format of the Council Meeting ("Annual Science Conference"). In this context, he also drew attention to innovations in the form of the detailed Agendas and Orders of the Day to be found in the Green List supplement to the customary Yellow List of Contributions. He pointed out that all the Theme/Joint sessions appeared to be viable with the possible exception of that on "Non-Target Species", where withdrawals and non-appearance of papers accounted for a substantial part of the papers; here he would need to communicate with the Convenor so that steps could be taken to present posters and organise discussions to replace the slots for scheduled papers. Theme Session T was particularly lengthy, with over 50 scheduled paper presentations. The Mini-Symposium was likely to be very engaging.

The Chairman requested that all the members of the Committee note the success or otherwise of the organisational steps that had been specially implemented for the 1994 Annual Science Conference and provide him with feed-back at the end of the Conference.

### **Item 3.1 Instructions to Chairmen, Convenors and Rapporteurs**

The Chairman informed the members of the Committee of the need to familiarise themselves with necessary procedures. This would ensure the efficient conduct of their Committee sessions. It was particularly important that they acquired the services of a proficient Rapporteur who could be trusted to submit a well-edited Committee report in good time.

The General Secretary announced that the various reports should be submitted to the Secretariat by Tuesday noon at the very latest. This would ensure that final drafts would be printed and photocopied before the end of the final session of the Consultative Committee. He drew the Committee's attention to the leaflets "Instructions for Rapporteurs" (C.M. 1994/A:14) and "Guidelines for Committee Chairmen" (C.M. 1994/A:16) which were available for information purposes, and which would be placed in the pigeon holes of all Chairmen, Convenors and Rapporteurs. He requested that the Committee examine these leaflets carefully with a view to identifying possible improvements that could be made; useful proposals would be most appreciated.

### **Item 3.2 Presentation of Papers**

The Committee Chairmen were urged to be very strict in following the timetables defined in the Orders of the Day for their sessions. Sessions could run into the coffee breaks or extend somewhat beyond the 6 p.m.

end slot of the day, if absolutely necessary.

There were a number of instances where papers had been withdrawn or where no information was available. The reasons for withdrawals were not entirely clear and may have been included a mixture of institutional difficulties and the rigidity of the time schedule. No pattern was apparent in the distribution of withdrawals.

For a number of papers and reports no presenters were available. This was particularly serious in the case of Working/Study Group reports and the Committee considered that Chairmen should have a commitment to be available at the Annual Science Conference or appoint a stand-in. To help in remedying this situation the General Secretary informed the Committee that it was his intention to review the Chairman's Handbook with a view to focusing attention on those issues considered to be of essential importance.

The Chairman asked for feedback about this agenda item to be sent to the General Secretary by the end of November 1994.

### **Item 3.3 Posters and Modes of Presentation**

The Chairman noted that the posters were situated in close proximity to the meeting rooms and the coffee area. The General Secretary confirmed that posters should remain up for the whole of the conference.

In concluding this agenda item, the Chairman asked for regular feedback on successes and problems encountered during the conference.

### **Item 3.4 Handling of Recommendations**

Draft Committee recommendations had been prepared by the ICES Professional Secretaries for the Subject/Area Committees based on recommendations arising from Working/Study Group reports and the Advisory Committees. These had been compiled in a document entitled "Compendium of Draft Recommendations" (Doc. C.M. 1994/A:13). It was pointed out that ACFM and ACME had reviewed the recommendations associated with them during their recent Consultations and that new, amended versions of these would be issued shortly to the members of the Consultative Committee.

Chairmen were asked to carefully scrutinise all recommendations to ensure that they were correct and complete. Matters related to specific recommendations should be dealt with in close collaboration with the relevant Professional Secretary.

In particular, Working/Study Groups not making progress and those not providing convincing justification concerning their activities would be carefully examined with a view to their possible dissolution.

Chairmen were reminded that they would be expected to defend each recommendation if and when necessary. The Chairman emphasised the importance of maintaining high standards.

The General Secretary pointed out the leaflet "Guidelines for Drafting Recommendations" (C.M. 1994/A:15) which was intended to help those preparing new recommendations at the Conference. He also noted the four different categories of recommendations and the six different forms which had been developed for the preparation/submission of recommendations. These were to be used whenever possible.

#### **Item 3.5 Access to databases**

The Committee was provided with a handout (Doc. C.M. 1994/A:17) that had been prepared as a follow-up to "Status, rules and procedures governing databases maintained at the ICES Secretariat" (Doc C.M. 1994/Del:10) which had been discussed at the mid-term meeting. In presenting the subject, the Fishery Secretary made reference to the procedures adopted in the Secretariat for dealing with requests for fisheries data over the previous few months. On receipt of a request, the initiator is asked to fill in a form describing the data and level of aggregation required, the purpose to which they will be put, the mode of publication and the body for whom the work is being carried out, identifying any work carried out for remuneration. The requests are then forwarded either to national contact persons or Delegates depending on the nature of the request. Details were also given of the different rules applying to different fisheries databases.

The handout also contained proposals that requests aimed at addressing approved Council business should not require special approval provided that the initiator of the request gave an undertaking that it would not be possible to identify national data in any reports or publications. It was also proposed that access should be allowed to the ICES assessment data and programs via Internet for those preparing for assessment Working Groups.

The Committee accepted the proposals on access in the handout which referred only to fisheries databases.

#### **Item 3.6 Future of Scientific Papers at Annual Science Conference**

The Chairman thanked the sub-group for preparing its handout (C.M. 1994/A:18) entitled "ICES Papers: an evaluation of a need for change in their current form". As this subject requires further thought, it was agreed that feedback should be sent to the Chairman and to Dr Richardson by the end of November. It was suggested that a discussion on this subject could be incorporated in the high-level discussions in the

Bureau Working Group on the Structure of ICES (see Agenda Item 3.7).

#### **Item 3.7 Next steps**

##### **a) Scheduling of papers**

While scheduling of papers had been achieved at the meeting, it was considered that the process might be carried a stage further by synchronous timing among Committees.

##### **b) Committee Structure**

The Chairman informed the Committee that the Bureau had commended the Committee on considering structural change but he had observed a somewhat negative response to some of the suggestions made. Some ideas for change had been easier to agree than others, e.g. the change in name of the Statistics Committee. The Committee felt, nevertheless, that change should not be made autocratically and proposed that a sub-group should be set up to consider the Subject/Area Committee structure prior to the next mid-term meeting in 1995.

At the final session of the Committee, the President reviewed the discussions on the future of ICES that had taken place in the Delegates meeting. Three major items had been discussed: the role of ICES in the wider marine science community; the advisory role of ICES and intentions for events around the centenary of the Council. Ideas put forward by some Delegates on the future structure and function of ICES had been uniformly welcomed and there was strong support for new initiatives. The President informed the Committee that a Bureau Working Group was to be set up to consider the future structure and function of ICES.

#### **Agenda Item 4 ELECTION OF NEW COMMITTEE CHAIRMEN**

The General Secretary reminded the Consultative Committee that the Chairmen of five Subject/Area Committees would complete their three-year terms of office at this year's Annual Science Conference and that the Rules of Procedure governing the elections to determine their successors were provided in document C.M. 1994/ Gen:3. This document and a leaflet providing the times and dates of the particular elections would be placed in the pigeon holes of national Delegates and members of the Subject/Area Committees. It was important that timetables be followed this year in order that the elections could be held on time.

The following Subject/Area Chairmen were subsequently elected to serve in office from 1 November 1994:

Hydrography:	Mr Harald Loeng (Norway)
Statistics:	Dr Robin Cook (U.K.)
ANACAT:	Dr Kevin Friedland (USA)
Marine Mammals:	Dr Harald Benke (Germany)
Pelagic Fish:	Dr Robert Stephenson (Canada)

## **Agenda Item 5 REPORTS, PROGRESS AND STATUS OF GROUPS REPORTING TO THE CONSULTATIVE COMMITTEE**

### **Item 5.1 Tenth ICES Dialogue Meeting**

The Fishery Secretary gave a brief report on the first meeting of the Steering Group for the Tenth ICES Dialogue Meeting which had taken place on 26 September. A written summary of the report was also provided in a handout. The main points arising were that themes and subjects for the Dialogue Meeting had been agreed, that speakers were to be identified from each country by 30 November and that the European Commission had indicated their willingness to co-sponsor and fund the Dialogue Meeting. A problem had arisen over the timing of the meeting which was now scheduled for 19-20 October because of an overlap with other meetings. It was proposed to have a second meeting of the Steering Group and speakers in June 1995.

### **Item 5.2 Working Group on Cod and Climate Change**

At the first session, the Chairman drew attention to document C.M. 1994/A:7 which summarised the activities of the Working Group on Cod and Climate Change which had worked by correspondence during the preceding twelve months. The document contained a brief review of the Reykjavik "Symposium on Cod and Climate Change" and gave an outline of the progress made in the three Workshops that had been recommended last year. The Committee noted that two of the Workshops, the Cod and Climate Data Base Workshop, and the Backward-Facing Workshop had not yet been conducted for various logistical reasons. However, the Aggregation Workshop had recently been held, and appeared to have met its objectives. Indeed the conclusions of this Workshop provide a useful basis for the continued work of the Working Group.

The Chairman asked the Chairmen of the Committees to whom this report is referred (namely, Hydrography, Biological Oceanography, Demersal Fish, Pelagic Fish, and Baltic Fish Committees) to consider this report carefully, especially with regard to its proposed activities during the next year. He noted in particular that the Chairman of the Working Group, Dr Keith Brander, had indicated his intention to resign; it was imperative that a replacement be found before the end of the meeting. The General Secretary undertook to

seek a suitable replacement.

The Chairman also noted the proposal by the Working Group for the creation of a post of Co-ordinator in the ICES Secretariat for the ICES/GLOBEC North Atlantic Regional Programme. He indicated that a recommendation for this had already been drafted, and that the Bureau had already given some consideration to this matter.

At the second session, Dr Reeve reviewed the progress made in the activities of the Working Group in the inter-sessional period. He also pointed out that the Plymouth Symposium on Zooplankton Production had devoted a section of its programme to the issue of GLOBEC and the Cod and Climate Change programme, and that there had also been an important GLOBEC Strategic Planning Conference at IOC Headquarters in Paris during the summer.

Dr Reeve presented the recommendation stating the terms of reference for a meeting of the Working Group during 1995. He reported that Dr Svein Sundby (Norway) had agreed to become its next Chairman. The Committee accepted this and approved the recommendation as drafted. However, the Committee noted that the membership of this Working Group required careful review in order to ensure the appropriate spread of expertise as well as adequate representation from the concerned countries.

Dr Reeve then introduced the recommendation approved by the Biological Oceanography, Hydrography, and Demersal Fish Committees requesting that ICES establish a Project Office for the North Atlantic Regional programme of GLOBEC, in particular for the Cod and Climate Change Programme. He explained that the Cod and Climate Change programme required international co-operation and was designed to enhance the value of individual projects by exchange of ideas, models, and information on sampling and observation systems. Consequently there is a considerable workload to ensure that information is made available to participants in a timely way, and that the necessary co-ordination between national and international groups is achieved. At present this workload is largely shouldered by the Chairman of the Working Group on Cod and Climate Change, although some countries do have programme co-ordinators.

He further remarked that it was likely that US agency money would be available to partly fund an Office. He hoped that funding from agencies in other countries could become available in order to meet the full cost of the Office, the annual cost of which would be about US\$ 200,000. Although this was a substantial amount, he noted that the cost was modest relative to the cost of funding similar support offices for other International projects such as JGOFS and WOCE. He considered that the proposal presented a unique

opportunity for ICES, as it allowed ICES to be closely involved in research and initiatives that will likely lead from an increasing capability to predict the ocean climate which will allow the forecasting of those fluctuations in fisheries that arise from climatic factors. The Office would also allow ICES to focus its input to Cod and Climate issues. These were already quite diverse and clearly required closer co-ordination. The Committee accepted the recommendation as drafted.

**Item 5.3 ICES/GLOBEC Cod and Climate "Aggregation" Workshop**

At the first session, the Chairman drew attention to Doc C.M. 1994/A:10 which described the results of the Workshop which had been held in Charlottenlund in August. He noted with satisfaction the attendance of many high-calibre scientists who were known for their major contributions to the study of the interaction of physical processes with cod biology.

**Item 5.4 ICES/GLOBEC Cod and Climate Data Base Workshop**

Because no report had been received for this Workshop, Doc C.M. 1994/A:9 had been withdrawn. The Chairman drew attention, however, to comments in Doc. C.M. 1994/A:7 which indicated the intention to proceed with this Workshop from 14-17 February 1995 in Woods Hole, USA.

The Committee endorsed the recommendation to proceed with this Workshop with the terms of reference as given in the 1993 Council Resolution governing the Workshop.

**Item 5.5 ICES/GLOBEC Cod and Climate-Backward Facing Workshop**

The Chairman briefly introduced Doc C.M. 1994/A:12 which outlined the plans for, and objectives of, this Workshop which would now be held in Halifax/Dartmouth, Canada in March 1995. Precise dates had yet to be decided on, and several members expressed concern that this should continue to be the case. However, the Chairman succeeded later in obtaining the precise dates from the Convenors. Consequently the Committee accepted the recommendation for this Workshop with the terms of reference as given in the 1993 Council Resolution governing the Workshop.

**Item 5.6 Study Group on Long-finned Pilot Whales**

The Committee reviewed the report of the Study Group (Doc C.M. 1994/A:8) which had been prepared by correspondence. While little substantive progress had been made, largely because working by

correspondence had proved ineffective, the Chairman had indicated that there were clear indications that substantial progress can be made in a number of areas of the Group's work by the latter half of 1995. The Sea Mammals Research Unit in Cambridge, UK, had offered to host the meeting and this is expected to enhance participation and the provision of material for the Study Group. The Committee adopted the Report and decided to recommend that a Study Group meeting should be held in November 1995. It was considered that ACFM might review the report of the Study Group through the normal internal arrangements of ICES.

**Item 5.7 Proposal for an ICES Policy on Marine Mammals**

The Consultative Committee took note of the Proposal for an ICES Policy on Marine Mammals (C.M. 1994/Del:8) that had been prepared initially by the *Ad Hoc* Group on ICES Marine Mammal Policy and reviewed and amended by the Consultative Committee at its mid-term meeting in June, and subsequently by the Bureau. This will be considered by the Delegates for ultimate adoption at their next session.

**Item 5.8 "Rare" Fish Database**

The Fishery Secretary reported that a progress report had been received from the organisers of the British Marine Fishes Database and this was made available to the Committee as a handout. Little further progress could be made by the Committee until the full report of the Pilot Project utilising data from the ICES International Bottom Trawl Survey had been prepared.

**Agenda Item 6 REPORT FROM THEME SESSION U ON "INTERDISCIPLINARY LINKS - THE NEXT STEPS"**

The Committee took note of the report of Theme Session U on Interdisciplinary Links - The Next Steps. It was agreed that members should read this report in relation to providing feedback to the Chairman on the outcome and experience gained during the 1994 Annual Science Conference. Comments should be sent to the Chairman by 30 November 1994.

**Agenda Item 7 OPEN LECTURE AND MINISYMPOSIUM FOR 1995 AND 1996 ANNUAL SCIENCE CONFERENCES**

As noted in the report of the mid-term meeting the Open Lecture for 1995 will be given by Prof. J.T. Carlton (USA) on "Ballast Water: The Ecological Roulette of Marine Biological Invasions". The General Secretary reported that both the IOC and the IMO had agreed to co-sponsor a Theme Session to be held on

"Ballast water: Ecological and Fisheries Implications" following the Open Lecture.

A number of proposals for an Open Lecture in 1996 were considered. Before making any firm decision, however, the Committee wished to discuss whether to continue the traditional format of the Opening Session of the Annual Science Conference. It was pointed out, however, that a commitment to an Open Lecture is needed at least a year in advance and that a decision is required about the 1996 Open Lecture prior to the 1995 Annual Science Conference. While there was a general consensus that the Open Lecture provides a focus for the meeting and that the Open Lecture this year had been highly successful, the Committee decided to postpone its decision until its 1995 mid-term meeting.

A Theme Session proposed by the Marine Environmental Quality Committee entitled "Arctic Oceanographic Processes" (Convenors: H. Loeng (Norway), J.M. Bowers (Canada) and L. Føyn (Norway)) was adopted as a Mini-Symposium for 1995. During 1995 the Arctic Monitoring and Assessment Programme (AMAP) is assembling information for the preparation of an assessment of the Arctic environment. A Mini-Symposium on this subject could help in providing a scientific contribution to the preparation of this report.

No decision on a Mini-Symposium for 1996 was made.

#### **Agenda Item 8 THEME/JOINT SESSIONS, AND POSTERS FOR 1995 AND 1996 ANNUAL SCIENCE CONFERENCES**

In the first session the Chairman drew attention to page 5 of Gen:4 which listed the proposed 1995 Theme Sessions/Joint Committee Sessions. Some of these had been identified at last year's meeting, and others at the mid-term meeting of the Consultative Committee. Committees were asked to clarify those sessions that were likely to be viable based on information received, and come prepared to reject sessions that appeared to have little support. Committees were also asked to identify appropriate titles and Convenors for the 1996 meeting.

A large number of other topics were suggested for Theme and Joint Committee Sessions in 1995 and 1996 which were considered in Sub-Groups chaired by the Chairmen of ACFM and ACME. This resulted in the list of proposals for 1995 and 1996. In a number of cases precise details remain to be supplied, and proposers were requested to supply these to the Secretariat before the end of November. In the case of one suggestion on "Scale and Pattern in Fisheries and Biological Oceanography", this proposal was rejected

because of the similarity of the topic to the 1995 proposal (b). The Convenors of this session will be contacted to investigate the feasibility of expanding this session to encompass this topic.

The list of Joint and Theme Session proposals for 1995 and 1996 is:

#### 1995

- a) Theme Session on "Causes of Observed Variations in Fish Growth" Convenor: Dr S. Sundby (Norway) [endorsed in 1993];
- b) Theme Session on "Intermediate-Scale Physical Processes and their Influence on the Transport and Food Environment of Fish"; Co-Convenors: Dr F. Werner (USA) and B. MacKenzie (Denmark) [endorsed in 1993];
- c) Theme Session on "Ballast Water: Ecological and Fisheries Implications"; Convenor: Prof. J.T. Carlton (USA);
- d) Theme Session on "Mariculture: Understanding Environmental Interactions"; Convenors: Dr R.H. Cook (Canada), Mr S. Carlberg (Sweden), Prof. T. Osborn (USA) and M M. Héral (France);
- e) Theme Session on "Improving the Link between Science and Management II: Can we Manage Fisheries by Technical Measures alone?"; Convenors: Mr E. Kirkegaard (or ACFM designate), Dr M.M. Sinclair (or his designate), and Prof. J. McGlade.
- f) Joint Session of the Fish Capture, Pelagic Fish, Demersal Fish, Shellfish, and Baltic Fish Committees on "Improving Species Selectivity in Mixed Species Fisheries". Convenors: Mr O. Hagström (Sweden), Mr E. Aro (Finland) and Mr R. Fonteyne (Belgium).
- g) <sup>1</sup>Joint Session of the Pelagic Fish and ANACAT Fish Committees on "Homing, Learning, and Migration: Observations and Hypotheses regarding Pelagic and Anadromous Species." Convenors: Dr K. Friedland (USA) and Dr R. Stephenson (Canada).

#### 1996

- a) Theme Session on "Reproductive Disturbance of Marine Species - Causes and Effects"; Possible Co-Convenors: Dr J. McDowell Capuzzo (USA) and Dr M. Heath (UK);

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<sup>1</sup> Delegates did not endorse this Theme Session for 1995, agreeing that it should be replaced by c) scheduled here under 1996 Theme/Joint Sessions

- b) Theme Session on "Results of the Baseline Study of Contaminants in Baltic Sediments"; Convener: Dr M. Perttilä (Finland);
- c) Theme Session on "Consequences of Manipulation/Management of Nutrient Fluxes on Nutrient - Foodweb Interactions". Possible Co-Convenors: and Prof. F. Colijn (Germany) and Dr R. Laane (Netherlands)

#### **Agenda Item 9 ICES SYMPOSIA 1996 AND IMMEDIATELY SUCCEEDING YEARS**

The Chairman of the ANACAT Fish Committee described the recommendation by the ANACAT Fish and Mariculture Committees to hold a Symposium on "Interactions of Wild and Reared Salmon, Including Fish from Ranching, Farming and Enhancement" in 1997 at a venue to be decided in the United Kingdom. The Co-Convenors are Mr A. Youngson (UK) and Dr L.P. Hansen (Norway). NASCO should be invited to co-sponsor the Symposium and the results should be published in the *ICES Journal*. He pointed out that this topic had been discussed at a meeting in Norway in 1990, which had reviewed existing knowledge on interactions of wild and reared salmon. It would be appropriate to update this information at a Symposium in 1997. This topic had originally been proposed for a Mini-Symposium in 1996, but it was felt that the topic merited a full Symposium. The Consultative Committee supported the proposal for the Symposium.

The Chairman of the Statistics Committee reported that the Statistics and Hydrography Committees recommended that a Symposium on "The Role of Physical and Biological Processes in the Dynamics of Marine Populations" be held on Crete (Greece) from 4 - 7 November 1996. This topic had originally been proposed as a Theme Session, but it was felt that it should be expanded into a full Symposium. The Co-Convenors of the Symposium would be Dr M. Fogarty (USA) and Prof. T. Osborn (USA). It was proposed that SCOR, IOC, PICES, the U.S. National Science Foundation, and the U.S. Office of Naval Research should be invited to co-sponsor the Symposium. It was noted that several topics to be discussed at the 1995 Annual Science Conference could feed into this Symposium, as well as issues from the Cod and Climate Change Programme and other large programmes, such as GLOBEC. The Consultative Committee supported the proposal for the Symposium. Noting the proposed dates of the latter Symposium, the Chairman of ACFM requested that the dates be moved to avoid a potential overlap with the ACFM meeting that normally takes place during that week. It was explained that the given dates should be regarded as provisional, and firmer dates will be chosen later which will hopefully avoid such a clash.

#### **Agenda Item 10 ADVISORY COMMITTEE MATTERS**

##### **Item 10.1 Changes to Rules of Procedure**

It was noted that the Delegates had reviewed a change to the Rules of Procedure concerning ACFM and ACME whereby both Committees were now covered under the same rule in an equivalent manner. This resulted in no substantial change for ACFM, but provided confirmation for ACME that it can provide advice on subjects on which it chooses without receiving a prior request. This change to the Rules of Procedure had been accepted by the Council at their first session during this Conference.

##### **Item 10.2 ACFM matters**

The Chairman of ACFM noted the difficulty faced by his Committee in carrying out adequate reviews of Assessment Working Group reports because of the late date at which they become available. To provide a basis for the review procedure, he had asked for photocopies of preliminary drafts to be sent to selected members of ACFM, while the rest of the Committee receive copies at the meeting. The General Secretary indicated that it was his intention to write to Working Group Chairmen giving them a firm date by which the report is to be made available to the Secretariat and to prepare a timetable for the production of reports within the Secretariat. It was proposed that the Chairmen of the Advisory Committees should liaise on this matter with the Secretariat. The Secretariat would also review its own operational procedures.

##### **Item 10.3 ACME Matters**

The Chairman of ACME agreed with the Chairman of ACFM on the need to have Working Group reports and other material for available for ACME well in advance of their meeting. She pointed out that, as ACME members did not necessarily have detailed knowledge of the topics under consideration, they must have the material early enough to be able to consult experts in their countries before the meeting.

#### **Agenda Item 11 CODE OF PRACTICE ON INTRODUCTIONS AND TRANSFERS: MATTERS ARISING**

It was noted that the revised Code of Practice on Introductions and Transfers of Marine Organisms, as proposed by the Working Group on this topic, had been reviewed and accepted by ACME at its May meeting. Some problems had arisen during the summer, but these had been resolved and the final Code has now been published in the 1994 ACME report. The ACME recommendation that this Code of Practice should be printed as a leaflet and distributed free of charge on a broad basis had been accepted by

the Publications Committee during this Conference.

As noted under Agenda Item 13, below, there was still the question as to which body has the final right of approval of the Code of Practice and advice on introductions and transfers: was it ACME or did it have to await endorsement by the Council at the next Annual Science Conference. The Consultative Committee believed that this authority should rest with the ACME. However, the procedures leading up to the preparation of this advice must be followed. The procedures agreed are that when a Member Country wishes to request advice from ICES on a specific introduction or transfer, the Delegate from the particular Member Country should forward this request to the General Secretary. In the case of states from the United States, the state authorities should send this request to the U.S. Delegate for transmission to the General Secretary. Requests received directly from states should be returned with the request that they be transmitted via a national Delegate or the State Department. After a request has been properly transmitted to the General Secretary, he will transfer it to the Chairman of the Working Group on Introductions and Transfers of Marine Organisms (WGITMO). When WGITMO has prepared its draft advice on this topic, it will transmit this to the ACME for review. After ACME has reviewed and adopted the advice, the General Secretary will send this advice to the originator of the request.

#### **Agenda Item 12 REQUEST FROM NAMMCO FOR ICES INPUT AT THEIR HOSTING OF A 1995 MARINE MAMMAL CONFERENCE**

The Committee noted that the North Atlantic Marine Mammal Commission (NAMMCO) will hold an International Conference on Marine Mammals and the Marine Environment on 20 - 21 April 1995 in Lerwick, Shetland (UK). NAMMCO had requested ICES to provide a speaker. The Bureau had discussed this request and, based on the new ICES Policy on Marine Mammals, had ultimately agreed that the retiring Chairman of the Marine Mammals Committee, Dr A. Bjørge, should be appointed as the ICES speaker and representative. He will be requested to present an overview of scientific issues on marine mammals as covered by ICES, particularly with regard to contaminant levels and their effects.

#### **Agenda Item 13 RECOMMENDATIONS BY ADVISORY AND SUBJECT/ AREA COMMITTEES**

##### **Item 13.1 Recommendations**

In the first session, the Chairman drew attention to document C.M. 1994/A:13 which was a compilation of draft recommendations that had been prepared by the

ICES Professional Secretaries. These recommendations were mainly based on information obtained from the Working Group reports, and the Advisory Committees. The Chairman asked that each Committee examine the current status of its Working/Study Groups, and in particular carefully examine any requests for the formulation of new Working and Study Groups. It should not be assumed that each Working Group had a perpetual life, particularly as there was widespread concern about Working Groups continuing indefinitely. Committees should also examine whether Group task proposals were worthwhile, and feasible, and whether proposals had resource implications. If so, then this should be clearly stated within the recommendation.

During the general discussion of the recommendations, which took place during the second and third sessions of the Committee, the General Secretary drew attention to the increasing difficulties the Secretariat was experiencing in obtaining a satisfactory overview of participants at meetings and the membership of groups or activities arising from Council Resolutions. This was particularly the case for Workshops where, in some cases, the Secretariat received little or no information about participation. The correct procedure is for the names of all participants to be reported to the Secretariat via the national Delegates, even though the participant may have been invited directly by the Chairman or Convener. Guests (i.e., persons from outside the Member Countries) may be invited with the approval of the General Secretary.

Committee Chairmen also expressed disappointment at the quality and number of Posters submitted to this year's meeting. The Committee confirmed its desire to encourage this useful and important form of communication, and every effort would continue to be made to encourage the submission of high quality poster submissions.

All recommendations submitted by the Subject/Area and Advisory Committees and by the Consultative Committee itself were carefully reviewed. In order to create a logical flow to this process, the Committee agreed to the Chairman's suggestion that they be considered in a grouping related to ACME and ACFM relevant groups. Consideration of the Cod and Climate related recommendations is reported above against Agenda items 5.2, 5.3, 5.4, and 5.5. Details of relevant revisions of recommendations by Committee, and highlights from Committee Reports are as follows.

##### **Consultative Committee**

In addition to the Recommendations concerning the Cod and Climate Change activities, and on Long-Finned Pilot Whales, referred to above, the Committee also prepared and approved the recommendation to

establish an *ad hoc* group on the ICES Secretariat's databases. This recommendation has been developed from one initially proposed by ACME, who along with ACFM wished to consider how to encourage interdisciplinary work by combining products from the various Secretariat databases. The issue of databases was also of concern to the Consultative Committee as Working Groups and Committees were making recommendations for new databases without considering the full implications for the Secretariat, or in such a way that priorities cannot be established.

The Consultative Committee identified the need to hold one more mid-term meeting, in particular to address the issues arising from the Delegates "Extra" meeting.

#### Biological Oceanography Committee

The Committee discussed in some detail the proposal to conduct a North Sea Benthos Survey in 1996. It noted the ACME reservations concerning this exercise, but an opportunity to react to these reservations had been given in the terms of reference for the Benthos Ecology Working Group.

The Chairman of the Biological Oceanography Committee explained that the formation of a Working Group on Zooplankton Ecology would help to co-ordinate this important aspect of GLOBEC related activities and would further help to provide a symmetry within his Committee by attaching Working Groups to the activities related to the three main components of biological oceanography outside fish interests.

#### Hydrography Committee

All recommendations were accepted with only minor amendment.

#### Advisory Committee on the Marine Environment

The recommendations of ACME were considered and the following points were made. In terms of the recommendation that the Code of Practice on Introductions and Transfers of Marine Organisms be issued as a leaflet for wide distribution free of charge, the Consultative Committee agreed that it was very important for this Code of Practice to receive as wide a distribution as possible. It was noted that this leaflet would be considered as a supplement to the *ICES Cooperative Research Report* series, as the Code has been published in the 1994 ACME report in volume No. 204.

The ACME Chairman reported that the ACME had recommended that the Chairmen of the Statistics and the Marine Mammals Committees be included on

ACME as *ex officio* members, as these topics generally need to be covered each year and the ACME currently lacks expertise to review the work of the relevant Working Groups on these topics. There was extensive discussion as to whether it would be better to have a flexible system and invite appropriate experts to meetings when required, or whether, given the fact that ACME members are expected to carry out a considerable amount of work inter-sessionally, the Chairmen of these Committees should be formally appointed so that they would receive all the meeting papers and be involved in the inter-sessional work. It was ultimately agreed that the flexible approach would be adopted so that only relevant experts would be invited when needed, but that the Chairmen of the Statistics and the Marine Mammals Committees should receive all documentation sent to ACME members. The Chairmen of these two Committees (or their designates) should specifically be invited to attend the 1995 ACME meeting and participate in all relevant inter-sessional work associated with that meeting.

The ACME recommendation that an *Ad Hoc* Study Group on the ICES Databank be established to consider the databases at the ICES Secretariat, how information from these databases could be combined, and how to strengthen the ICES capabilities in this area was considered by the Consultative Committee. It was agreed that this recommendation was of general use, and the Consultative Committee accordingly accepted this recommendation as its own, with an additional term of reference to consider proposed additional databases that ICES may wish to implement. The *Ad Hoc* group would thus provide a review of ICES database strategy and priorities.

The Consultative Committee took note that ACME was not sure of the new procedures to handle recommendations concerning introductions and transfers of non-indigenous species since the Working Group on Introductions and Transfers of Marine Organisms had been moved to ACME. Accordingly, a recommendation concerning the importation of bass to Ireland, which had already been accepted by ACME in May and was contained in its 1994 report, was reproduced here in case the Council wished to adopt the recommendation, as has occurred in the past. Similarly, it was agreed that a recommendation that the Council adopt the Code of Practice for Introductions and Transfers of Marine Species should be included. However, the Consultative Committee was of the opinion that the review and approval of the Code of Practice and of specific introductions or transfers was adequate, and constituted the final handling on behalf of ICES. More detailed discussion of this topic is contained under Agenda Item 11.

With the above considerations, the recommendations of ACME were accepted.

### Marine Environmental Quality Committee

In reviewing the recommendations of the MEQC, it was noted that many of the activities conducted by Working Groups or Steering Groups under this Committee are relevant to the preparation of advice for the regulatory commissions. It was pointed out, however, that the requests from these commissions are very often of a mainly scientific character, such as to conduct a study of contaminants in Baltic Sea sediments, and thus are conducted by scientific groups, which then report their progress and findings to ACME.

It was noted that the terms of reference of the Working Group on the Effects of Extraction of Marine Sediments on Fisheries had been modified from a mainly geological programme to include biological questions on the actual impact of these activities on fisheries and the ecosystem at large. There also was a question of changing the dates of this meeting to avoid an overlap with the meeting of the Benthos Ecology Working Group, which has relevant biological expertise.

With the above considerations, the recommendations were accepted.

### Mariculture Committee

The Chairman of the Mariculture Committee drew attention to the very successful within Committee topic sessions at this year's meeting. His Committee recommended that such an activity will continue in forthcoming years. However he expressed concern at the very tight schedule he had been given for his Committee sessions.

His Committee had also expressed the desire to improve liaison with other international aquaculture organisations such as the WAS and EIFAC, and he would be exploring ways of doing this.

He drew attention to the fact that his Committee wished to continue to compile Reports of Activities.

In approving the recommendations, considerable concern was expressed at the lack of progress in evaluating the status of *Ichthyophonus* on herring populations. Because of difficulties in understanding the reasons for this lack of progress, the Chairman of the Working Group on Pathology and Diseases in Marine Organisms (Dr A. McVicar) was invited into the Committee to help explain the problems. It was clear from this that there had been failures in communication especially with regard to who was responsible for the compilation of relevant prevalence data. Clearly it was important that ICES should be able to respond to issues of this nature in a fast and flexible way, and the Committee therefore asked this

group to provide advice on how to do this so that future misunderstandings of this nature could be avoided. This resulted in the adoption of two additional terms of reference for this Working Group.

### ACFM

The Chairman of ACFM drew attention to a number of changes that had been made to this year's recommendations, in particular pointing out the merging of a number of groups and the reduction in the number of days allocated to meetings.

The Committee considered that the resolution regarding the ACFM meeting should include terms of reference and asked ACFM to prepare these as a matter of standard practice.

Some rearrangement of timing was necessitated by the need for up-to-date data and the Atlanto-Scandian Herring, Capelin and Blue Whiting Working Group was for this reason rescheduled to meet in Bergen on condition that it would be possible for direct use to be made of the IFAP database on the ICES computer via Internet.

In a number of recommendations the need for an interdisciplinary approach was noted (e.g., in the items relating to seals in the Baltic Salmon and Trout Assessment Working Group), and the appropriate insertions were made indicating that the reports should be referred to the relevant Committees or Working Groups. The possibility of a greater involvement by the appropriate environmental Working Groups was also suggested.

The terms of reference for the Joint ICES/NAFO Working Group on Harp and Hooded Seals had been approved by the NAFO Council and only minor amendments were made to ensure adequate expertise at the meeting. It was also suggested that this Working Group should take a broader approach in future.

It was noted that the merging of the two Baltic fish Working Groups, which was based on the need to take multispecies interactions into account, might result in a decrease in participation and the Committee therefore stressed the need for the full range of expertise to be made available by Member Countries. In this connection, it was noted that the establishment of the Study Group on Data Preparation for the Assessments of Demersal and Pelagic Stocks in the Baltic was intended as a short-term expedient to ensure adequate data.

The next meeting of the Working Group on Long-term Management Measures will be the third meeting of this group and ACFM had agreed to evaluate how it should continue its work, particularly in relation to the need to address specific assessment problems as well

as acting as a methodological group. It was agreed that ACME should also be involved in this discussion because of the interdisciplinary aspects.

It was noted that the assessment of *Pandalus* stocks is to be included in the terms of reference of the Study Group on Life Histories and Assessment Methods of *Pandalus* Stocks pending decisions about the future of shellfish assessments.

#### Fish Capture Committee

The Chairman of the Fish Capture Committee informed that his Committee regretted the discontinuation of the Report of Activities. He noted a proposal to study the economic impact of applying selective gears, with his Committee having reacted by asking the Fishing Technology and Fish Behaviour Working Group to consider what aspect of this issue it could effectively address.

All recommendations were accepted following minor editorial changes.

#### Statistics

In presenting his report, the Chairman of the Statistics Committee noted that a number of discussion sessions at his Committee had been successful and constructive. Important contributions had been made to sampling design and diagnostic tests. There had also been discussion about how the Committee can most effectively help the Advisory Committees, for example by developing a manual for sampling strategies.

Three recommendations from the Statistics Committee were directly related to ICES' participation in the Coordinating Working Party on Atlantic Fishery Statistics, the next meeting of which takes place in 1995. The Committee agreed that the effect of misreporting and unreliability of fishery statistics and data, including stock assessments, should be stressed and that this is already affecting the ability of ACFM to give advice on a number of stocks. The result of this is that ACFM has little alternative but to take a precautionary approach when assessments break down. In view of the seriousness of the situation, which had not been fully accepted by the managers, it was considered that there is a need to address this problem at both the official level and the research level and that ACFM should consider alternative assessment and management techniques and strategies as part of its terms of reference.

While a change in the name of the Committee was generally accepted on the grounds that the Committee's work was in the process of broadening into fields outside traditional fishery statistics and assessments, it was recognised that it is difficult to

encapsulate all the requirements in a short title. It was therefore agreed that the name proposed by the Committee - "The Statistics and Quantitative Analysis Committee" - should be put forward as that most closely describing the functions of the Committee which would still include the maintenance of fishery statistics as an important element.

#### Demersal Fish

In presenting the report, the Chairman of the Demersal Fish Committee noted that his Committee had decided that the effort put into the preparation of the Report of Activities could be more profitably spent on other matters.

Until more information is available about the nature of the data from the 1991 stomach sampling project, it was considered premature to recommend publication in the *Cooperative Research Report* series.

Since the Beam Trawl Survey Study Group deals with bottom trawl surveys, the Committee considered that it should consider merging with the International Bottom Trawl Survey Working Group. Appropriate items were inserted in the terms of reference of both these groups.

#### Pelagic Fish

In presenting his report, the Chairman of the Pelagic Fish Committee noted that a number of the papers directed to his Committee had not focused on items of major interest to the Committee. The Committee had therefore proposed that a special topic should be identified for the next meeting.

Some concern had been expressed in the Committee about the withdrawal of effort from fishery-independent surveys which are of paramount importance in the assessment of pelagic fish stocks. This applied in particular to the decision by Germany not to participate in the Mackerel/Horse Mackerel Egg Surveys due to be carried out in 1995 and the Committee noted the impact this is likely to have on the value of the survey and commented on the fact that the Secretariat had already drawn this to the attention of Delegates. To emphasise the importance of the survey, they recommended that the Mackerel/Horse Mackerel Egg Production Workshop should be re-established as a Working Group to maintain the continuity of the planning of the surveys and analysis of the results.

The recommendations of the Pelagic Fish Committee were accepted with minor amendments.

#### Baltic Fish

There had been considerable discussion in the

Committee about the assessment methods and related research activities in the Baltic, following a request emanating from the International Baltic Sea Fishery Commission. In particular it was noted that the acoustic surveys in the Baltic had been of little use in the assessments of pelagic fish. It was therefore considered essential that the co-ordination of assessment-related research activity in the Baltic be improved. The formation of a Study Group on Assessment Related Research Activities Relevant to Baltic Fish Resources (excluding salmonids) was therefore recommended. In discussing this group, the Consultative Committee questioned why environmental effects on population parameters (e.g. mortality, fecundity) had not been included in the terms of reference.

#### Anadromous and Catadromous Fish Committee

The recommendations were accepted essentially as proposed.

From the report of the ANACAT Committee, particular note was taken of the tremendous problems facing wild salmon in the Baltic Sea. In terms of a suggested merger of Working Groups dealing with salmon, the Committee was not in favour of such a merger, but felt that joint meetings could be useful.

#### Shellfish Committee

It was noted that, with the exception of the Study Groups on *Nephrops* and *Pandalus*, the word 'assessment' had been removed from the titles and activities of the Study Groups concerned with specific shellfish. Instead, most of the assessment activities were brought together into a new Study Group on the Assessment of Shellfish Stocks in the North Atlantic. This would provide an important opportunity to develop a coherent approach to shellfish assessments across taxonomic groups. The recommendations from the Shellfish Committee were then accepted with editorial amendments.

The Shellfish Committee felt that the Report of Activities contained useful information and noted that it may produce a report on a voluntary basis next year.

In addition, a list of relevant literature had not been prepared this year, but the Committee felt that this list was very useful to be able to obtain grey literature publications soon after they become available. The late withdrawal of eight papers had created problems for the Committee.

The Committee had held a good session on cephalopods, but noted that there is a need to obtain data on landings of these species.

#### Marine Mammals Committee

The recommendations from the Marine Mammals Committee were accepted. It was noted that a key recommendation concerned the collection of data on by-catches of marine mammals in fisheries by ICES Member Countries; these data are very much needed to be able to estimate mortality from this source.

The Marine Mammals Committee reviewed the report of the Study Group on Long-Finned Pilot Whales and supported the need for a new meeting.

The Marine Mammals Committee noted four areas in which research on marine mammals could be co-ordinated within ICES to place marine mammals research in a wider context. The Committee supported these four topics and will return to them next year.

In terms of the Joint Session on the Effects of Contaminants on Marine Mammals, this had been very useful but much more information is needed on biological effects. Co-operation with other relevant organisations, particularly the International Whaling Commission, would be very beneficial.

#### **Item 13.2 Working/Study Groups to be Dissolved/Established**

The following table lists the various Working Groups, Study Groups, Planning Groups, Steering Groups and other Groups, Planning Meeting and Workshops that were dissolved, established or renamed by virtue of Council resolutions at the 1994 Annual Science Conference:

Type of Action	Name
<b>Dissolved</b>	<b>Working Group</b>
	Atlanto-Scandian Herring and Capelin
	Blue Whiting Assessment
	Assessment of Demersal Stocks in the Baltic
	Assessment of Pelagic Stocks in the Baltic
	Assessment of Norway Pout and Sandeel

cont.

Type of Action	Name
<b>Established</b>	<b>Study Group</b>
	Evaluation of Baltic Fish Data
	North Sea Plaice Box
	Coordination of bottom trawl surveys in Sub Areas VI, VII, VIII and Division IXa
	Herring Assessment and Biology in the Irish Sea and Adjacent Areas
	Environmental Modelling in the Baltic Sea
	Life History, Population Biology, and Assessment of <i>Crangon</i>
	Life History and Assessment of Cephalopods
	Zooplankton Production
	Seabird-Fish Interactions
<b>Established</b>	<b>Planning Group</b>
	Hydroacoustic surveys in the Baltic
	<b>Working Group</b>
	Atlanto-Scandian Herring, Capelin and Blue Whiting Assessment
	Assessment of Demersal and Pelagic stocks in the Baltic
	<i>Crangon</i> Fisheries and Life History
	Cephalopods Fisheries and Life History
	Mackerel and Horse Mackerel Egg Surveys
	Seabird Ecology
	Zooplankton Ecology
<b>Established</b>	<b>Study Group</b>
	Saithe
	Elasmobranch Fishes
	Unaccounted Mortality in Fisheries
	Baltic Cod Age-reading
	Assessment-related Research Activities relevant to Baltic Fish Resources (excluding salmonids)
	Assessment of Shellfish Stocks in the North Atlantic
	Data Preparation for the Assessments of Demersal and Pelagic Stocks in the Baltic
	<b>Planning Group</b>
	Multispecies Assessments of Boreal Systems
<b>Established</b>	<b>Ad Hoc Group</b>
	ICES Secretariat Databases
	<b>Workshop</b>
	Sandeel Otolith Analysis
	Modelling Environmental Interactions in Mariculture.
	Principles and Practical Measures for the Interaction of Mariculture and Fisheries in Coastal Area
	Planning and Management.
	Mackerel Otolith Reading.
	Age Reading of <i>Sebastes</i> spp
	ICES/HELCOM Workshop on Temporal Trend Assessment of Data on Contaminants in Biota from the Baltic Sea.

cont.

ICES/HELCOM Workshop on Quality Assurance and Intercomparison of Pelagic Biological Measurements in the Baltic Sea  
ICES/HELCOM Workshops on Quality Assurance and Intercomparison of Benthos Measurements in the Baltic Sea.  
Metals in Estuaries.

## Renamed

## Working Group

*Nephrops* and *Pandalus* Stocks to *Nephrops* Stocks  
Biology, Life History, and Assessment of *Majid* crabs to Biology and Life History of *Majid* Crabs  
Life Histories and Assessment Methods of *Nephrops* Stocks to Life Histories of *Nephrops*

### Agenda 13.3 New Working/Study Group Chairmen

The Council's attention is drawn to the following new Chairmen of Working Groups, Study Groups, Planning Groups, other groups, and Workshops.

An overview of the various Working, Study, Planning, Steering and other Groups and Workshops in existence in 1995, and their 'parent' Committee are given in Annex 1.

## Chairman

## Group

### Working Group

Mr L. Karlsson (Sweden)	Baltic Salmon and Trout Assessment
Mr R. Toresen (Norway)	Herring Assessment for the Area South of 62°N
Dr G. Stenson (Canada)	Joint ICES/NAFO WG on Harp and Hooded Seals
Mr P. Degnbol (Denmark)	Assessment of Demersal Stocks in the North Sea and Skagerrak
Ms C. Porteiro (Spain)	Assessment of Mackerel, Horse Mackerel, Sardine and Anchovy
Dr M. Armstrong (UK)	Assessment of Northern Shelf Demersal Stocks
Mr A. Eltink (Netherlands)	Mackerel and Horse Mackerel Egg Surveys
Dr D. Bennett (UK)	<i>Nephrops</i> Stocks
Mr I. Røttingen (Norway)	Atlanto-Scandian Herring, Capelin and Blue Whiting Assessment
Dr S. Sundby (Norway)	Cod and Climate Change
Mr S. Munch-Petersen (Denmark)	Assessment of Demersal and Pelagic stocks in the Baltic
Dr. T. Neudecker (Germany)	<i>Crangon</i> Fisheries and Life History
Dr U. Piatowski (Germany)	Cephalopods Fisheries and Life History
Dr P. Pepin (Canada)	Recruitment Processes
Dr R. Furness (UK)	Seabird Ecology
Dr H-R Skjoldal (Norway)	Zooplankton Ecology
Dr S. Hall (UK)	Ecosystem Effects of Fishing Activities
Mr L. Føyn (Norway)	SKAGEX
Dr R.M. Cook (UK)	Statistics Committee Liaison

### Study Group

Mr K. Nedreaas (Norway)	Saithe
Dr H. da Silva (Portugal)	Elasmobranch Fishes
Mr B. Isaksen (Norway)	Unaccounted Mortality in Fisheries
Dr A.D. Rijnsdorp (Netherlands)	Beam Trawl Surveys
Dr J. Horbowy (Poland)	Data Preparation for the Assessments of Demersal and Pelagic Stocks in the Baltic
Dr J. Netzel (Poland)	Baltic Cod Age-Reading
Mr H. Sparholt (ICES)	Assessment-related Research Activities relevant to Baltic Fish Resources (excluding salmonids)
Dr S. Schopka (Iceland)	Redfish Stocks
To be determined	Assessment of Shellfish Stocks in the North Atlantic

cont.

Chairman	Group
Dr B. Peterson (USA) Mr S. Tveite (Norway) Dr J.D.M. Gordon (UK)	Spatfall and Recruitment in Bivalve Stocks Life Histories and Assessment of <i>Pandalus</i> Stocks in the North Atlantic Biology and Assessment of Deep-Sea Fisheries Resources
<b>Planning Group</b>	
Dr K. Magnusson	Multispecies Assessments of Boreal Systems
<b>Ad Hoc Group</b>	
Dr G. Stefansson	ICES Secretariat Databases
<b>Workshop</b>	
Dr E. Moksnes (Norway) Mr D. B. Atkinson (Canada) Dr K. Kosswig (Germany) Dr B. T. Hargrave (Canada) Dr W. Silvert (Canada) Dr P. Burbridge (UK)	Sandeel Otolith Analysis Age Reading of <i>Sebastes</i> spp Age Reading of <i>Sebastes</i> spp Modelling Environmental Interactions in Mariculture Modelling Environmental Interactions in Mariculture Principles and Practical Measures for the Interaction of Mariculture and Fisheries in Coastal Area Planning and Management
Prof. H. Rosenthal (Germany)	Principles and Practical Measures for the Interaction of Mariculture and Fisheries in Coastal Area Planning and Management
M M. Héral (France)	Principles and Practical Measures for the Interaction of Mariculture and Fisheries in Coastal Area Planning and Management
Mr A. Eltink (Netherlands) Mr C. Agger (Denmark)	Mackerel Otolith Reading ICES/HELCOM Workshop on Temporal Trend Assessment of Data on Contaminants in Biota from the Baltic Sea
Dr L. Edler (Sweden)	ICES/HELCOM Workshop on Quality Assurance and Intercomparison of Pelagic Biological Measurements in the Baltic Sea
Dr H. Rumohr (Germany)	ICES/HELCOM Workshops on Quality Assurance and Intercomparison of Benthos Measurements in the Baltic Sea
Mr S. Westerlund (Sweden)	Metals in Estuaries

The following Table compares the number of scheduled meetings and correspondence activities of Council Groups, Workshops and Advisory Committees in 1990-1995. As can be seen, the total number recommended this year is more than in any of the past

5 years, mainly due to a substantial increase in the number of Working Group and Study Group Meetings. It should be noted, however, that there is a significantly greater amount of correspondence activity than in previous years.

Meetings and correspondence <sup>2</sup>	1990	1991	1992	1993	1994	1995		
						T	M	C
Working Group	46	45	36	42	40	46	40	6
Sub-Group	1	-	1	1	5	1	1	1
Study Group	12	16	16	19	16	22	13	9
Planning Group	3	4	4	3	2	2	0	2
Workshop	3	6	9	4	19	13	13	0
Advisory Committee	3	3	3	3	3	3	3	0
Others	5	3	6	7	6	5	5	0
Total	73	77	75	79	91	93	75	18

<sup>2</sup> T=total number, M=meeting, C=working by correspondence

#### **Agenda Item 14 MATTERS REFERRED TO THE COMMITTEE BY THE BUREAU OR COUNCIL**

No specific matters were referred to the Committee for consideration.

#### **Agenda Item 15 ANY OTHER BUSINESS**

A number of topics were listed for possible discussion, including the future of the *Cooperative Research Report* series. In the event, limitation of time precluded extensive discussion. The Chairman, however, noted:

1. A representative of an Observer organisation (WWF) had stressed the need for ICES to publish papers and literature suitable for the lay public. It was also mentioned that WWF had approached the

European Commission for support for the professional production of high quality products of wider interest.

2. ICES would shortly receive a request from the UK to carry out an independent review of a nutrient study. In response, the General Secretary indicated that the correct protocol would be for the request to be sent to him and for him to discuss it with appropriate Advisory Committee Chairmen.

The Chairman regretted that it had not been possible to devote more time to discussion on several items on the agenda. He expressed his appreciation to all members for their co-operation and enthusiasm, and particularly those outgoing Chairmen who had served the Committee so well during the past three years.

## DOCUMENTS

A:1*	Agenda for the Consultative Committee
A:2*	Minutes of ACFM Meeting, ICES Headquarters, 26 October-3 November 1993
A:3*	Minutes of ACFM Meeting, ICES Headquarters, 17-25 May 1994
A:4*	Minutes of ACME Meeting, ICES Headquarters, 25-31 May 1994
A:5*	Report of Joint Meeting of ACFM and ACME, 24 May 1994, Charlottenlund Denmark
A:6* Ref. ACFM/ACME	Planning Group for the Tenth Dialogue Meeting on "Fisheries and Marine Environmental Problems in the Bay of Biscay and Iberian Region", 22-23 March 1994, Vigo, Spain
A:7 Ref. C, G, H, J + L	Report of the Working Group on Cod and Climate Change
A:8 Ref. E, N	Report of the Study Group on Long-Finned Pilot Whales
A:9 Ref. C, G, H, J + L	Report of ICES/GLOBEC Cod and Climate Data Base Workshop
A:10 Ref. C, G, H, J + L	Report of ICES/GLOBEC Cod and Climate "Aggregation Workshop", Charlottenlund, 22-24 August 1994
A:11 Ref. ACFM/ACME	Report of the <i>Ad Hoc</i> ICES-British Marine Fishes Database (BMFD) Group
A:12	Report of ICES/GLOBEC Cod and Climate Backward-Facing Workshop
A:13	Compendium of Draft Recommendations
A:14	Instruction for Rapporteurs
A:15	Guidelines for Drafting Recommendations
A:16	Guidelines for Committee Chairmen
A:17	Access to Data Bases (follow up to C.M. 1994/Del:10)
A:18	ICES Papers: An Evaluation of a Need for Change in their Current Form

## **Annex 1:**

## **ICES COMMITTEES AND THEIR SUBSIDIARY GROUPS**

The following is a list of the ICES Consultative, two Advisory, and twelve Subject/Area Committees together with the 109 Working, Study, Planning, Steering, and other Groups and Workshops in existence in 1994/1995 which are the principal responsibility of each of these Committees. Some Working/Study Groups have relationships with or are "sponsored" by one or more Committees in addition to the one indicated below as their "parent". Letters in brackets refer to codings of Council documents produced by the groups/meetings.

This hierarchical listing has been prepared to illustrate the relationship between the various Committees and Groups and the general lines of responsibility, and is intended to be a general-purpose, informative guide.

### **Consultative Committee (A)**

Programme Planning Group  
Working Group on Cod and Climate Change  
Study Group on Long-Finned Pilot Whales  
*Ad Hoc* Group on the ICES Secretariat Databases  
ICES/GLOBEC Cod and Climate Backward-Facing Workshop  
ICES/GLOBEC Cod and Climate Data Base Workshop

### **Advisory Committee on Fishery Management (Assess)**

Arctic Fisheries Working Group  
Atlanto-Scandian Herring, Capelin and Blue Whiting Assessment Working Group  
Baltic Salmon and Trout Assessment Working Group  
Herring Assessment Working Group for the Area South of 62°N  
Joint ICES/NAFO Working Group on Harp and Hooded Seals  
Multispecies Assessment Working Group  
North-Western Working Group  
Planning Group on Multispecies Assessments of Boreal Systems  
Working Group on the Assessment of Demersal and Pelagic Stocks in the Baltic  
Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak  
Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine, and Anchovy  
Working Group on the Assessment of Northern Shelf Demersal Stocks  
Working Group on the Assessment of Southern Shelf Demersal Stocks  
Working Group on Long-Term Management Measures  
Working Group on Methods of Fish Stock Assessment  
Working Group on Multispecies Assessment of Baltic Fish  
Working Group on *Nephrops* Stocks

Working Group on North Atlantic Salmon  
Study Group on the Biology and Assessment of Deep-Sea Fisheries Resources  
Study Group on Data Preparation for the Assessments of Demersal and Pelagic Stocks in the Baltic

### **Advisory Committee on the Marine Environment (Env)**

Marine Chemistry Working Group  
Working Group on Biological Effects of Contaminants  
Working Group on Environmental Assessment and Monitoring Strategies  
Working Group on Introductions and Transfers of Marine Organisms  
Working Group on Marine Sediments in Relation to Pollution  
Workshop on Metals in Estuaries  
Steering Group on Integrated Study of Processes of Pollutant Transfer and Effects on Biota  
ICES/HELCOM Workshop on Temporal Trend Assessment of Data on Contaminants in Biota from the Baltic Sea

### **Joint ACFM/ACME (ASSESS/ENV)**

Working Group on Ecosystem Effects of Fishing Activities

### **Fish Capture Committee (B)**

Working Group on Fisheries Acoustics Science and Technology  
Working Group on Fishing Technology and Fish Behaviour  
Sub-Group on Selectivity Methods  
Study Group on Target Strength Methodology  
Study Group on Unaccounted Mortality in Fisheries

### **Hydrography Committee (C)**

Working Group on Marine Data Management  
Working Group on Oceanic Hydrography  
Working Group on Shelf Seas Oceanography  
ICES/IOC Working Group on Harmful Algal Bloom Dynamics (with **Biological Oceanography**)  
Study Group on SKAGEX

### **Statistics Committee (D)**

Planning Group for a Symposium on "The Role of Physical and Biological Processes in the Dynamics of Marine Populations"  
Statistics Committee Liaison Working Group  
Working Group on ADP Matters

Working Group on Statistical Aspects of  
Environmental Monitoring

**Marine Environmental Quality  
Committee (E)**

ICES/HELCOM Workshop on Quality Assurance and  
Intercomparison of Pelagic Biological Measurements  
in the Baltic Sea  
ICES/HELCOM Workshops on Quality Assurance and  
Intercomparison of Benthos Measurement Methods in  
the Baltic Sea  
Steering Group for the Coordination of the Baseline  
Study of Contaminants in Baltic Sea Sediments  
Steering Group on Quality Assurance of Biological  
Measurements in the Baltic Sea  
Steering Group on Quality Assurance of Chemical  
Measurements in the Baltic Sea  
Working Group on the Baltic Marine Environment  
Working Group on the Effects of Extraction of Marine  
Sediments on the Marine Ecosystem

**Mariculture Committee (F)**

Working Group on Environmental Interactions of  
Mariculture  
Working Group on Application of Genetics in Fisheries  
and Mariculture  
Working Group on Mass Rearing of Juvenile Marine  
Fish  
Working Group on Pathology and Diseases of Marine  
Organisms  
Sub-Group on Fish Disease Data Submissions  
Workshop on Modelling Environmental Interactions  
in Mariculture  
Workshop on Principles and Practical Measures for the  
Interaction of Mariculture and Fisheries in Coastal  
Area Planning and Management

**Demersal Fish Committee (G)**

Saithe Study Group  
Study Group on Beam Trawl Surveys  
Study Group on Elasmobranch Fishes  
Study Group on Redfish Stocks  
Workshop on Sandeel Otolith Analysis  
Workshop on Age Reading of *Sebastes* spp.

**Pelagic Fish Committee (H)**

International Bottom Trawl Survey Working Group  
(with **Demersal Fish**)  
Planning Group for Herring Surveys (with **Baltic Fish**)

Working Group on Mackerel and Horse Mackerel Egg  
Surveys  
Workshop on Mackerel Otolith Reading

**Baltic Fish Committee (J)**

Study Group on Baltic Cod Age-Reading  
Study Group on Assessment-Related Research  
Activities Relevant to Baltic Fish Resources  
(excluding Salmonids)

**Shellfish Committee (K)**

Working Group on Pectinid Stocks  
Study Group on the Biology and Life History of Majid  
Crabs  
Study Group on the Assessment of Shellfish Stocks in  
the North Atlantic  
Study Group on Life Histories of *Nephrops*  
Study Group on Life Histories and Assessment Methods  
of *Pandalus* Stocks in the North Atlantic  
Study Group on Spatfall and Recruitment in Bivalve  
Stocks  
Working Group on Cephalopod Fisheries and Life  
History  
Working Group on *Crangon* Fisheries and Life  
History

**Biological Oceanography Committee (L)**

Benthos Ecology Working Group  
ICES/IOC Working Group on Harmful Algal Bloom  
Dynamics (with **Hydrography**)  
Working Group on Phytoplankton Ecology  
Working Group on Recruitment Processes  
Working Group on Seabird Ecology  
Working Group on Zooplankton Ecology  
Study Group on Gulf III Plankton Sampler Efficiency  
Study Group on Methods of Spatial and Temporal  
Integration

**Anadromous and Catadromous  
Committee (M)**

Joint EIFAC/ICES Working Group on Eel  
Study Group on Stock Identification Protocols for  
Finfish and Shellfish Stocks

**Marine Mammals Committee (N)**

Study Group on Seals and Small Cetaceans in European  
Seas

**REPORTS OF SUBJECT/AREA COMMITTEES**



## FISH CAPTURE COMMITTEE (B)

Chairman: Mr R. Fonteyne  
Rapporteur: Mr N. Lowry

The Committee met on Thursday 22nd September from 14.30 to 18.00 hrs, on Friday 23rd September from 16.30 to 18.00 hrs, and on Monday 26th September from 14.30 to 18.00 hrs. During the sessions the report of activities, eight reports of Working Groups, Study Groups, Sub-Groups and Workshops and 29 scientific contributions were presented.

### Committee Business

The meeting was opened by the Chairman, Mr R Fonteyne, and Mr N Lowry was appointed as rapporteur. A very comprehensive report of activities (Doc. B:1) was presented which most Member Countries had contributed to. The main topics of study were selectivity, fish survival and fisheries acoustics. A number of other areas are also being studied by Member Countries. The Committee was informed of the intention to change the format of the Report of Activities or even to discontinue it. This was regretted by some Committee members as the Report of Activities contains much useful information.

The future conduct of the Annual Science Conference was widely discussed. There is currently a problem of too many papers being presented to FCC, many of which had previously been presented to the Working Group on Fishing Technology and Fish Behaviour (FTFB) or Fisheries Acoustic Science and Technology (FAST). The need for greater communication with other committees was also discussed. It was proposed that the presentation of papers as posters or as verbal presentations be left to the discretion of the Chairman. There is a problem with the status of papers presented in this way, but if they receive a number and are read by title they will still be able to be cited by other authors and therefore be less "grey". The need for better structured poster displays and sessions during which poster authors are present was stated.

### Working/Study Group Reports

The report of the meeting of the Working Group on Fishing Technology and Fish Behaviour (FTFB) (Doc. B:2) which met in Montpellier, France in April 1994 was presented by Mr S. Walsh. The terms of reference for the meeting were to: a) consider and comment on the final version of the Manual on Recommended Methodology for Selectivity Experiments prepared by the Sub-Group on Selectivity Methods, b) review available information on the characteristics of netting and twines which may change cod-end selectivity, c) review the methods to measure the characteristics de-

scribed in item b), particularly mesh size, and to make proposals for future work, d) consider the influence of natural behaviour (diurnal migration, feeding etc.) on sampling variability, e) consider and develop the conclusions of the Sub-Group on Survival Experiments, f) consider and comment on the report of the Working Group on Long-Term Management Measures, g) consider and comment on the report of the 1993 NAFO Symposium on "Gear Selectivity/Technical Interactions in Mixed Species Fisheries". Twelve scientific contributions were given for the special topics and 21 on other topics. A number of recommendations were put forward, as were three suggested work items for the Working Group. On these, some progress has been made, and an electronic mailbox has now been set up for the use of the Working Group through the ICES computer system.

The report of the Fisheries Acoustics Science and Technology Working Group (FAST), (Doc. B:3) which met in Montpellier, France in April 1994 was presented by Mr E.J. Simmonds. Eight papers were presented on Target Strength determination and ten on other topics. A number of recommendations were presented. It was noted that there had been a very good response to the call for contributions to the ICES symposium on Fisheries and Plankton Acoustics to be held next year and that this is expected to be a very productive symposium.

The report of the Joint Session of the FAST and FTFB Working Groups was presented by Mr G. Arnold. Two papers were presented on each of the topics and there was a great deal of interesting discussion. It was noted that there will be no joint session next year but that there would be in 1996. The Working Groups would propose recommendations for this at the respective meetings next year.

The report of the Study Group on Research Vessel Noise Measurement, (Doc. B:5) which met in Montpellier, France in April 1994 was presented by Mr E.J. Simmonds. The work of the Study Group is finishing and achievable recommended noise signatures have been formulated for vessels to conform to and be used in the design of new vessels. It was recommended that this report be published as a *Cooperative Research Report* and additionally that it should not be an anonymous report in order to specifically acknowledge the large amount of work put in by the Chairman, Mr R. Mitson.

Mr Simmonds also presented the report of the Study Group on Target Strength Methodology (Doc. B:6) which met in Montpellier, France in April 1994 to prepare a report on the methodology for target strength measurements. It was noted that more work has to be done and a new timetable was formulated. Another meeting of this group was proposed in order to complete this report.

The report of the Study Group on Selectivity Methods (Doc. B:7), which met in Montpellier, France in April 1994 was presented by Mr D. Wileman. It was noted that the production of the manual of Recommendations was behind schedule due to the organisational difficulties in completing certain sections. A new schedule for completion was proposed. Recommendations for future work were also put forward. The committee chairman thanked participants for their work in this group and noted that there was a great deal of interest from other groups, including the Working Group on Long-Term Management, in this document.

The report of the Sub-Group on Methodology of Fish Survival Experiments, (Doc. B:8) which met in Montpellier, France in April 1994 was presented by Mr S. Walsh. The essential need for survival work to complement selectivity experiments and the need for better characterisation of incidental fishing mortality caused by fish coming into contact with fishing gear was stressed. The Chairman (G. Sangster) and his Sub-Group were commended on the standard of the work produced. The importance of this document was noted and that it should receive wide distribution amongst fisheries biologists and stock managers.

The report from the Workshop on Hydroacoustic instrumentation, (Doc. B:9) which met at the British Antarctic Survey in Cambridge U.K. in May 1994 was presented by Mr E.J. Simmonds. The meeting was viewed as one of much practical use. A list of contacts from this should be made available soon. The FAST Working Group will consider the Workshop report and decide if this group should have more meetings in future.

### Scientific Contributions

Seven papers were presented in the subject area of fisheries acoustics. Papers Docs. B:30 and B:17 were detailed investigations of target strength constants, for small cod and herring respectively. Doc. B:18 concluded that fish are less polarised in relation to trawl towing direction during darkness and discussed implications of this. Doc. B:19 discusses adaptive behaviour of overwintering herring in deep water which are negatively buoyant and the relation of this to acoustic stock estimation. Doc. B:26 considered the difficulties of using scanning sonar to study fish schools. Docs.

B:27 and B:40 considered the problems encountered with detecting two sonar targets at the same range. The Committee considered whether the currently used definition of acoustic cross section and acoustic backscattering cross section should be modified to avoid confusion particularly amongst newcomers to the field of fisheries acoustics. The general consensus of the Committee was that the terminology used by ICES was consistent with accepted scientific practice and was in line with physical properties defined. It was suggested, however, that authors of papers in fisheries acoustics should be particularly careful to include full definitions and units for all terms including acoustic cross section.

Eight papers were presented on the subject of gear selectivity, with six of these concentrating on species selective gear. Doc. B:22 described a successful experiment developing a gear to separate whiting from haddock and cod. It was noted that this gear had restricted commercial application due to the limited market for whiting. Doc. B:10 covered attempts to separate pout from higher value species. This was unsuccessful due to the variable nature of the behaviour of pout and that there were not sufficiently great behavioural differences between these and other species. Doc. B:13 concerned separation of pelagic species, this was also difficult. The need for stronger escape stimuli was discussed. Doc. B:14 showed that separating roundfish from *Nephrops* was possible using square mesh panels and that this had little effect on *Nephrops* selectivity. Doc. B:39 described experiments in the Belgian *Nephrops* fishery. It showed the important points that weather conditions and material differences can have an effect on selectivity. The escape of *Nephrops* from other parts of the trawl and under the footrope was discussed. Doc. B:32 also demonstrated the effectiveness of using square mesh panels to separate *Nephrops* from fish. Doc. B:12 discussed the use of alternate haul experiments in the Greenland shrimp fishery. It concluded that there is some codend selectivity in this fishery. Discussions centred upon the problems with this method and the effect of catch size; commercial catches are larger than encountered in this experiment. Doc. B:29 discussed some of the consequences to the catch composition and value of implementing more selective gear in the Baltic cod fishery. Doc. B:23 described a successful experiment using grids to attempt to reduce the bycatch of undersized megrim, monkfish and rays in French fisheries. Doc. B:28 covered a new idea of using size selection to reduce the catch of undersized fish in purse seines, which are usually an unselective gear. The technique is successful, but it is necessary to ensure that the fish which escape from the gear survive.

Five papers covered netting material characteristics and their measurement. Doc. B:35 was an overview of these characteristics and how they may affect cod-end

selectivity. Doc. B:34 demonstrated that twine thickness can have an effect on reducing selectivity for haddock. Doc. B:31 described a method of estimating the flexural rigidity of netting. Docs. B:36 and B:37 concerned mesh size measurements, the former described methods of measuring meshes and twines and the latter described a comparison between results obtained with the ICES and EC standard gauges. The EC wedge gauge gave results 3-5% higher than the ICES gauge. The need for a standard method was discussed.

Two contributions were given on fish survival. Doc. B:38 indicated that survival may be length dependent and possibly that weaker individuals in a year class may be more vulnerable. Doc. B:16 described a tank experiment on survival in which the results showed that haddock are vulnerable to mortality due to stress, although the results may be biased by the experimental method.

Doc. B:20 described of trawl gear which can be used for sampling the young stages of crustacean life cycles to improve assessment of these species. Doc. B:21 concerned calibration of Scanmar instrumentation. It showed that generally these instruments are very accurate although extra precision may be possible to achieve. Doc. B:25 described a user friendly program for data collection for trawling experiments on research and commercial vessels. The comparison of fishing power between the research vessels "Walther Herwig" and "Walther Herwig III" was described in Doc. B:15. The differences were not significant, but any small differences may have been masked by the variation between sample catches. A computer assisted trawl simulation program was described in Doc. B:24.

### Recommendations

A number of recommendations were discussed. The recommendations concerning the FAST Working Group were accepted as drafted. For the FTFB Working Group, a recommendation concerning advice for ACFM on mesh sizes conforming to a 38 cm  $L_{50}$  for cod for codends and escape windows in Baltic cod trawls was drafted. It was questioned if this should also include other selective devices. The difficulty in deciding on mesh sizes to conform to  $L_{50}$ 's due to variation in selectivity caused by other factors was discussed. The structure of the group to decide this question would be finalised by representatives of the institutes working in this fishery plus the Chairman of FTFB WG, and a co-ordinator would be chosen.

A proposal concerning studies on the economic impact of applying selective gears received wide discussion. The consensus was that this may be beyond the scope of the FTFB currently and that there needs to be more emphasis on the long term aspects of applying selective gear, multi species approaches, as well as the short term effects and the reasons why technical measures appear to not result in reductions of fishing mortality. It was decided that it should be considered as an additional work item for the FTFB to consider this topic, to identify in which areas work should be concentrated, and which groups of scientists should be brought together to best achieve this.

An additional recommendation for the FTFB to evaluate recent experiments on the selectivity of *Nephrops* trawls and report to ACFM, was discussed. The reasons for this recommendation were expressed as being the need for a decision on appropriate mesh size for the *Nephrops* fishery, and the importance of by-catch species in this fishery was expressed. This item would be tackled in a similar fashion to that concerning Baltic cod trawls.

The recommendations that the Sub-Group on Selectivity Methods and the Study Group on Target Strength Methodology then should continue preparation of reports were accepted.

The establishment of a Study Group on Unaccounted Mortality in Fisheries was supported. The problems in acquiring good discards data and data on the magnitude of encounters with gear were expressed. It was stated that one of the objectives of such a group would be to identify gaps in existing knowledge such as this and that this was no reason not to set up the group. The group should report to FTFB, and the group's report should be considered at the FTFB meeting.

A Theme Session concerning "Improving species selectivity in multispecies fisheries" was proposed, involving the Fish Capture, Demersal Fish, Pelagic Fish, Baltic Fish and Shellfish Committees.

It was noted that it was expected to have a joint session with the Marine Mammals Committee in two years to discuss by-catch of marine mammals in fisheries and with the Statistics and Hydrography Committees, amongst others on "The Role of Physical and Biological Processes in the Dynamics of Marine Populations".

## DOCUMENTS

B:1		Report of Activities 1993
B:2		Report of the Working Group on Fishing Technology and Fish Behaviour, Montpellier, France, 25-26 April 1994
B:3 Ref.H		Report of the Working Group on Fisheries Acoustics Science and Technology, Montpellier, France 28-29 April 1994
B:4		Report of the Joint Session on Fisheries Acoustic Science and Technology (FAST) and Fishing Technology and Fish Behaviour (FTFB) Working Groups, Montpellier, France, 27 April 1994
B:5		Report of the Study Group on Research Vessel Noise Measurement, Montpellier, France 26 April 1994
B:6		Report of the Study Group on Target Strength Methodology
B:7		Report of the Sub-Group on Selectivity Methods, Montpellier, France 21-23 April 1994
B:8		Report of the Sub-Group on Methodology of Fish Survival Experiments, Montpellier, France 22-23 April 1994
B:9		Report of the Workshop on Hydroacoustic Instrumentation, Cambridge, UK 3-5 May 1994
B:10 Ref. G	D.A. Wileman and J. Main	Attempts to develop a species selective trawl for fishing pout
B:11		<b>Withdrawn</b>
B:12 Ref. K	J. Boje and K.M. Lehmann	Selectivity in shrimp trawl codend from an alternate haul experiment
B:13	B. van Marlen <i>et al.</i>	Intermediate results in EC-project TE-3-613 "Improved species and size selectivity of mid-water trawls (SELMITRA)"
B:14 Ref. G, K	N. Madsen and T. Moth-Poulsen	Measurement of the selectivity of <i>Nephrops</i> and demersal roundfish species in conventional and square mesh panel codends in the northern North Sea
B:15	S. Ehrich <i>et al.</i>	Comparative fishing with FRVs "Walther Herwig" and "Walther Herwig III"
B:16 Ref. G	E. Jónsson	Scale damage and survival of haddock escaping through codend meshes (tank experiment)
B:17 Ref. D, H	J. Hamre and A. Dommasnes	Test experiments of target strength of herring by comparing density indices obtained by acoustic method and purse seine catches
B:18	I. Huse <i>et al.</i>	Day/night variation in fish directivity in the trawl opening
B:19 Ref. H	I. Huse <i>et al.</i>	Angular distribution of overwintering Norwegian spring spawning herring
B:20 Ref. K	G.Y. Conan <i>et al.</i>	The Bigouden <i>Nephrops</i> trawl, and the Devismes trawl, two otter trawls efficiently catching benthic stages of Snow Crab ( <i>Chionectes opilio</i> ) and American Lobster ( <i>Homarus americanus</i> )
B:21	B.R. McCallum	Calibration of hydroacoustic instrumentation for survey trawl mensuration
B:22 Ref. G	T. Moth-Poulsen	Development of a species selective whiting trawl

B:23 Ref. G	M. Meillat <i>et al.</i>	Preliminary results of a trawl fitted with a selective grid for the fishery of benthic species from the Celtic Sea and the Bay of Biscay
B:24 Ref. D	F. Theret	A mathematical model for the determination of the shape and the tensions of a trawl placed in a uniform current
B:25 Ref. D	G. Bavouzet and Y. Cadion	Meschal data acquisition software for sea trials
B:26 Ref. D	F. Gerlotto <i>et al.</i>	Exhaustive observation of 3D school structure using multibeam side scan sonar: potential use for school classification, biomass estimation and behaviour studies
B:27	H. Nes	Split beam dual target detection properties
B:28 Ref. G, H	O.A. Misund and A. Beltestad	Size-Selection of mackerel and saithe in purse seine
B:29 Ref. G	N. Lowry <i>et al.</i>	Mesh size experiments in the Baltic cod fishery
B:30 Ref. G	E. Ona	Detailed <i>in situ</i> target strength measurements of 0-Group
B:31	F.G. O'Neill and L. Xu	Twine flexural rigidity and mesh resistance to opening
B:32 Ref. G, K	J.H.B. Robertson and A.M. Shanks	The effect on catches of <i>Nephrops</i> , haddock and whiting of square mesh window position in a <i>Nephrops</i> trawl
B:33		<b>Withdrawn</b>
B:34	N. Lowry and J.H.B. Robertson	The effect of twine thickness on cod-end selectivity of trawls for haddock in the North Sea
B:35	R.S.T. Ferro and F.G. O'Neill	An overview of the characteristics of twines and netting that may change cod-end selectivity
B:36	R.S.T. Ferro and F.G. O'Neill	An overview of methods of measuring twine and netting characteristics and mesh size
B:37	R.S.T. Ferro and L. Xu	Comparisons of mesh size measurements with the ICES and wedge gauges
B:38	K. Lehmann and G.I. Sangster	Commercial fishing experiments to assess the scale damage and survival of haddock and whiting after escape from four sizes of diamond mesh codends
B:39 Ref. K	H. Polet and F. Redant	Selectivity experiments in the Belgian Norway lobster ( <i>Nephrops norvegicus</i> ) fishery
40 Ref. D, L	K.G. Foote	Coincidence echo statistics

## HYDROGRAPHY COMMITTEE (C)

Chairman: Professor T. Osborn  
Rapporteur: Mr H. Loeng

The Chairman welcomed all participants and appointed the Rapporteur. The suggested agenda was adopted.

### Committee Business

Discussion focused on the role of ICES in general and, specifically, the Hydrography Committee, in the development and guidance of ocean sciences in the North Atlantic.

In programmes like WOCE, ICES was a peripheral player due, in part to the global nature of the work. Lack of direct access to financial resources has also been a limitation on ICES participation. However, with respect to Cod and Climate Change and GLOBEC-International, ICES has had a major role. As well, ICES is well placed in the developing international work on Harmful Algal Blooms.

Encouraging the amalgamation of groups and further Scientific Organizations in the Baltic (see recommendations for co-sponsorship of the Conference on Baltic Oceanographers (CBO) meeting in Bornholm in 1996) is consistent with the larger long-term function of ICES.

The larger question of ICES' role will be a recurring theme. However, encouraging active participation in the Working Groups and strategic thinking on their part, is the best method to ensure the importance of ICES in the future of marine science.

### Election of Chairman

Mr. Harald Loeng from Norway was elected as new Chairman.

### Working/Study Group Reports

#### Working Group on Shelf Seas Oceanography, Vigo 9-12 May, 1994 (Doc. C:1)

The report was presented by the Chairman of the Working Group. The first two days were a Joint Session with the ICES/IOC Working Group on Harmful Algal Bloom Dynamics.

The Working Group meeting began with the review of the joint meeting and the modelling workshop. It was clear that the dialogue between physicists and biologists on the question of bloom dynamics was developing well. Particularly presentations of case studies and bloom events were seen to be valuable and they established a

good basis for discussions. These drew special attention to the importance of interactions at small scales of the physical and biological processes. Furthermore, it was clear that the modelling of harmful blooms was still at a fairly rudimentary level.

The modelling workshop was considered to be generally successful, although it fell short of addressing some questions of how harmful algal blooms could be modelled. The workshop tended to concentrate on the modelling of phytoplankton biomass production with the toxic aspects being difficult to discuss without species specific models - which do not exist at present. It was concluded that considerations of the toxic aspects could appropriately be addressed at a follow-up workshop, possibly in two years time.

The Working Group had been asked to assess the value of oxygen consumption rates in stagnant fjords as a tool for monitoring eutrophication trends in the North Sea. The work was based on a paper submitted to a recent North Sea Symposium by Aure and Sætre. The Working Group found it to be an interesting approach to the problem and also found the method relevant for monitoring the eutrophication of the southern Norwegian coastal waters. To extrapolate the results to the North Sea requires information about volumes from different sources and how these vary in time.

In a review of the role of coastal currents in transporting and distributing organisms the Working Group concluded that interaction between residual currents, coastal circulation, physical instabilities, residence time in bays, particle distribution and particle behaviour determine the actual transport of particles like fish egg, larvae and algae. The group proposed this subject for a theme session or symposium 1996. As a first step a paper to be prepared by the Chairman of the Working Group should be written to be discussed during the next meeting of the group followed by a short presentation at the Hydrography Committee meeting 1995.

The Working Group continued its compilation of estimates on physical/chemical fluxes. Models are regarded as the main tool to produce flux information. At the meeting the group stressed the need for good model validations and comparisons with observations. An assessment of the progress being made in model validation procedures, particularly in respect to particle and nutrient fluxes were proposed as a main topic for the next meeting of the Working Group. It was also proposed to evaluate progress in understanding of flux studies drawing on material and information being acquired from various major EU MAST projects.

The Working Group will meet next year in Helsinki.

**Working Group on Marine Data Management, Bergen 21-23 April, 1994 (Doc. C:2).**

The Chairman of the Working Group presented the report. She reviewed the terms of reference of the Working Group and went on to highlight the main conclusions from the meeting. The Working Group had assessed the 1990 data sent to the ICES Oceanographic Data Bank and was pleased to report that good progress had been made with data submission. The Working Group wished to continue monitoring data flow in order that the best possible data set could be assembled. Another aspect of data flow considered by the Working Group was for older data sent to WDC-A for the IOC Global Oceanographic Data Archaeology and Rescue (GODAR) project. The Working Group felt it could make a useful contribution by searching out data particularly for the 1960s.

Data management of shipborne ADCP data was reviewed, the guidelines for these data are still being refined as the oceanographic community gain more experience in collecting and interpreting these data. In the coming year it is intended that a survey of processing and archival methods in use in ICES member countries will be carried out.

Operational procedures for national oceanography data centres were reported. It was felt that much could be gained by coordinating the quality control procedures used.

Finally the problems solved, or created, by new technology were considered. The Working Group concluded that the easy access to information stored in relational data bases needed to be balanced against the potential danger of misunderstandings when retrieving data.

The Working Group proposed to meet next year in Dublin to continue discussions on data flow, to consider various aspects of quality assurance and to exploit the availability of new technology in form of computer information systems.

**Working Group on Oceanic Hydrography, Bergen 18-20 April 1994 (Doc. C:3)**

The report was presented by the Chairman. In response to questions raised by the Oceanography Secretary, the Working Group stressed the importance of a powerful, reliable and easily accessible database and expressed the wish to make time-series from standard sections and stations directly accessible. The Working Group had a thorough discussion of the problems related to radioactive contamination in the Nordic Seas, especially in relation to the former Soviet disposals in the Kara and

Barents Seas and the submarine "Komsomolets" off Bear Island. The Working Group will follow future research and monitoring of radioactive contamination in the areas mentioned, and offered help to coordinate activities.

The Working Group has through the years devoted great efforts to follow changes in the physical oceanographic situation in the North Atlantic using results from standard sections and stations. The variability in the physical environment are used as a basis for discussions of variations in various fish stocks, especially cod.

ICES as an organization is not formally involved in any current oceanographic research programmes, but many members of the Working Group are involved. The Working Group is, therefore, kept up-to-date with progress and results.

The Working Group proposed to meet next year in Oban (UK) to discuss radioactive contamination in the Nordic Seas, questions related to cod and climate, standard sections and to review national and international projects.

The Working Group proposed Dr. Erik Buch (Denmark) as Chairman for another three year period, and the Committee approved.

**Workshop on Modelling the Population Dynamics of Harmful Algal Blooms (Doc. C:5)**

The main objective of the Workshop was to develop a dialogue between biologists and physicists with a specific focus on theory and modelling. The Workshop was structured with talks on:

- general aspects of model philosophy
- coupled models and physical-biological interactions.

In addition there were seminars and practical exercises with PCs.

Participants that expected that modellers would solve their specific problems were disappointed, while those who expected theoretical description and modelling to be a helpful tool were satisfied. It seems important to continue a dialogue between physical and biological oceanographers and modellers to improve the common understanding of harmful algal bloom dynamics.

**Report of the SKAGEX Study Group**

The content of a letter from the former Chairman of the Study Group was presented. A report on how the project was run and some preliminary results is in draft form. The report includes a SKAGEX-Atlas on diskette with a User's Guide. The Study Group should finalise their work by working by correspondence. Mr L. Føyn was proposed as new Chairman of the Study Group.

## Scientific Contributions

Two scientific contributions were presented for the Committee. The first presentation (Doc. C:6) was on an interdisciplinary study of an Icelandic fjord. The main purpose was to describe and obtain an understanding of the ecology. Emphasis was put on the seasonal variability in hydrography, freshwater run-off, wind and surface irradiation.

The second contribution (Doc. C:8) focused on the meridional transport of volume, heat and salt for the Northern North Atlantic. The results were based on hydrographical observations and measurements of currents by a ship-mounted ADCP.

## Recommendations

The Committee discussed the recommendations from the Working Groups and different proposals on common theme sessions. The Committee approved the recommendations from the Marine Data Management and Shelf Sea Oceanography Working Groups. The Chairman of the Oceanic Hydrography Working Group withdrew a recommendation concerning Weather Station 'M'. It was agreed that standard sections and stations

should not only be reviewed by the Working Group, but they should also look for possibilities for publishing the results in a format to make the results available to a wider community. The incoming Chairman proposed an item on reviewing status of quality assurance procedures in oceanic measurements. All changes were approved by the Committee and the revised recommendations accepted (C. Res. 2:12, 2:13, 2:14, 2:15).

A proposal from the Marine Environmental Quality Committee for a Joint Session at the 1995 Annual Science Conference on pollutants in the Arctic was supported. Flux and transport processes should be included.

A proposal from the Chairman of the Statistics Committee to have a Symposium or Mini-Symposium on how the physical environments influence on fish population parameters were positively received. The topic is close to the one proposed from the Hydrography Committee on a Theme Session on relations between physical conditions and population parameters of cod.

A proposal for a Joint Session on Mariculture: Understanding Environmental impacts was presented and accepted.

## DOCUMENTS:

C:1		Report of the Working Group on Shelf Seas Oceanography, Vigo, 11-12 May 1994
Ref. L		
C:2		Report of the Working Group on Marine Data Management, Bergen, Norway 21-23 April 1994
C:3		Report of the Working Group on Oceanic Hydrography, Bergen, Norway 18-29 April 1994
C:4		<b>Withdrawn</b>
C:5		Report of the Workshop on Modelling the Population Dynamics of Harmful Algal Blooms, Vigo, Spain 4-7 May 1994
Ref. L		
C:6	S. Jónsson and K. Gudmundsson	An interdisciplinary study of Eyjafjörður, North Iceland
C:7	C.M. Afonso Dias	<b>Not received</b>
C:8	M. Bersch and J. Meincke	Meridional transport estimates for the northern North Atlantic

## STATISTICS COMMITTEE (D)

Chairman: Dr M.J. Fogarty  
Rapporteur: Dr J. Hoenig

The Statistics Committee held sessions on 22, 23, 24 and 26 September. The Committee Chairman, Dr. Michael Fogarty, opened the meeting, appointed a rapporteur, and presented the agenda for adoption. He then discussed the Committee business including a recommendation to change the name of the Committee. Subsequently, the Committee agreed that the new name should be the Statistics and Quantitative Analysis Committee. The new name reflects the dual role of the Committee: to ensure the integrity and quality of the landings statistics and to develop and test analytical methods for use in fishery and environmental assessment. The Chairman expressed his hope that the Committee would collaborate more in the future with the environmental committees. The new name was chosen to reflect this broader orientation.

The ICES Fishery Secretary presented document D:2 which is the Progress Report for 1993/1994 on fishery statistics. The Fishery Secretary emphasized that deterioration in the fisheries statistics has been reported every year by ACFM for several years. A letter was sent by diplomatic channels to every member country pointing out the problem and this may have led to some improvement. However, there is a widespread feeling that the quality of the statistics is a problem. One country, Spain, has not provided data since 1988 and this has held up publication of the official statistics. The statistics will probably be published without the Spanish information. In discussion, it was noted that the STATLANT 27 reporting requirements have been incorporated into EC legislation which makes it mandatory for member nations to produce landings statistics.

An overview of the Report of the Workshop on Sampling Strategies for Age and Maturity (Document D:1) was presented by the Chairman. The analytical methods described in this report with respect to sampling and modeling demographic rates and processes have general applicability to estimation of both population and environmental parameters.

The contributed papers fell into four categories: population dynamics, estimation / biological sampling / hypothesis tests, survey design and analysis, and age / size-structured analyses. In addition, a general discussion was held with the Chairmen of ACFM and ACME who attended the meeting to begin a dialogue on statistical issues in biological sampling. The goal was to discuss how the needs of ACFM and ACME could be met with respect to fisheries and environmental assessment through surveys, monitoring programme and trend analysis.

### Population Dynamics

Paper D:5 was concerned with estimating uncertainty associated with the biological reference point  $F_{med}$ . It was shown how to construct cumulative distribution plots of % MSP and of the probability that  $F_{med}$  exceeds  $F_t$  and how to construct confidence intervals for  $F_{med}$ .

Paper D:18 described preliminary attempts to use production models for *Nephrops* stocks. The results were strongly influenced by the limited contrast in the data and sensitivity to the input values.

Paper D:19 on Shetland sandeels showed that the catch per unit effort for an age class declines over the course of a season and then rises at the beginning of the next year. Thus, the decline in CPUE appears to reflect seasonal changes in catchability and not just mortality.

At the invitation of the Chairman, Doc. G:37 was presented to the Statistics Committee to replace a Doc. (D:3) which was withdrawn. This paper analyzed stock and recruitment data from 200 fish stocks to answer three questions: 1) does the highest recruitment tend to occur when stock size is above the median observed stock; 2) does the lowest recruitment tend to occur when the stock size is below the median stock level; and 3) is recruitment higher on average when the stock size is above the median observed stock than when it is below the median stock? The authors found that, when a large range of stock sizes has been observed, the answer to all three questions tends to be "yes".

### Estimation/Biological Sampling/Hypothesis Tests

Doc. D:8 discussed removal estimators for Atlantic salmon parr. A model for how catchability declines as the removals deplete the population was then presented. Bayesian estimation of population size was also considered. The new estimation procedures have lower bias than the traditional method.

Doc. D:10 presented a computationally simple algorithm for simultaneously estimating age composition in two or more years. The method allows one to use both current information and information from previous years to estimate age composition in the current year.

The effect of variation in proportion mature at age on estimated stock numbers was examined in Doc. D:20. Immature and mature fish were found to have different catchability coefficients. Therefore, if the proportion mature varies over time then the survey index of abun-

dance will not be based on a constant catchability over time. The authors present a method for correcting the estimates.

The question of how to test the equivalence of two age readers, or two age determination methods, was addressed in Doc. D:11. The authors propose the use of a  $\chi^2$  test of symmetry and show how the procedure can be generalized to test whether two methods are equivalent over a restricted range of nominal ages.

Doc. D:13 discussed how to estimate the mean stomach content weight from a trawl survey in which stations are selected according to a stratified random sampling plan and stomachs are collected according to a length stratified plan. The procedure takes account of the cluster sampling nature of trawl surveys.

### **Survey Design/Analysis**

Doc. D:9 looked at the effects of fish movement on survey estimates of abundance. The spatial and temporal components of variability were examined through the construction of semivariograms.

Doc. D:14 examined how spatial distribution changes as stock abundance changes. It was shown how to examine whether the range changes as stock changes.

Doc. D:4 examined a method to estimate natural mortality rates based on trawl surveys in which the survey gear is designed with the goal of catching everything in a clearly defined path.

### **Age-Structured Analyses**

Doc. D:6 showed how one can construct a catch-at-age analysis where the errors within a year can be allowed to have a correlation, in contrast to the usual procedures where errors within a year are assumed to be independent. This approach seems more realistic and can have a significant effect on the results of the analysis.

Doc. D:7 presented catch-at-age analysis in its simplest form and showed how this can reveal underlying problems with the data. The approach used provides a number of diagnostic tools for the "retrospective" problem of inconsistent results over time.

Doc. T:18 was transferred from Theme Session T at the request of the Conveners. This paper compared two management systems based on different concepts of risk. One concept was that risk is the probability of something bad occurring. The other concept is that risk is the sum over all possible bad outcomes of the probability of

the outcome occurring times the loss associated with the outcome.

### **Statistical Issues in Biological Sampling: Meeting the Needs of ACFM and ACME**

Sampling programmes designed to estimate biological parameters such as length-at-age and age or size-at-maturity are integral to the development of stock assessments of exploited species. These programmes provide essential demographic information and represent substantial investments in time and money. Issues related to the optimal design of such programmes and the development of analytical methods for analyzing these data share several features in common with environmental sampling programmes (e.g. programmes designed to estimate contaminant levels in sediment and/or animal tissue). In particular, these programmes often necessarily follow a cluster sampling design in which spatial and temporal factors must be considered. In addition, this issue of detecting trends in key factors is important in biological and environmental assessments. The objective of this session was to highlight the common issues faced by fishery and environmental scientists in estimating critical parameters for assessment purposes.

The Chairmen of ACME and ACFM provided overviews of the essential problems facing their advisory committees in providing scientific recommendations with particular reference to statistical concerns. It was noted that the terms of reference for two working groups reporting directly to ACFM involved important questions in the design and analysis of environmental monitoring programmes. It was suggested that a greater interaction between these working groups and the Statistics Committee would be mutually beneficial. With respect to the needs of ACFM, the critical importance of rectifying the decline in the quality of landings statistics was emphasized. These data are the basic building blocks of the stock assessments provided to ACFM and are essential for the development of scientific advice on harvesting levels. It was further noted that it would be useful for ICES to consider developing a manual of sampling techniques for use in assessments of both biological and environmental parameters, emphasizing both practical aspects as well as quantitative methods.

The ensuing discussion centered on common estimation problems and techniques in both biological and environmental assessment. A brief presentation was made on techniques to utilize the full information contained in spatially-explicit data with auxiliary information. It was concluded that the dialogue between the advisory committees and the Statistics Committee must continue to ensure that the needs of both ACFM and ACME are addressed.

## DOCUMENTS

D:1		Report of the Workshop on Sampling Strategies for Age and Maturity, 3-9 February 1994, ICES Headquarters
Ref. G, H, J		
D:2	ICES Fishery Secretary	Progress Report 1993/1994
D:3	J.P. Hillis	<b>Withdrawn</b>
D:4	J.P. Hillis	Use of swept area surveys to calculate fishing mortality (F) in commercial fish
Ref. B, G		
D:5	W.L. Gabriel	Simple method for estimating uncertainty associated with $F_{med}$
D:6	R.A. Myers and N.G. Cadigan	The statistical analysis of catch-at-age data with correlated errors
Ref. G		
D:7	G.T. Evans	Disentangling the inferences of sequential population analysis can reveal underlying problems
Ref. G		
D:8	W.G. Warren	Removal estimates of Atlantic salmon parr: maximum likelihood and Bayesian methods
D:9	W.G. Warren	The effect of fish movement on trawl survey estimates of abundance: The Northern Cod
D:10	J.M. Hoenig <i>et al.</i>	A computationally simple approach to using current and past data in an age-length key
Ref. G, H, J		
D:11	J.M. Hoenig <i>et al.</i>	Testing the equivalence of two age determination methods (or two age readers)
Ref. G, H, J		
D:12		<b>Withdrawn</b>
D:13	W.G. Warren <i>et al.</i>	Estimating the population mean stomach content weight of cod from a stratified stomach sampling
Ref. G		
D:14	P. Petigas	Spatial strategies of fish populations
Ref. G, H, J		
D:15		<b>Withdrawn</b>
D:16		<b>Withdrawn</b>
D:17		<b>Withdrawn</b>
D:18	A.M. Shanks <i>et al.</i>	The use of catch and effort data in the assessment of <i>Nephrops</i> fisheries
Ref. B		
D:19	S.A. Reeves	Seasonal and annual variation in catchability of sandeels at Shetland
Ref. B		
D:20	K. Thorarinsson <i>et al.</i>	The potential effects of variations in proportions mature at age on estimated stock numbers of Icelandic cod

## MARINE ENVIRONMENTAL QUALITY COMMITTEE (E)

Chairman: Mr S. Carlberg  
Rapporteur: Dr J.M. Everaarts

The meeting was opened by the Chairman, who welcomed all participants and expressed the hope that they will appreciate the sessions, participate actively in the discussions and come up with ideas for more Joint Committee and/or Theme Sessions for 1995 and 1996.

### Administrative Matters/Committee Business

The meeting accepted the appointment of Dr J.M. Everaarts as Rapporteur for the three sessions of the Marine Environmental Quality Committee, held on Friday 23 September from 9.00-13.00 hrs, Saturday 24 September from 11.30-13.00 hrs, and Monday 26 September. Nine Working Group reports, including one subgroup report, three Steering Group reports, three Workshop reports and two Study Group reports were presented and discussed. Moreover, four research papers were presented and three posters were contributed. In addition, another two papers and five Working Group reports were also referred to the Committee.

Two Joint Committee Sessions were held:

- a Joint Session on the "Occurrence and Effects of Contaminants in Marine Mammals" in co-operation with the Marine Mammals Committee, and
- a Joint Session on "Quality Assurance of Marine Measurements" in co-operation with the Biological Oceanography Committee and the Hydrography Committee.

There was a proposal for a Theme Session at the 1995 Annual Science Conference on "The Consequences of Manipulation and Management of Nutrient Fluxes for Nutrient - Foodweb Interactions", to be organised co-operatively by the Biological Oceanography Committee and the Marine Environmental Quality Committee, and a proposal for another 1995 Theme Session on "Aquaculture: Understanding the Environmental Interactions" in co-operation with the Hydrography, Mariculture and Shellfish Committees.

**Reports of the Working Groups** (Docs. E:3, E:4, Env:1, Env:2, Env:3, Env:4, Env:5, Env:6 and Env:8)

In all presentations considerations regarding the importance of standardised marine sampling techniques and the quality assurance and quality control of both biological and chemical measurements were emphasised.

A number of areas/topics of significance were specifically discussed:

- Ongoing research in the Baltic marine environment, in particular with regard to identifying the needs of interdisciplinary research and planning and co-ordinating activities to a series of joint experiments already being carried out (Doc. E:3). The Working Group on the Baltic Marine Environment had not been able to perform this planning and co-ordination owing to the fact that many institutes no longer have enough money on their regular budgets to be able to enter into projects that could be internationally co-ordinated. Instead, they have to apply for research funds from the EU. Consequently, ICES no longer holds the initiative for European marine research as ICES used to do. The Committee realised that the problem experienced by the Working Group was really not a specific problem for the Baltic Sea but rather a more "ICES-wide" problem. The new co-operative structures in European marine science included several groups/activities that duplicate those under ICES (see also Doc.E:5, below).

- The MEQC Chairman explained that high-level contacts are being established between ICES and various Directorates General of the EU and that the outcome of this would hopefully lead to a fruitful co-operation. A new role for the Working Group was identified in conjunction with preparations for the 1996 Conference on Baltic Marine Research that ICES has decided to cosponsor together with the Conferences of Baltic Oceanographers (CBO), the Baltic Marine Biologists (BMB), the Baltic Marine Environment Protection Commission (HELCOM), etc. (C.Res.1994/3:3).

- Sediment-related research, both with respect to the effects of the extraction of marine sediments on fisheries (Doc. E:4) as well as the assessment of the bioavailability of contaminants in sediments (Doc. Env:2). Experimental approaches for assessing the bioavailability of contaminants and the development of sediment quality standards were discussed. Another aspect of great concern has been sediment analyses and normalisation procedures to compensate for the influence of natural processes on measured variability in concentrations of contaminants (Env:5). Regarding analysis, the determination of trace metals in suspended particulate matter (SPM) was discussed as well as instrumental and wet/dry analyses of organic carbon and dry/wet sieving techniques. Furthermore, guidelines on the use of reference materials in sediment monitoring and on measuring CRMs in sediments were discussed. Also the results of the inter-comparison programme on the analysis of chlorobiphenyls in sediment were presented.

- Participation of institutes/laboratories in intercomparison and intercalibration exercises. It was reported that there has been a considerable improvement in nutrient analyses as well as organochlorine and trace metal analyses in several laboratories, and that "poor" performers, once identified, can learn significantly (Docs. Env:1, Env:5).
- Monitoring programmes: the objectives and design, and guidelines for the evaluation of the effectiveness of such programmes were discussed (Doc. Env:4). Another aspect discussed was the selection of suitable (additional) organisms for monitoring the spatial distribution of contaminants in biota. The Sub-group on Temporal Trend Monitoring reported on specific topics, such as detailed monitoring objectives, choice of organisms and tissues for monitoring trends in contaminants, the choice of basis and covariables with which to analyse trends, and the power of temporal trend monitoring programmes (Doc. Env:8). Furthermore, statistical aspects of environmental monitoring described in an extensive report (Doc. Env:6) were presented.
- Biological effects of contaminants (Doc. Env:3): In the presentation of the report of the Working Group on Biological Effects of Contaminants, a review was given of a number of terms of reference, such as (1) the objectives of the Working Group and the preparation of a work plan for the next three to five years, (2) the progress in, and results of, the intercomparison exercise on scope for growth measurements in bivalve molluscs, (3) the proposal for an integrated study to examine processes of pollutant transfer and effects on biota, (4) new developments in biological effects monitoring, and (5) evaluation of the potential of methods using molecular and cellular probes for use in biological effects measurements and possibilities for their inclusion in biological effects monitoring. Three categories of biological effects methods available for use in monitoring were discussed, namely (a) methods recommended for problem-oriented monitoring (e.g., DNA-adduction, neoplastic and preneoplastic lesions, liver histopathology, AChE inhibition, metallothionein induction, lysosomal stability), (b) methods recommended for use in monitoring programmes at a national or international level (e.g., whole sediment bioassays, sediment pore water bioassays, water bioassays, benthic community analysis, EROD/Cytochrome P450 A1 induction, imposex, scope for growth) and (c) promising methods which require further research effort before they can be recommended (e.g., liver, gill, kidney histopathology, pollution-induced community tolerance, water bioassays, abnormalities in wild fish embryos and larvae, reproductive success, DNA damage (strand breaks and adduct formation), immunocompetence, ALA-D inhibition, antioxidant enzymes, fluorescent bile metabolites).

#### **Reports of the Steering Groups (Docs. E:6, E:7 and E:8)**

All Steering Groups were dedicated to the Baltic Sea and the reports discussed were directed to (1) the 1993 Baseline Study of Contaminants in Baltic Sea Sediments (Doc. E:6) involving the topics of the distribution and analyses of the samples, quality assurance and data management, and (2) quality assurance of both biological (Doc. E:7) and chemical (Doc. E:8) measurements, encompassing impact assessment guidelines for the Baltic Monitoring Programme (BMP), and a review of the progress in the establishment of quality assurance procedures for chemical measurements in the laboratories which contribute to the BMP.

#### **Reports on the Study Groups (Docs. E:5 and Env:9)**

The Study Group on Environmental Modelling of the Baltic Sea has been working by correspondence and the report (E:5) discussed the determination of the parameters to be included in models that could support the work on coastal/open sea flux studies and reviewed the existing environmental models of the Baltic Sea or its sub-regions and categorise them in relation to their specific goals. It was decided to discontinue the Group.

The Study Group on Occurrence of M-74 in Fish Stocks met at the ICES Secretariat in Copenhagen (1-3 March 1994) in order to review the available information on M-74, propose details for investigations of the causes and mechanisms of the reproductive disturbances and these effects on reproduction and early life stages. A number of factors involved in M-74 were considered, such as rearing environment, nutritional and genetic factors, infectious agents and chemical contaminants (Doc. Env:9)

#### **Reports on the Workshops (Docs. E:9, E:10, E:11)**

All three workshops dealt with quality assurance and stressed the great significance and urgent need to incorporate quality assurance procedures in biological measurements, both pelagic (Doc. E:9) and benthic (Doc. E:10), and in the chemical analytical measurements (Doc. E:11) of the Baltic Monitoring Programme.

The ICES/HELCOM Workshop on Quality Assurance of Pelagic Measurements in the Baltic Sea was held in Warnemünde, Germany, 12-14 April 1994 and focused on the achievements and deficiencies in the BMP regarding bacterio-, phyto- and zooplankton measurements and the calculation of the carbon content of phytoplankton, and suggested QA improvements (Doc. E:9).

The ICES/HELCOM Workshop on Quality Assurance of Benthic Measurements in the Baltic Sea was held in Kiel, Germany, 23-25 March 1994. The report summa-

rised the existing QA programmes and measures for the Baltic Sea, the North Sea and adjacent areas and discussed elements of a new QA programme for the Baltic, such as sampling strategy, ship-board procedures, samplers and sieving processes, laboratory procedures and taxonomy (Doc. E:10).

The ICES/HELCOM Workshop on Quality Assurance of Chemical Analytical Procedures for the BMP was held in Hamburg, Germany, 5-8 October 1994. The topics of the workshop emphasised the role of analytical chemistry in research and monitoring programmes, the need for QA in marine environmental measurements, and the scientific justification for QA for analytical chemical procedures in marine monitoring (Doc. E:11).

**Scientific Contributions** (Docs. E:12, E:15 - poster, E:16; E:17 - poster, E:18, E:20 and E:21 - poster)

Doc. E:12 discussed the occurrence and structure and the nature and origin of X-cell tumours in Atlantic cod (*Gadus morhua* L.), that are lesions which may produce large aggregations that resemble true neoplasms. The paper considered whether these lesions may be related to the presence of anthropogenic contaminants.

Docs. E:15 and E:16 reported on three joint Norwegian-Russian surveys in the Arctic area (Kara Sea and Barents Sea) to assess the impact of radioactive contamination on the marine system and establish the uptake of radionuclides in fish and its impact on fisheries.

Doc. E:17 discussed the occurrence and concentration levels of heavy metals and other elements in the hydrolysate of shellfish species from Northeastern Brazil.

The changes in the pelagic environment in the German Bight during three decades were described in Doc. E:18. Long-term time-series measurements demonstrated that eutrophication was an important factor, but also certain hydrographic events affecting nanoflagellate populations, along with the level of nitrate increase, might have contributed to the observed changes.

Doc. E:20 reviewed a number of methods for the normalisation of metal concentrations in sediments, a study in which metal concentrations were related to several sediment characteristics such as the percentage of aluminium, the concentrations of organic and inorganic-carbon or the lithium concentration. The relation be-

tween the residual method of normalisation and the metal/normalizer ratio was also discussed.

Poster presentation E:21 reported on trend analyses and tissue distributions of polychlorinated biphenyls in cod, flounder and mussel from the Belgian continental shelf during the period 1983-1992.

## **Recommendations**

### Category 2

The Committee endorsed the recommendations with respect to a) the Steering Group for the Coordination of the Baseline Study of Contaminants in Baltic Sea Sediments (C.Res.94/ 2:19), b) the Working Group on the Baltic Marine Environment (C.Res.94/2:21), c) the Steering Group on Quality Assurance of Chemical Measurements in the Baltic (C.Res.94/2:20), d) the Steering Group on Quality Assurance of Biological Measurements in the Baltic Sea (C.Res.94/2:18), and e) the Working Group on the Effects of Extraction of Marine Sediments on the Marine Ecosystem (C.Res.94/ 2:22).

### Category 3

The Committee endorsed the recommendations with respect to a) the proposed merging of the ICES Steering Group on Quality Assurance of Chemical Measurements in the Baltic Sea and the HELCOM-EC *Ad Hoc* Working Group on Chemical Quality Assurance under joint sponsorship as the 'ICES/HELCOM Steering Group on Quality Assurance of Chemical Measurements in the Baltic Sea with the present Chairman and a combination of the present membership, b) the proposed merging of the ICES Steering Group on Quality Assurance of Biological Measurements and the HELCOM-EC *Ad Hoc* Working Group on Biological Quality Assurance under joint sponsorship as the 'ICES/HELCOM Steering Group on Quality Assurance of Biological Measurements in the Baltic Sea', with the present Chairman and a combination of the present membership, c) an ICES/HELCOM Workshop on Quality Assurance and Intercomparison of Pelagic Biological Measurements in the Baltic Sea, and d) a series of ICES/HELCOM Workshops on Quality Assurance and Intercomparison of Benthos Measurement Methods in the Baltic Sea.

## DOCUMENTS

E:1		Report of Activities, 1993
E:2		Editor's Report on <i>ICES Techniques in Marine Environmental Sciences</i> for 1994
Ref.Pub		
E:3		Report of the Working Group on the Baltic Marine Environment, ICES Headquarters, 27-29 April 1994
E:4		Report of the Working Group on the Effects of Extraction of Marine Sediments on Fisheries, Keyworth, UK 3-6 May 1994
E:5		Report of the Study Group on Environmental Modelling of the Baltic Sea, by correspondence
Ref. C		
E:6		Report of the Steering Group for the Coordination of the Base-line Study of Contaminants in Baltic Sea Sediments, Copenhagen 26 April 1994
E:7		Report of the Steering Group on Quality Assurance of Biological Measurements in the Baltic Sea, by correspondence
E:8		Report of the Steering Group on Quality Assurance of Chemical Measurements in the Baltic Sea, Charlottenlund, Denmark 25-26 April 1994
E:9		Report on the ICES/HELCOM Workshop on Quality Assurance of Pelagic Measurements in the Baltic Sea, Warnemünde, Germany 12-14 April 1994
Ref. L		
E:10		Report of the ICES/HELCOM Workshop on Quality Assurance of Benthic Measurements in the Baltic Sea, Kiel, Germany 23-25 March 1994
Ref. L		
E:11		Summary report of the ICES/HELCOM Workshop on Quality Assurance of Chemical Analytical Procedures for the Baltic Monitoring Programme, Hamburg, Germany 5-8 October 1993
E:12	B. Watermann and	Occurrence and structure of cysts in x-cell lesions of Atlantic cod ( <i>Gadus morhua</i> L.)
Ref. F, G	N. Peters & Schmidt	
E:13		<b>Withdrawn</b>
E:14	K.H. van Bernem and	<b>Withdrawn</b>
Ref. D	A. Müller	
E:15	L. Føyn	Dumped radioactive material in the Kara Sea. Report from three joint Norwegian/Russian expeditions
Poster		
E:16	L. Føyn	Radioactive contamination in the Barents Sea, past and present status, uptake of radionuclides in fish and its impact on fisheries
Ref. G, H		
E:17	T. Alkanani <i>et al.</i>	Heavy metals and other elements in the hydrolysate of shellfish species from Northeast Brazil
Ref. K Poster		
E:18	W. Hickel <i>et al.</i>	Changes in the German Bight pelagic environment during three decades
Ref. C, L		
E:19	A. Köhler <i>et al.</i>	<b>Not received</b>
E:20	S. Rowlett and	Methods for the normalisation of metal concentrations in sediments
	D. Lovell	
E:21	P. Roose <i>et al.</i>	PCB's in cod, flounder and mussel from the Belgian continental shelf in the period 1983-1992: trend analysis and tissue distribution.
Poster		

## MARICULTURE COMMITTEE (F)

Chairman: Dr R.H. Cook  
Rapporteurs: Dr T.W. Sephton

### Committee Business

The Committee held a business session followed by two special topic sessions: Mariculture and Coastal Zone Management, and Parasites in Mariculture. Seven Working Group reports, 16 verbal and 7 poster presentations were also reviewed and discussed. The Chairman also informed members of the following documents relevant to Mariculture: G:41, J:20, M:3, M:16, M:27, E:12, Env:7, Env:9, and also M:8, M:10, M:13, K:10. Prof. H. Ackefors agreed to adjudicate the poster presentations on behalf of the Committee.

The Chairman opened the meeting with the appointment of Dr. T. Sephton (Canada) as rapporteur, and adoption of the Agenda. The Chairmen reviewed the general meeting format as endorsed by the Consultative Committee through the Orders of the Day (as printed on the Green pages) and highlighted: the new format of the Annual Science Conference, and the requirement for strict adherence to presentation time limits, the emphasis for joint Committee participation in Theme Sessions, and the new role of the Opening Lecture.

The previous Mariculture Committee recommendation for the 1995 Open Lecture to be given by Prof. J.T. Carlton (USA), was again confirmed on the proposed topic: "Ballast Water: The Ecological Roulette of Marine Biological Invasions". The Open Lecture would be followed by a Theme Session on "Ballast Water: Ecological and Fisheries Implications".

The Chairman thanked those 13 members who contributed to the Committee's Activity Report (Doc F:1) and invited comments. Representatives were also requested to advise the Chairman as to whether the Committee should continue to publish an Activities report since a possible change in the Rules of Procedure may determine that the report may no longer be required by ICES. There was strong consensus that these reports were useful to the members and that the Committee should continue to collate reports on the development of mariculture from the members. Publications of interest were received from 4 members (Doc F:2) and the Chairman requested the representatives to consider the validity of continuing this practice with the world wide availability of primary publications through electronic means. It was suggested in the future that the members concentrate their efforts on identifying secondary "grey literature" publications of interest to the Committee that would not normally be accessible through electronic

literature searches. The identification of papers of relevance to Committee interest, but not written in English, was also discussed. The Mariculture Committee recommendations were reviewed, with final comments received from members, and adopted (C. Res. 2:23-2:28). The Committee reviewed and adopted the basic operating principles of the Committee which included the Working Group structure and function, the roles and responsibilities of the Committee and the identification of Theme Sessions for inclusion in the 1995 Annual Science Conference. Theme Sessions identified and proposed for 1995 were:

#### 1995

- a) Mariculture: Understanding Environmental Interactions
- b) Advances in Marine Fish Culture

#### 1996

Proposals for future Committee Special Topics in 1996 included:

- a) Genetically Modified Organisms.
- b) Mariculture implications of wild fish and shellfish disease carriers.

#### 1997

Symposium: Interaction of wild, ranched and reared Atlantic Salmon (co-sponsored by both Mariculture and ANACAT Fish Committees).

The Committee requested that Working Group Chairmen poll their members at Working Group meetings for suggestions for Theme Sessions and Committee Special Topics that could be considered at future meetings of the Committee.

The need for improved liaison with other international aquaculture organisations was raised. It was agreed that observers from other International organisations (in particularly WAS, EIFAC and NSA) should be invited to attend Working Group and Committee meetings in the future but it must be assured that financial arrangements would be borne by their respective organisations or at national expense. The Chairman agreed to follow up on this proposal.

The Committee recommended that more time be available for the presentation of Working Group reports and subsequent discussion as well as for presentations given in Committee Special Topics.

## Working/Study Group Reports

The Chairman asked Working Group Chairman or their representatives to summarise briefly the deliberations and present the recommendations of their respective Groups.

Prof. H. Rosenthal (Germany) reported on the activities of the Working Group on Environmental Interactions of Mariculture (WGEIM) (Doc F:3) which met in Cork, Ireland, from 28-31 March 1994. The Working Group will work by correspondence in 1995 in preparation for their 1996 meeting. He reviewed the terms of reference for the Working Group which included the following activities: review of environmental and biological interactions of mariculture, coastal zone planning and management, identification of long term research to resolve user conflicts, compilation and comparison of national monitoring programmes, study of the effects of new culture systems, examination of particle bond and complex contaminants, identification of ecotoxicology guidelines for evaluating therapeutants. Several research priorities were identified which included the study of bioavailability and bioactivity of therapeutants and chemicals used in mariculture, their detection and corresponding environmental sensitivity, and both their near- and far-field effects.

Prof. J. Mork (Norway) presented the report of the meeting of the Working Group on the Application of Genetics in Fisheries and Mariculture (Doc F:4) held at ICES, from 9-11 March 1994. Following last years recommendation from the Committee, the Working Group divided itself into two Sub-groups to address the two major themes: Quantitative and Qualitative Genetics under the chairmanship of Drs. Friar and Thompson, respectively. The Sub-group format worked well in light of the general fiscal restraint which would have otherwise prevented many members from participating at a general Working Group meeting. Issues of continuing interest to the Working Group include: review of qualitative and quantitative aspects of population genetics, review of sterilisation techniques in light of recent sex reversals of triploid oysters to mosaics and diploids, and reviewing fishery and mariculture genetic research protocols of member countries.

Dr A. McVicar (UK) reported on the activities of the Working Group on Pathology and Diseases of Marine Organisms (WGPDMO) (Doc F:5) which met in Moncton, Canada, from 21-26 March 1994. WGPDMO continues to maintain a close watch on the occurrence of new or changing disease conditions of both wild and cultured marine fish, crustaceans and mollusc populations. Improved virology techniques are required to detect some new diseases which are appearing in many cultured species, particularly molluscs. Both cold water vibriosis and sea lice continue to be the major problems facing cultured salmon. *Bonamia* in flat oysters is

spreading quickly in many areas of Europe and the UK while *Perkinsus marinus* in American oysters continues to spread along the eastern seaboard of the USA. The Working Group remains in contact with the ACME regarding M-74 syndrome in Baltic salmon and other the links between pollution and disease in the form of fish tumours. With increasing development of new detection techniques for parasites and disease there is a need for an intercalibration and standardisation of techniques among member countries. The Working Group is planning to meet in La Tremblade, France in 1995.

Dr T. Lang (Germany) presented a report of the Sub-Group on the Statistical Analysis of Fish Disease Data (Doc. F:7) which continues to analyse trends in the prevalence of fish diseases. It was suggested that the database should be expanded to include all sources of disease prevalence information (from cultured fish and molluscs) other than just wild fish. The Sub-group reviewed the relationship between existing and new data and concluded that because the reporting format has changed from batch to individual fish reporting that a new data entry program be developed to assist member countries to enter the volumes of data that are now being reported.

The report of the Working Group on Introductions and Transfers of Marine Organisms (Doc. Env:7) was presented by the Working Group Chairman, Prof. J.T. Carlton (USA) which met in Mystic, USA, from 20-22 April 1994. The revised Code of Practice developed by the Working Group, is ready for release and should also be published in a recognised scientific publication to broaden its world wide distribution. The Working Group has provided advice in response to a request from Ireland on the conditions and restrictions that should be followed for the introduction of hybrid striped bass from the USA. Japanese kelp has been successfully introduced to France and some self reproducing populations have been reported. The Working Group will work closely with FAO to assist them in developing their Protocols for Introductions and Transfers of Marine Organisms. The problems associated with the world-wide movement and release of ballast water, particularly in light of the recent ruling requiring the use of double hulls, remains of concern and interest to the Working Group and will result in a special theme session on this topic in the near future.

The report of the Working Group on the Mass Rearing of Juvenile Fish (Doc. F:6) (which worked by correspondence in 1994) was presented by Ms J. Støttrup (Denmark). The Working Group recognised that there is a need to develop a standard diet for juvenile marine fish which would allow the comparison of nutritional performance results among member countries. There should also be standard methods developed to determine and assess egg and juvenile quality used in control studies. A new Table 6 was made available for the

Working Group report which corrected earlier typing errors.

Ms J. Støttrup (Denmark) also presented the report of the Workshop to evaluate the Potential of Stock Enhancement as an Approach to Fisheries Management (Doc F:9) which was held in Copenhagen, from 19-24 May 1994. There is increased interest in the rearing and use of enhancement methods for wild fish because of declining natural populations in many parts of the world and this resulted in an excellent participation from many countries. The Workshop examined methods to alleviate overlap with how traditional fisheries managers used to assess stocking and enhancement techniques. Case studies for round fish, flat fish, lobster and artificial reefs were examined in light of 1) whether the carrying capacity of the area could be manipulated or increased, 2) the fitness of the animal released in the new environment could be critically assessed, 3) the economic feasibility of the method utilised. Three main options remain for enhancement: modified fisheries management practices, stocking and habitat manipulation.

#### Scientific Contributions

A Special Topic Session entitled "Mariculture and Coastal Zone Management (CZM)" was convened by Prof. H. Rosenthal (Germany) with presentations from around the world. A case study of the Seto Inland Sea (Japan) (Doc. F:31) showed how that country is addressing the relationship of mariculture and environmental change by monitoring and regulating nutrient concentrations that influence the appearance of toxic algal blooms. A review of the coastal zone research in different Asian countries (Doc. F:27) showed how a lack of co-ordinated communication among different government departments with responsibilities for aquaculture can cause developmental problems, particularly when specific mariculture legislation does not exist. The Swedish model used for CZM (Doc. F:10) showed how an integrated multi-level government approach was very efficient in resolving and preventing user group conflicts while defining future mariculture development. The planning process for CZM (Doc. F:28) encouraged the approach of integrating all levels of government and users of renewable resources. The paper advocated moving from a management policy based on a single land based activity to a multiple user functioning ecosystem approach. Norway is using modelling methods for CZM (Doc. F:26) and is incorporating carrying capacity and environmental impact models to determine mariculture loading and the appropriate environmental monitoring required. The Canadian Nova Scotia example (Doc. F:23) showed how both direct community involvement and their perceptions must be included in a proactive manner to resolve CZM problems. The discussion

which followed revolved around the point that CZM is based on understanding the ecosystem carrying capacity of the mariculture site and the inter-relationships of all the coastal activities, including the regulatory framework of the different government managers. CZM is a basic cornerstone for the continued development of mariculture in response to the need for organised sustainable development.

The Special Topic Session entitled "Parasites in Mariculture" was convened by Drs A. McVicar (UK) and S. McGladdery (Canada) and examined the role of parasites and diseases of fish and shellfish in mariculture. Parasites and disease of salmon dominated the session while there were presentations on halibut, cod, oysters and sampling techniques. Understanding the central role of parasites under stressed and unstressed mariculture conditions is extremely important if potentially devastating situations are to be avoided.

An overview of the parasites of Atlantic cod was presented (Doc. F:22) and showed that pollutants can act synergistically with parasites to reduce overall growth efficiency and production at the aquaculture site, sometimes lead to pathogenic situations. These presentations concentrated on the effects of sea lice (*Lepeophtheirus salmonis*) on salmon farming (Docs. F:13, F:14, F:17 and F:21) and methods for their control. A sea lice inspection program in Ireland (Doc. F:13) revealed that infestations were reduced at many sites over a period of time possibly due to husbandry practices and effective chemotherapy treatment. The different life stages of sea lice were studied (Doc. F:14) to better understand their biology and ways of infecting both wild and ranched salmon. Copepodids were discovered in epibenthic samples and could infect salmon when the fish were feeding or in close proximity. The development of a vaccine to control sea lice infections was presented (Doc. F:17) and efforts are being made to identify a so-called hidden antigen of previously infected salmon. A few potentially protective antigens are now being tested for their protective efficacy against sea lice. Immunisation with whole louse famogates were not found to be protective in fish while work is now concentrating on proteins expressed by recombinant DNA technology from the sea lice gut liver. A comparison of the effects of dichlorvos and pyrethrins treatments against sea lice was presented (Doc. F:21) and, although dichlorvos was shown to be a slightly better delousing treatment, on-growth was more rapid. Notice was given of the poster presentation of sampling methods used to detect infections (Doc. F:19) and the paper (Doc. F:8) which was read by title only.

A review of the potential for Pacific oysters (*Crassostrea gigas*) to serve as reservoir and carrier host of oyster pathogens was presented (Doc. F:30). Evidence showed

that Pacific oysters can serve as a host to microcell disease and could subsequently infect other oyster species causing mortalities. It was concluded that extreme care

must be used when transplanting Pacific oysters to ensure that they are not carrying unwanted diseases to receiving waters.

## DOCUMENTS

F:1		Report of Activities, 1993
F:2		Publications of Interest to the Mariculture Committee, 1993
F:3 Ref.E		Report of the Working Group on Environmental Interactions of Mariculture
F:4		Report of the Working Group on the Application of Genetics in Fisheries and Mariculture
F:5 Ref. E		Report of the Working Group on Pathology and Diseases of Marine Organisms
F:6		Report of the Working Group on Mass Rearing of Juvenile Marine Fish
F:7 Ref. E		Report of the Sub-Group on Statistical Analysis of Fish Disease Data
F:8	C.M. Morrison and C.A. MacDonald	Description of the trophozoites and spores and discussion of taxonomy of myxosporean parasites in the gallbladder of the Atlantic halibut, <i>Hippoglossus hippoglossus</i> .
F:9 Ref. G, K		Workshop to Evaluate the Potential of Stock Enhancement, Charlottenlund
F:10 Ref.E	H. Ackefors and K. Grip	Swedish coastal zone management - a system for integration of various activities
F:11 Ref. G Poster	D. Wiseman and J.A. Brown	Effects of prey density and temperature on early growth and survival of common wolffish larvae
F:12 Ref. G Poster (c)	F. Shahidi and E. Dunajski	Mariculture of farmed cod ( <i>Gadus morhua</i> )
F:13	D. Minchin and D. Jackson	Monitoring of sea-lice infestations of farmed salmonids in Ireland 1991-1994
F:14	D. Jackson <i>et al.</i>	Observations on the larval stages of the salmon louse, <i>Lepeophtheirus salmonis</i>
F:15 Ref. K Poster	A. Littaye-Mariette	Monitoring the growth of <i>Crassostrea gigas</i> in French oyster farming areas, protocol and results of 1993
F:16 Ref. G Poster (c)	A.K. Imsland <i>et al.</i>	Studies on haemoglobin genotypes in Turbot and their relation with growth
F:17 Ref. M	R.S. Raynard <i>et al.</i>	Development of a vaccine for the control of sea lice ( <i>Lepeophtheirus salmonis</i> and <i>Caligus elongatus</i> ) in Atlantic Salmon ( <i>Salmo salar</i> )
F:18		<b>Withdrawn</b>
F:19 Ref. D	S. Des Clers	Sampling to detect infections and estimate prevalence in aquaculture

F:20 <b>Poster</b>	I.B. Falk-Petersen <i>et al.</i>	Fertilization, egg-incubation and development of the spotted wolffish, <i>Anarhichas minor</i> , a new species in aquaculture
F:21	K. Boxaspen	Comparison of the effect of dichlorvos and pyrethrins against salmon lice ( <i>Lepeophtheirus salmonis</i> ) parasitic on salmon ( <i>Salmo salar</i> ) by one or successive treatments.
F:22	R.A. Khan	Parasites as potential pathogens in Atlantic cod mariculture
F:23		<b>Withdrawn</b>
F:24		<b>Withdrawn</b>
F:25 <b>Poster</b>	D. Kieser	Decision-pathways used to adjudicate the introduction and transfers of live aquatic organisms into and within British Columbia
F:26	A. Ervik and P.K. Hansen	Case histories and new approaches to planning and modelling for Norwegian mariculture
F:27	T.E. Chua	Review of the coastal zone profile research work within Asean countries with special emphasis on mariculture
F:28	P. Burbridge	Planing process in coastal zone management
F:29		<b>Withdrawn</b>
F:30	S.M. Bower <i>et al.</i>	Potential for the Pacific oyster, <i>Crassostrea gigas</i> to serve as a reservoir host and carrier of oyster pathogens
F:31	O. Matsuda	Mariculture and coastal zone management in Japan: the case of the Seto Inland Sea
F:32 Ref. Pub.	G. Olivier	ICES Identification Leaflets for Diseases and Parasites of Fish and Shellfish. Editors Report 1993/1994.

## DEMERSAL FISH COMMITTEE (G)

Chairman: Mr E. Aro

Rapporteurs: Drs A. Temming and B. Atkinson

The Demersal Fish Committee held two sessions on 22 and 26 September.

The Chairman opened the meeting and Drs. Axel Temming and Bruce Atkinson were appointed rapporteurs. The Agenda was adopted. It was noted that three more (in addition to those mentioned on the green pages) papers (G:13, G:18, G:39) were withdrawn, and that five papers (G:23, G:24, G:25, G:31, G:34) were missing. The Chairman brought the awards for best paper presentation, the best poster and young scientist's awards to the attention of the members and asked for suggestions, which should preferably be handed over to him together with some explanatory notes.

### Matters Referred by the Consultative Committee

The Chairman brought the dates of the election of new chairmen in five Committees to the attention of the members. He informed the members about the present state of the discussion about changes in the structure of the ICES system.

### Report of Activities

The report (G:1) was presented by the Chairman. He noted that this year, the contribution for the UK (Scotland) for 1992 and 1993 was included in the Report. He reported that concerns were expressed in the Consultative Committee about the amount of effort that is going into the production of this 132 page document. The usefulness of this document was discussed and it was felt that there exists a disparity between the effort put into the compilation of the data and the use made of this information.

### Publications of Interest to the Demersal Fish Committee

The report (G:2) was not received by the Committee and was withdrawn. This has happened for the past four years.

### Reports of Study Groups

A total of three reports were presented by the Chairman of the Demersal Fish Committee.

Doc. G:4. The Report on the Study Group on Redfish Stocks.

Doc. G:5. The Report of the Study Group on Beam Trawl Surveys.

Doc. G:6. The Report of the Study Group on the Coordination of Bottom Trawl Surveys in Sub-areas VI, VII and VIII and Division IXa. Information was given that the present chairman is not willing to continue in this position and that therefore a new chairman has to be appointed; otherwise the Study Group will be dissolved. It was suggested that this Study Group could be integrated into the International Bottom Trawl Survey Working Group, since this would also reduce the total number of groups. It was also suggested that the International Bottom Trawl Survey Working Group should be transferred from the Pelagic Fish Committee to the Demersal Fish Committee.

### Recommendations:

The Chairman presented six recommendations in Category 2 and one in Category 1:

1) **Saithe Study Group.** It was commented that no tagging experiments have been carried out recently on this species in the ICES area, so that the data basis for such an analysis is likely to be weak.

2) **Planning Group on Multispecies Assessment of Boreal Systems.** It was commented that the last planning group that was asked for by the Multispecies Assessment Working Group was not really necessary since it was recognised during the meeting that the work was already in progress at one of the national institutes. It was replied that the aim of the present planning group is to prepare work protocols, data and programs for the next meeting of the Multispecies Assessment Working Group in Bergen (Norway). Experience in the past has shown that this kind of preparation is necessary for the success of the complex analysis intended at the meeting. A successful example of this kind of preparation meeting was the meeting of the Study Group on the Analysis of Feeding Data in St. John's in 1992.

3) **Study Group on Beam Trawl Surveys.** It was suggested that the status of this group should be changed into a Working Group, so that the group does not need to justify its existence year by year. It was stated that the results produced by this group are requested regularly by the Assessment Working Groups which are supplied with CPUE data by species and age class. The Study Group, furthermore, produces data of relevance for the study of non-target species.

4) **Working Group on Elasmobranch Fishes.** The recommendation was supported by members of the Committee, but it was suggested that it should start as a

Study Group and be changed later into a Working Group.

**5) Workshop on Sandeel Otolith Analysis.** It was noted that the terms of reference refer to what the group is intended to do, rather than stating what it is intended to achieve. The idea was put forward that ICES could set up some kind of standard protocol for this type of workshop.

**6) Cooperative Research Report on 1991 Stomach Sampling Project in the North Sea.**

**7) Study Group on Bottom Trawl Surveys.** The Committee felt that the work of this Study Group should be combined with that of the International Bottom Trawl Survey Working Group and thus the Study Group should be dissolved.

The above recommendations were discussed and adopted with some amendments.

#### **Proposals for Special Topics 1995, Theme Sessions 1995 and 1996, Symposia and Workshops**

The existing suggestions were presented by the Chairman.

#### **Scientific Contributions**

##### Posters

Only one poster (Doc. G:36) was presented to the Committee. It described observations on anomalies in the eye anatomy of anglerfish in the Celtic Deep, which effectively lead to blindness of these fish. However, no conclusions can be drawn yet with regard to reasons for these anomalies.

##### Redfish

Three papers dealt with redfish.

Doc. G:44 described the results of a joint Icelandic-Norwegian survey on oceanic redfish in the Irminger Sea, which estimated a total stock biomass of 2.2 million tonnes. This value was considered to be an underestimate due to limited spatial coverage and problems with diurnal migrations. The main concentrations were found between 100 and 250 m.

Doc. G:34 described the results of a Russian trawl acoustic survey for *Sebastes mentella* in the Irminger Sea. The accuracy of the acoustic results was discussed with regard to the fact that mainly individual fish echoes were recorded.

Doc. G:33 was read by title only.

##### Resource Estimates

Doc. G:38 presented information on the Norwegian coastal resources. The investigation aimed at a better understanding of the differences between coastal cod populations and the Barents Sea cod. Members of both groups are distinguishable by means of their otolith structure; however, altogether four different types of otoliths can be identified. It was stressed that the coastal populations should be managed independently from the Barents Sea cod.

##### Surveys, Distribution and Abundance

Doc. G:3 summarised results of the international 0-group fish survey in the Barents Sea in August-September 1993. The results indicate a strong increase in the recruitment of cod and haddock, a good herring year class, a decrease in redfish recruitment and a dramatic fall in the estimates of Greenland halibut. The observed period of good recruitment in the gadoids is the longest since the 1950s and recent strong year classes are associated with above average temperatures. The year class indices of these surveys have in most years been confirmed by the catch rates in subsequent years.

Doc. G:45 reported on the 0-group fish survey in Icelandic in Greenland waters. Indices for cod and haddock are poor, those for capelin very high and those for redfish well below the 10 year average, but still higher than in 1993. The correlation between these indices and year class strength is sometimes obscured through cannibalism. It was stressed that the continuation of this survey is mainly of relevance for ecosystem investigations. In the last survey clear differences in the condition of 0-group cod and haddock were detected.

Doc. G:10 presented an overview of the results of beam trawl surveys carried out in the coastal zone of the south-eastern North Sea between 1980 and 1983 with regard to changes in species composition with time and geographical location. Some preliminary trends were presented, but it was stressed that the interpretation of the data requires further analysis.

Doc. G:35 described the influence of substratum type on the distribution of cod, haddock and whiting. Since the majority of trawl survey stations are located on soft bottoms, it was investigated if stations on hard bottom would reveal different results. It turned out that whiting and haddock prefer soft bottoms while cod was more associated with a hard substratum.

Doc. G:27 dealt with length-dependent correction of survey estimates of cod and haddock in the Barents Sea. The corrections were based on the estimation of the length-dependent escape of fish underneath the ground

rope and over the sweeps of the trawl. The abundance estimates of the smallest size groups were underestimated by a factor of up to 6. However, even with the corrections applied, the young age classes are in some cases underestimated, since the estimates for the same year classes increased in subsequent years.

Doc. G:21 described the distribution of megrim in Division IXa. It was stressed that the distribution patterns of juvenile and adult megrim differ substantially.

Doc. G:40 was read by title only.

### Monkfish Biology

Doc. G:19 described some aspects of the biology and distribution of black and white monkfish including information on seasonal distribution, nursery grounds, sex-ratio, maturity and food habits. The data were collected on board research and commercial vessels from 1989 to 1993, and were considered useful for assisting in the assessments of these resources.

Doc. G:22 provided estimates of the annual relative abundance of black and white monkfish from 1983 to 1993, as well as examining their distribution by depth strata over the same period. It was concluded that while black monkfish biomass had remained stable, the biomass of white monkfish was higher in the period 1983-1986 but declined thereafter. No significant differences in distribution with depth were found for either species.

### Nullum Gratuitum Prandium

Doc. G:7 examined whether a cod bioenergetics model could explain the growth of Northeast Arctic cod. Maximum daily consumption was estimated from the examination of 33,000 stomachs. This, along with other factors, was incorporated into a bioenergetics model to predict the growth energy value. Based on field data from 1990, the amount of assimilated energy allocated for each of the components varied with season, with the highest conversion efficiency occurring during the first half of the year. Based on the results, it was concluded that the model represents a valid application of the bioenergetic approach for Northeast Arctic cod. It was revealed that good comparisons have also been achieved more recently using 1993 data, and that the model was used by the Arctic Fisheries Working Group to predict growth for 1994 assuming similar stomach contents and a decline in temperature.

Doc. G:41 described an experiment to determine if enhanced growth due to locomotion represents only a shift of biomass within the body leading to an increase in water content (fake growth). It was found that the increased growth by swimming fish was due to increased muscle growth with a higher dry weight and thus that the growth is 'real.' Although it was pointed out that

care must be taken when extrapolating results of such laboratory studies to the field, it was agreed that the above results were probably reasonable because the fish had not been fed high energy food as is the case in many earlier experiments.

Doc. G:9 presented a study of changes in somatic growth of North Sea plaice since 1950 based on back-calculated annual length increments as determined from otoliths. Growth rates increased for fish <25 cm during the 1960s but declined again during the 1980s. Larger fish did not demonstrate any trends over time. Changes in growth of the smaller plaice were correlated with density, eutrophication and beam trawl effort but not temperature. The contributions of the correlated factors differed in space, however. Density affected the smaller fish, eutrophication dominated in shallow coastal waters, and beam trawling impacted in the waters offshore. It was recommended that this type of back-calculation study be attempted for other resources. Care in sample selection is needed to minimise the possible effects of Lee's Phenomenon.

Doc. G:26 presented methodology and results of ageing black monkfish and white anglerfish using *illicia*. Differences in growth were observed for males and females, with females attaining greater lengths. Von Bertalanffy growth parameters were presented for both species. Preliminary age validation was also carried out. Although the results are preliminary, the authors suggest that they should be used in future assessments.

Doc. G:16 presented a new method to apply when quantifying predation of cod on Barents Sea capelin. It described the fitting of a simple feeding model for cod to the distribution of stomach contents from field data on individual cod stomachs. It was considered that this approach represents an improvement in the current practice of assuming a constant evacuation rate which is dependent only on stomach fullness after the last meal. The results were found not to be sensitive to the feeding model used. Further work is necessary to extend this application to other feeding situations and other times of the year.

Doc. G:8 was read by title only.

Doc. G:42 presented the results of analyses of whiting stomachs collected in the North Sea during the 1991 ICES Stomach Sampling Project. It was stated that it was intended to publish this report in the near future in the *Cooperative Research Report Series*.

### Recruitment, Spawning and Maturity

Doc. G:37 presented the results of an analysis of about 200 fish populations to determine if recruitment is related to spawner abundance. Results indicated that in almost all cases highest recruitment occurs when

spawner biomass is high, lowest recruitment when spawner biomass is low, and that mean recruitment is higher when spawner biomass is above the median rather than below. The authors conclude that spawner abundance must not be ignored in the management of fish populations.

Doc. G:30 was read by title only.

#### Catchability, Fishery and Management

Doc. G:14 discussed a number of sources of imprecision and inter-annual variability in research trawl estimates of abundance and population parameters. Variations in vertical distribution and diurnal effects on  $q$  both play roles, but social behaviour must also be considered. There are probably differences in catchability with season and this may be related to social behaviour as it relates to fish distribution. Individual fish may behave differently with respect to the trawl than schools and have a lower resultant  $q$ . This may have implications during periods of low and high abundance in that survey estimates could be negatively biased when density is low. Modern observation techniques may help in addressing some of these problems leading to better survey estimates.

Doc. G:11 presented the results of an experimental fishery in a protected area on Georges Bank based on data collected by observers. Catch rates were greater for almost all of the groundfish species considered within the protected area suggesting higher densities inside this area. Prohibiting a commercial fishery inside this area therefore prevented high concentrations of fish from being exploited. It was considered prudent to maintain this closed area as one of a suite of conservation measures aimed at eliminating the overfished condition of these stocks.

Doc. G:20 described attempts to improve the CPUE indices for monkfish and megrims in order to improve the assessments of these species. Results suggested that

restricting the analyses to boats landing these species is the best approach. The analysis indicated a decline in monkfish catch rates after 1989, whereas the CPUE for megrim remained fairly stable.

Doc. G:29 presented information which suggested that the discarding of undersized cod, plaice and sole was very low, but that the discarding of dab and whiting could be quite high depending on season and area fished. The fishermen's selectivity corresponded closely with the minimum landing size for cod, plaice and sole reflecting their high market value. Conversely, dab selectivity was above the minimum, reflecting a lower overall market value. It was cautioned that these data represent results from only two vessels during two months of one year.

Doc. G:28 was read by title only.

Doc. G:43 presented an approach which may be employed to help define the limits of levels of exploitation which will reduce the possibility of stock collapse to an acceptable level. The concept of "minimum biologically acceptable level" (MBAL) was considered to be the major objective of fisheries biologists in providing advice. It should be considered a boundary condition when formulating long-term objectives. A long-term model which helps achieve objectives was presented as well as a short-term application of the model.

#### **Other Business**

The Chairman inquired if participants had given consideration to nominations for the Young Scientist Award, Best Paper Award and Best Poster Award. There were no suggestions put forward so the Committee did not make any proposals this year.

There being no further business, the Demersal Committee Session was closed on 26 September 1994 at 16.05 hrs.

#### **DOCUMENTS**

G:1	Report of Activities, 1993
G:2	<b>Withdrawn</b>
G:3 Ref. H	Preliminary report of the International 0-Group Fish Survey in the Barents Sea and Adjacent waters in August-September 1993
G:4	Report of the Study Group on Redfish Stocks, Copenhagen 2-3 May 1994
G:5	Report of the Study Group on Beam Trawl Surveys, by correspondence
G:6 Ref. H	Report of the Study Group on the Coordination on Bottom Trawl Surveys in Sub-areas VI, VII, and VIII and Division IXa, by correspondence

G:7 Ref. D	A.M. Ajiad <i>et al.</i>	Can a bioenergetics model explain growth of the Northeast Arctic Cod?
G:8		<b>Withdrawn</b>
G:9 Ref. D, L	A.D. Rijnsdorp and P.I. van Leeuwen	Changes in growth of North Sea plaice since 1950 and its relation to density, eutrophication, beam trawl effort and temperature
G:10	P.I. van Leeuwen <i>et al.</i>	Variations in abundance and distribution of demersal fish species in the coastal zone of the southeastern North Sea between 1980 and 1993
G:11	P. Gerrior <i>et al.</i>	How 'mixed' is the mixed species trawl fishery on Georges Bank? or evaluating fishery performance via an observer program
G:12		<b>Withdrawn</b>
G:13	T. Neudecker and U. Damm	<b>Withdrawn</b>
G:14 Ref. B	O.R. Godø	Natural fish behaviour and catchability of groundfish
G:15		<b>Withdrawn</b>
G:16 Ref. D	S. Tjelmeland and J. Alvarez	<b>Not received</b>
G:17		<b>Withdrawn</b>
G:18	F. by Cardador and A M Caramelo	<b>Not received</b>
G:19	M. Azevedo	<b>Not received</b>
G:20	M. Azevedo	An attempt to estimate fishing effort in a mixed fishery: application to the Portuguese monkfish and megrims commercial landings
G:21	A. Silva and M. Azevedo	Abundance and distribution of megrims, <i>Lepidorhombus boscii</i> and <i>L. whiffiagonis</i> in ICES Division IXa (Portuguese waters)
G:22	M. Azevedo and P. Pereda	Comparing monkfish ( <i>Lophius piscatorius</i> and <i>L. budegassa</i> ) abundance in ICES Division VIIIc by year and depth strata
G:23 Ref. B	H. M. Dinis	<b>Not received</b>
G:24 Ref. D	D. Nowicki <i>et al.</i>	<b>Not received</b>
G:25	K. Gorchinsky <i>et al.</i>	<b>Not received</b>
G:26	R. Duarte <i>et al.</i>	Study on the growth of black monkfish ( <i>Lophius budegassa</i> , Spinola) and white anglerfish ( <i>L. piscatorius</i> , L.) of ICES Stock in Division VIIIc + Ixa
G:27 Ref. B	A. Aglen and O. Nakken	Length dependent corrections of survey estimates of cod and haddock in the Barents Sea
G:28	M.M. Martins <i>et al.</i>	Evolution of the Portuguese fishery of black scabbard fish ( <i>Aphanopus carbo</i> Lowe, 1839) during the period 1984-1993
G:29 Ref. K	F. Redant and H. Polet	Introduction on the finfish by-catches and discards in the Belgian Norway lobster ( <i>Nephrops norvegicus</i> ) fishery
G:30	I.Ya. Ponomarenko and N.A. Yaragina	Maturity rate of the Lofoten-Barents Sea cod in 40s and 90s

G:31	O.V. Smirnov <i>et al.</i>	Results of Russian investigations for Greenland halibut from the Norwegian/Barents Sea stock in 1993
G:32	V.K. Ozhigin <i>et al.</i>	Dependence of the Barents Sea cod growth upon conditions of their feeding on capelin and water temperature
G:33 Ref. L	V. Shibanov and S.P. Melnikov	Status of the commercial stock of redfish ( <i>Sebastes mentella</i> Travin, Oceanic type) in the Irminger Sea in 1993 as evaluated by Russian Ichthyoplankton Survey
G:34 Ref. B	V.M. Shibanov <i>et al.</i>	Results of the Russian Trawl Acoustic Survey for <i>Sebastes mentella</i> of the Irminger Sea in 1993
G:35	P.J. Bromley and T. Watson	The effect of sea bed type on the distribution of cod, haddock and whiting in the North Sea off the north east coast of England
G:36 Poster	D. Bucke <i>et al.</i>	Pathological investigations into pigment anomalies and blindness in angler fish ( <i>Lophius piscatorius</i> and <i>L. budegassa</i> ) from the Celtic Deep
G:37 Ref. H	R.A. Myers and N.J. Barrowman	Is fish recruitment related to spawner abundance?
G:38	J.E. Eliassen <i>et al.</i>	Coastal and fjord resources off Finnmark and Troms Counties, Norway, based on the 1992 survey
G:39	P. Solemdal <i>et al.</i>	<b>Not received</b>
G:40	Yu. M. Lepesevich <i>et al.</i>	Russian investigations on cod and haddock in the Barents Sea and adjacent waters in November 1993 - January 1994
G:41 Ref. F	C. Hammer and G. Schwarz	The effect of endurance swimming on growth, body composition and calorific content of 0-group whiting ( <i>Merlangius merlangus</i> , Gadidae)
G:42 Ref. H	A.P. Robb <i>et al.</i>	Analysis of the whiting stomachs collected in the North Sea during the 1991 ICES Stomach Sampling Project
G:43	F.A. van Beek	The "one and only" management objective of fishery biologists
G:44	J. Magnússon <i>et al.</i>	Report on the Joint Icelandic/Norwegian Survey on Oceanic Redfish in the Irminger Sea and Adjacent Waters, in June/July 1994
G:45		Report on the 0-Group Fish Survey in Iceland & East Greenland Waters, August 1994

## PELAGIC FISH COMMITTEE (H)

Chairman: Mr O. Hagström  
Rapporteur: Dr R.L. Stephenson

The Committee held three short sessions (24, 26 and 27 September). In opening the first session, the Chairman noted that the Committee's agenda was shorter than in previous years and dealt mostly with Committee business. This was in keeping with recommendations of previous meetings that a greater emphasis be placed on Theme Sessions and Mini-Symposia, and less on Committee meetings.

The agenda focused on Committee Business and on Working/Study Group reports, with a relatively small section on other scientific contributions.

### Committee Business

The Report of Activities (Doc. H:1) was tabled by the Chairman for information.

The Committee continued the discussion of the previous year regarding its future organisation, its position in the general structure of ICES, and the structure of future Annual Science Conferences.

This year's Annual Science Conference was considered to have been a success. The increased emphasis on Theme Sessions was good in that it stimulated focused discussion on specific issues, including some of a cross disciplinary nature. The suggestion was made that key theme speakers be given more time to present syntheses, that there be more time for discussion and debate, and that some consideration be given to attracting keynote speakers by subsidising travel expenses.

Committee members discussed the issue of the future role of the Pelagic Fish Committee. Committee members expressed the view that they did not want to be defensive - and did not oppose the concept of a restructuring of ICES Committees, so long as the new structure met their needs, and improved function. Some members, for example, depend upon this Committee to give their work a context and rationale. It was suggested that restructuring might have to be major - and needs to be based on an overall strategy which addresses the question "why do we have the Committees, and what do we want them to do?". Committees should stimulate scientific initiatives. More should be done by the Committees between annual meetings.

The Committee discussed suggestions for Theme Sessions, Special Topics, and Symposia for future meetings:

- The Committee proposed a Theme Session on "Scale and Pattern in Fisheries and Biological

Oceanography" for the 1995 Annual Science Conference. This is seen as an interesting and unifying topic worthy of a Theme Session.

- The Committee also proposed a Theme Session on "Improving the Use of Non-traditional Data in Fisheries Evaluation", which is seen as an important ongoing topic of relevance.

In an attempt to stimulate more interest in the next meeting, and to address important issues of relevance to Pelagic Fisheries, the Committee proposed two Special Topics for the next meeting:

- 1) "The role of larval herring surveys in assessment and understanding the dynamics of herring stocks"
- 2) "Homing/learning/migration hypotheses in relation to pelagic fish"

The second (Homing/learning/migration hypotheses) was also suggested as a potential Theme Session.

The Committee elected Dr. R.L. Stephenson as its new Chairman. The outgoing Chairman, Mr. O. Hagström was thanked for his excellent chairmanship over the last three years.

### Working/Study Groups and Reports

The results of the Workshop on Herring Age Reading, held in January 1994 were summarised (Doc. H:7). The Committee endorsed the Herring Assessment Working Group for the Area South of 62°N recommendations on the use of a detailed maturity scale and regional otolith exchange (every two years). The Committee suggested that a manual on age reading techniques, perhaps with photographic interpretation, be produced.

The results of a Workshop on Comparative Age Reading on Sprat from ICES Division IIIa, held in May 1993, were presented (Doc. H:13). Discrepancies in ageing, particularly in the Kattegat, were attributed to a combination of factors including the narrow age range, possible stock mixing, variation related to sample collection in the IBT Survey, and inexperience of some readers. The Committee recommended that another workshop be held near the time of the Herring Assessment Working Group for the Area South of 62°N meeting.

The Committee discussed the Report of the Planning Group for Herring Surveys (Doc. H:3) which met in

May 1994 and endorsed its recommendations. It was noted that the terms of reference included the Baltic, but that there was no Baltic representation at the Planning Group meeting. It was suggested that the Working Group on the Assessment of Demersal and Pelagic Stocks in the Baltic review the draft manual to determine if it is of use for surveys in that area. It was suggested that this planning group meet every two years. It was also suggested that Coordination of Norwegian Sea surveys be considered for inclusion in this Planning Group in a later year - particularly as the migration pattern of Norwegian spring-spawning herring seems to be changing.

Aspects of the Report of the Study Group on Herring Assessment and Biology in the Irish Sea and Adjacent Waters (Doc. H:5) were summarised. Discussion focused around the apparent degree of mixing, especially by juveniles, among units of Divisions VI and VII. The Study Group had suggested that more tagging be undertaken. The Committee suggested that it would be useful to consider some rearrangement of the management units used in assessment - perhaps by simulation.

The Report of the International Bottom Trawl Survey Working Group meeting of January 1994 (Doc. H:6) was presented. Discussion focused on the future of this survey, which is now entering the final year of a 5-year initial commitment to carry out quarterly surveys. The Committee discussed the need for surveys in 1995 to have adequate coverage, in order to live up to the initial 5-year plan. It noted that several end user working groups have terms of reference dealing with evaluation of these survey data, and recommended a Working Group meeting following those for evaluation of the survey. The Committee also discussed possible options for 1996, including the suggestion of continuing surveys only in the two most important quarters. The Committee agreed that the suggestions from the Demersal Fish Committee regarding merging data at ICES be accepted.

The Committee heard a summary of the Report of the Mackerel/Horse Mackerel Egg Production Workshop (Doc. H:4) held in February 1994. The Committee commended the Workshop on its clear and comprehensive report. The Committee discussed the fact that there will be a considerable amount of planning and analysis for these surveys on an ongoing basis. It was considered impractical to place this within the Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine and Anchovy (because of the magnitude of the task and timing of data availability) and the Committee recommended that there should be a Working Group for this purpose.

The Committee also discussed the circular sent from the ICES Secretariat in August regarding the Mackerel/Horse Mackerel egg survey. This memo was sent in response to information that one nation (Germany) was

planning to reduce survey effort. Other countries appear to be continuing to participate. The Committee reiterated the value of the survey (the only survey for this 800,000t/yr fishery), and noted the impact of the loss of one portion of the coverage.

Highlights of the Report of the Herring Larvae Surveys in the North Sea and Adjacent Waters in 1992/1993 (Doc. H:25) were presented. This set of surveys has been eroded over time due to reduced coverage. The Marine Laboratory in Aberdeen will no longer be able to support the SAS statistical package which has been used to analyse this series, so there is an additional question about the future "home" of the database. The Committee recommended that the Planning Group for Herring Surveys be asked to canvass participants to determine what level of survey coverage will occur in 1995, and what level is likely in the next few years. Further reduction in coverage in these surveys will compromise its usefulness, and the suggestion was made that the surveys may have to be made on a periodic (e.g. every second year) basis. The Committee also proposed to devote a Special Session to the topic of the future role of larval herring surveys at a future meeting (see Special Topics above).

The Committee discussed the report of the Study Group on Stock Identification Protocols for Finfish and Shellfish Stocks (Doc. M:5). This Study Group, formed in 1993, has been working to compile a manual of stock identification protocols. The Study Group will meet again in October 1995 in Aberdeen (UK) and the Chairman encouraged participation by attendance or by correspondence.

The Committee discussed and endorsed the recommendations and terms of reference for the following workshops, working groups, and initiatives:

- The International Bottom Trawl Survey Working Group (Chairman Dr H.J.L. Heessen)
- A Mackerel Otolith Reading Workshop (Chairman Mr A. Eltink)
- Publication of "Application of the annual and daily egg production methods to estimation of spawning stock biomass of mackerel and horse mackerel in the NE Atlantic Ocean" (edited by Dr I.G. Priede and Mr A. Eltink) as an *ICES Cooperative Research Report*
- Re-establishment of the Mackerel/Horse mackerel Egg Production Workshop as a Working Group (Chairman Mr A. Eltink).
- The Planning Group for Herring Surveys (Chairman Mr E.J. Simmonds)

## Other Scientific Contributions

Doc. H:15 described a pilot study to test the use of the radioactive caesium signal from the Tjernobyl emission to identify the origin of herring stocks mixed in Division IIIa. The technique shows some promise, but is expensive. The Committee suggested that there might be other useful chemical differences in this situation, given the difference in characteristics of the water bodies of origin.

Doc. H:20 presented the results of six surveys of horse mackerel distribution along the Portuguese coast during 1992 and 1993, focusing on the extent and potential causes of heterogeneity in distribution.

Doc. H:23 related changes in species composition in seabird diets from Funk Island, Newfoundland, to large scale fluctuations in prey availability due to fluctuations in the pelagic marine ecosystem. These results suggest that seabirds (gannets) may provide useful information

on unsampled aspects of the pelagic ecosystem.

Doc. H:19 described a determination of daily egg production of horse mackerel in Division IXa from sampling in 1992.

Doc. H:11 outlined HERMOD, a model being developed for the Norwegian spring-spawning herring, which integrates growth, maturation, recruitment and migration. It is intended that the model will be able to be linked with the multispecies model "MULTSPEC".

Doc. H:8 evaluated bio-economic considerations of two fishing strategies for southern horse mackerel. While biological considerations alone would suggest a strategy of fishing large fish, bio-economic considerations attribute highest value to a juvenile fishery.

The Committee nominated Dr R.A. Myers for the best Presentation Award for Doc. H:23, and Doc. H:11 by Mr K. Hiis Hauge for the Young Scientist Award.

## DOCUMENTS

H:1		Report of Activities 1993
H:2		<b>Withdrawn</b>
H:3 Ref. J		Report of the Planning Group for Herring Surveys, Bergen, Norway 24-27 May 1994
H:4		Report of the Mackerel/Horse Mackerel Egg Production Workshop, Vigo, Spain 31 January - 4 February 1994
H:5		Report of the Study Group on Herring Assessment and Biology in the Irish Sea and Adjacent Waters, Belfast, N. Ireland 21-25 February 1994
H:6 Ref. G		Report of the International Bottom Trawl Survey Working Group, Copenhagen 12-14 January 1994
H:7 Ref. J		Report of the Workshop on Herring Age Reading, IJmuiden, Netherlands 20-24 January 1994
H:8	A. Eltink	Equilibrium catch and stock predictions in weight and value for southern horse mackerel
H:9		<b>Withdrawn</b>
H:10	R. Stephenson <i>et al.</i>	<b>Withdrawn</b>
H:11 Ref. D	A. Dommasnes and K. Hiis Hauge	Hermod, a single species model for the Norwegian spring spawning herring stock
H:12	T. Monstad and S.V. Beilikov	Investigations on blue whiting in the area west of the British Isles, spring 1994.
H:13 Ref. D, J	E. Torstensen	Results of the Workshop on Comparative Age Reading on Sprat from ICES Div. IIIa
H:14		<b>Withdrawn</b>
H:15 Ref. J	H. Lassen and E. Rasmussen	Identifying Rügen herring in Skagerrak using <sup>137</sup> Cs as Tag.

H:16 Ref. J	H. Lassen and E. Rasmussen	<b>Withdrawn</b>
H:17	G. Pestana	<b>Withdrawn</b>
H:18	G. Pestana	<b>Withdrawn</b>
H:19 Ref. L	A. Farinha and M.F. Borges	Daily egg production of horse mackerel ( <i>Trachurus trachurus</i> ) in Portuguese area (Div. IXa)
H:20 Ref. D	A.G. Murta and M.F. Borges	Factors affecting the abundance distribution of horse mackerel ( <i>Trachurus trachurus</i> Linnaeus, 1758) in the Portuguese waters
H:21		<b>Withdrawn</b>
H:22	E.J. Simmonds <i>et al.</i>	1993 ICES co-ordinated acoustic survey of ICES Divisions IVa, IVb and VIa
H:23 Ref. C, L	W.A. Montevecchi and R.A. Myers	Changes in the diets of seabirds indicate shifts in pelagic food webs in the northwest Atlantic
H:24 Ref. C, G		Report of the International Bottom Trawl Survey in the North Sea, Skagerrak and Kattegatt in 1994: Quarter 1
H:25	K. Patterson and D. Beveridge	Report of the herring larvae surveys in the North Sea and Adjacent Waters in 1993/1993

## BALTIC FISH COMMITTEE (J)

Chairman: Mr B. Sjöstrand

Rapporteur: Mr F. Köster

The Committee held two sessions on 22 and 26 September 1994. The Chairman opened the meeting and drew attention to the need to keep strictly to the time schedule given in detail for each Committee session in the List of Contributions, Agendas and Timetables. Mr. F. Köster was appointed rapporteur and the agenda was adopted.

### Administrative Reports

As a consequence of discussions on the usefulness of the Administrative Reports at the last year's Statutory Meeting, the Report of Activities (J:1) contained only limited information from three different countries. However, data on sampling of herring and sprat was presented for all countries in the corresponding Assessment Working Group Reports. In future, this should be done for demersal stocks by the responsible Working Group. The List of Publications of Interest to the Committee has already been omitted this year and the Council decided to cease the production of Administrative Reports in future.

### Reports of Study Groups, Planning Groups and Workshops

The report of the Planning Group for Hydroacoustic Surveys in the Baltic (Doc. J:4) revealed a substantial lack in area coverage and problems in timing of the surveys in 1993. Therefore the results were of rather limited value for the assessment of herring and sprat stocks. Results from the German/Danish survey conducted in Subdivisions 21-24 (Doc. J:13) were, however, used in the tuning procedure of the western Baltic herring stock. The Committee expressed its concern about the present lack of participation and again recommends a standardisation in methods and co-ordination of the surveys. Necessary action should be defined in connection with a request from the International Baltic Sea Fishery Commission on the scientific requirements needed for a sound basis of stock assessments in the Baltic Sea (see below).

The report of the Workshop on Baltic Cod Age Reading (Doc. J:5) was presented by the Chairman Dr. J. Netzel. Consistency among otolith readers from the same country was found to be high, while the level of agreement between readers from different countries was significantly lower. Variation between readers was found to be dependent on the area and time of sampling. Treatment of the otoliths to some extent improved the level of agreement. Recommendations from the Workshop were that: 1) a second workshop should be held within two years to standardise the age reading procedure, to agree

on the identified interpretation problems and to establish a documented reference collection of otoliths; 2) a manual providing guidelines for the age reading procedure and interpretation of otolith structures from different areas, seasons and years should be prepared. The Committee acknowledged the importance of the results obtained and adopted a recommendation along the lines proposed by the Study Group. Investigations on the possible effects of inconsistencies in age reading on the stock assessments of Baltic cod were encouraged.

The report of the Study Group on the Evaluation of Baltic Fish Data (Doc. J:6), which worked by correspondence in 1994, was presented by the Chairman Mr. T. Raid. According to the terms of reference, the Young Fish Survey Data Base had been updated. The preparation of a standardised protocol for fish sampling was hampered by the limited availability of national protocols. Consequently, the Study Group recommended the elaboration of the required standard protocol during the next meeting, possibly in 1995. Furthermore the Study Group again recommended that responsibility for the database should be transferred to ICES. According to the ICES Fishery Secretary the Consultative Committee was proposing to discuss the role of ICES as a general database depository during the present Annual Science Conference. However, if transfer of the database to ICES is decided, the required structure of the database has to be specified, possibly by the Study Group. According to the Chairman of ACFM, the International Baltic Sea Fishery Commission had requested a description of research activities and information needed to carry out reliable assessments of the fish resources in the Baltic Sea. It was therefore suggested that a Study Group should be established in response to this request, outlining the status and shortcomings of present stock assessment data and actions needed to improve the databases. This was endorsed by the Committee and a Sub-group was set up to write a specific recommendation to be presented during the second session.

The Chairman of the Study Group on Stock Identification Protocols for Finfish and Shellfish Stocks Dr. K. Friedland drew the attention of the Committee to the latest report of the Study Group (Doc. M:5).

### Scientific Contributions

#### Posters

Three posters were presented on topics concerning : 1) food composition of young cod sampled in 1993 and 1994 during Polish young fish surveys (Doc. J:19), 2)

early cell cleavage and buoyancy of cod eggs in relation to the hydrographic regime in the Baltic and their importance for developmental success (Docs. J:23, J:25).

#### Scientific presentations related to food, size and growth

The co-ordinator of a Nordic Council project on Growth Changes of Herring in the Baltic (TemaNord 1994: 532), Mr. H. Sparholt, presented a summary of the final report. As a working hypothesis the observed substantial changes in size at age during the last decade were related to changes in:

- 1) migration pattern in different growing stocks
- 2) the hydrographic situation
- 3) feeding conditions
- 4) density-dependent growth rates
- 5) predation pressure by cod.

Although some indication exists that the individual food consumption of similar sized herring dropped, the major factor was identified to be the drastically reduced predation pressure by cod. Smaller individuals were more heavily preyed upon than larger specimens. This resulted in higher survival of faster growing fish in periods of high cod stock abundance and hence higher weight at age. The Committee discussed these findings and encouraged the members to continue work in this field and to present the results to next year's Theme Session on Causes of Observed Variations in Fish Growth.

The food consumption of 0-group herring in Swedish coastal waters increased with increasing prey densities. The maximum specific consumption increased with decreasing fish size (Doc. J:16). The half saturation zooplankton abundance follows the same trend, indicating that small 0-group herring are more food limited than larger individuals.

Based on material sampled during the annual hydro-acoustic surveys in 1987-1990, the spatial distribution of open sea herring in Sub-divisions 26 and 28 was investigated in Doc J:12. The intensity of the feeding migration from Sub-divisions 28 into 26 was found to be related to the abundance of meso-zooplankton suitable as food. In the following discussion it was suggested that environmental factors which are known to influence the migration pattern should be taken into account and that a check should be made on a possible northward migration.

The structure of Estonian herring catches in the Gulf of Finland was investigated in Doc. J:21. During the first half of the year, catches are in general characterised by larger and older herring, whereas in the second half

mainly smaller and younger herring are caught, especially in the eastern part of the Gulf. This seasonal and geographical variability has implications on the stock structure and the market quality of the landings and consequently should be considered in the management of the fishery. In the discussion it was pointed out that sufficient information on the unity and structure of the stock is still missing.

Doc. J:10 related the growth of sprat in Sub-divisions 26 and 28 to the availability of the main food item in open sea areas of the eastern Baltic, i.e. *Temora longicornis*. It was stated that the abundance, distribution and accessibility of this copepod for sprat probably determines the feeding condition and hence the growth rate. The Committee acknowledged the amount of data collected on growth and stomach contents of sprat as well as zooplankton abundance and encouraged further investigation on this extensive material.

Doc. J:9 dealt with the population structure of herring in the Gulf of Riga. By analysing the monthly length distributions from commercial catches, the spawning migration of open sea herring to their spawning grounds, which are shared with the non-migratory Gulf herring, was demonstrated. From a decreasing trend in mean length during spawning time within the last decade, a decreasing strength of the open sea component and an opposite trend for the Gulf herring was indicated. To account for the different development in these two stock components, a separate assessment of the Gulf herring was proposed. In the following discussion it was suggested that the separation of the components, now done by means of different otolith structures, should be checked by comparing the resulting length frequency distributions.

Doc. J:18 described the co-occurrence of medusae and cod eggs in the Bornholm Basin in July/August 1993 showing a pronounced overlap in the vertical distribution of potential predator and prey. Preliminary analysis of stomach contents indicated predation on cod eggs especially by *Cyanea capillata*. In the following discussion it was reported that the abundance of medusae has increased in the Kattegat. However, no data are available to check for a similar trend in the Bornholm Basin.

Doc. J:17 presented densities of potential prey for cod larvae in the Bornholm and Gdansk Basin in the period March to October 1991-93. On the basis of the size structure and densities of zooplankton in different water layers, it was concluded that starvation of early cod larvae does not seem to have an important impact on their mortality. Only in the beginning of the spawning season in March and April were critically low densities observed.

### Scientific contributions related to environmental influence on recruitment, growth and abundance

In Doc. J:14 recruitment of western Baltic cod from Sub-divisions 22 and 24 was found to be mainly correlated with recruitment of neighbouring stocks from the Kattegat and Sub-divisions 25-32. In the multiple regressions performed, recruitment estimates were also significantly correlated with the parent spawning stock biomass and the salinity in deep water layers in May in the same Sub-division. Stock recruitment curves indicated a spawning stock biomass below a critical level in most recent years in both Sub-divisions. In the following discussion some concern was expressed about the assessment data quality underlying this analysis, especially in Sub-division 24.

Doc. J:24 demonstrated that the abundance of settled 0-group plaice in the Kattegat is higher in years when wind conditions during larval development period are moderate to strong. This has been related to food limitation of larval plaice in years when calm conditions prevail during the period of larval drift. Some evidence for a transport by wind-generated currents was found from a significant correlation between the occurrence of strong winds from north to south and the corresponding 0-group abundance. In the discussion it was pointed out that year class strength of plaice in this area does not show any correlation to 0-group abundance, indicating major sources of mortality within or after the 0-group stage.

In Doc. J:15 the decrease in mean length at age of dab from Århus Bay since 1953 was explained by reduced food consumption due to changes in metabolism caused by an unfavourable oxygen regime. Recent investigations on the species composition and abundance of the bottom fauna revealed no shortage in food supply, although changes in species composition caused by eutrophication had been reported previously. CPUE-data indicated an increasing abundance of dab from the second half of the 1950s onwards, whereas plaice showed an opposite trend from the beginning of the 1960s but started to recover recently.

### Scientific Contributions on Diseases and Parasites

Doc. J:20 presented information on the spatial distribu-

tion of pollutants off the Polish coast and discussed a possible relationship with the occurrence of ulceration and *lymphocystis* as external diseases of cod, flounder, sprat and herring. Ulceration was the most frequent external disease of cod, but the occurrence decreased in the more recent years to less than 1%. Lymphocystis was prevalent in flounder with an occurrence of 1 to 4%, whereas herring and sprat were obviously not affected by either disease. Possible reasons for the depth dependence in the occurrence of lymphocystis were discussed by the Committee.

Doc. J:11 dealt with the infestation of eastern Baltic herring with *Anisakis simplex* larvae. This infestation of fish caught in open sea areas of Sub-division 28 in 1994 was explained by a feeding migration of eastern Baltic herring to the Danish Straits or the North Sea and a reverse spawning migration. In the following discussion it was pointed out that increasing infestation rates have been observed in Polish gill-net catches from Sub-division 26 in recent years.

### **Adoption of Recommendations**

The Committee adopted the above-mentioned recommendation regarding a second Workshop on Baltic Cod Age Reading to be held in Rostock for 5 days in June 1996 with Dr. J. Netzel as Chairman.

The Committee recommended the establishment of a Study Group on Assessment-Related Research Activities Relevant to Baltic Fish Resources to respond to the request of the International Baltic Sea Fisheries Commission (see above). The meeting is suggested to take place in Riga from 23 February to 1 March 1995.

### **Theme and Joint Sessions 1995**

The Chairman of the Committee drew the attention to the Theme Sessions already accepted and proposed for 1995 given in Doc. Gen:4. A proposal for a joint meeting of the Committees B, G, H, J and K on Improved Selection in Mixed Fisheries has been submitted. There were no further suggestions for additional Theme and Joint Sessions.

### **DOCUMENTS**

J:1	Report of Activities
J:2	Withdrawn
J:3	Withdrawn
J:4	Planning Group for Hydroacoustic Surveys in the Baltic, Copenhagen 11-13 April 1994

J:5		Report of the Workshop on Baltic Cod Age Reading, Gdynia, Poland 6-10 June 1994
J:6		Report of the Study Group on the Evaluation of Baltic Fish Data, by correspondence
J:7		<b>Withdrawn</b>
J:8		<b>Withdrawn</b>
J:9 Ref. H	G. Kornilovs	Yearly length distribution of herring in the Gulf of Riga in relation to populational structure of the stock
J:10 Ref. H	F. Shvetsov and A. Rudneva	The growth and feeding of sprat in eastern Baltic
J:11 Ref. H	V. Tshervonsev <i>et al.</i>	The eastern Baltic herring invaded by <i>Anisakis Simplex</i> (Rudolphi, 1809) larvae
J:12 Ref. H	V. Tshervontsev <i>et al.</i>	Herring spatial distribution depending on food factor
J:13 Ref. B		Report of the Acoustic Survey in ICES Sub- divisions 21, 22, 23 and 24 in September/October 1993
J:14 Ref. D, G	H. Müller	Recruitment of western Baltic Cod
J:15	O. Bagge <i>et al.</i>	Growth and abundance of dab and abundance of plaice in Århus Bay in relation to oxygen conditions 1953-1993
J:16 Ref. H	F. Arrhenius and S. Hansson	Functional response by young-of-the-year Baltic Sea herring ( <i>Clupea harengus</i> )
J:17 Ref. L	A. Krajewska-Soltys and T.B. Linkowski	Densities of potential prey for cod larvae in deep-water basins of the southern Baltic
J:18 Ref. L	P. Margonski and K. Horbowa	Co-occurrence of medusae and cod eggs in the Bornholm Basin
J:19 Ref. G, L <b>Poster</b>	M. Kowalewska-Pahlke	Food composition of young cod sampled in the 1993-1994 young fish surveys
J:20 Ref. F, G, H	B. Draganik <i>et al.</i>	Results of the screening of fish diseases in the southern Baltic
J:21 Ref. H	T. Raid	Structure of Estonian herring catches in the Gulf of Finland
J:22		<b>Withdrawn</b>
J:23 <b>Poster</b>	L. Vallin and A. Nissling	Estimation of egg quality at early blastula stages in eggs from Skagerrak cod and Baltic cod ( <i>Gadus morhua</i> )
J:24 Ref. G, L	B.R. MacKenzie <i>et al.</i>	The contribution of abiotic factors during the pelagic stages to interannual variability in settled 0-group plaice ( <i>Pleuronectes platessa</i> ) abundance in the Kattegat.
J:25 <b>Poster</b>	A. Nissing and L. Vallin	The ability of Baltic cod eggs to maintain neutral buoyancy and the opportunity for survival in fluctuating conditions in the Baltic Sea

## SHELLFISH COMMITTEE (K)

Chairman: M M. Héral  
Rapporteurs: Dr G.Y. Conan, Dr J. Hillis

### General

The Committee met in four sessions. The agenda was adopted and Dr G.Y. Conan was appointed as rapporteur for the first and two last sessions. Dr J.P. Hillis was appointed rapporteur for the second session.

The Chairman indicated that the new system of scheduling the sessions as early as July had created difficulties: 8 out of 44 papers were withdrawn or not finalised on schedule. The Chairman requested that the authors follow the deadlines or in adverse cases, advise him about withdrawals at the end of August by the latest.

The Report of Activities was presented by the Chairman. Only nine countries had reported their activities. It was agreed by the Committee that a common template should be prepared and sent to the members to help them in the preparation of their reports. Dr Thomas Neudecker was nominated and agreed to prepare a model which will be approved and circulated by the Chairman to the members by 10 December 1994. However, the Council subsequently dispensed with the requirement to produce these reports.

A list of relevant literature was not provided this year. The Chairman indicated that he had received no input from Member Countries. He mentioned that this report was particularly important for providing information on domestic and internal reports and on selected "grey literature", or theses. Such reports may be written in languages other than the official ICES languages, they do not usually appear in standard literature databases, and then frequently provide the utmost latest update on research. There is a renewed interest in this "free" literature due to the significant delays for publishing in primary journals in recent years. Conversely, providing information on primary literature in the report has lost most of its former usefulness due to easy access to standard databases.

The rapporteur mentioned that the number of copies of the papers available during the meeting was insufficient. A complete collection of papers was not set aside for the session participants. Most of the copies were already in demand after the first two days of the ICES meeting.

### Study Groups

The Chairman (Dr T. Neudecker) of the Study Group on the Life History, Population Biology and Assessment of *Crangon* presented recommendations (Doc. K:3) and

proposed a new meeting in Hamburg, Germany at a date to be decided. It was proposed that the Study Group be re-established as the Working Group on *Crangon* Fisheries and Life History (C.Res. 1994/2:46).

The Chairman (Dr U. Piatkowski) of the Study Group on the Life History and Assessment of Cephalopods presented recommendations (Doc. K:7). It was proposed that the Study Group meet in Aberdeen in 1996 and be re-established as the Working Group on Cephalopod Fisheries and Life History (C.Res. 1994/2:43).

The Chairman read the recommendations provided by the following Study Groups:

The Study Group on the Biology, Life History and assessment of Majid Crabs (Chairman M D. Latrouite): The Study Group recommended that it reconvene for four days in November 1995 in La Coruña, Spain. No report was provided this year; the Group worked by correspondence. It was recommended that it be renamed the Study Group on the Biology and Life History of Majid Crabs.

Spatfall and Recruitment in Bivalve Stocks (Chairman: Dr R. Dijkema): The Study Group worked by correspondence, a report was provided to the Committee Chairman (K:5), but not circulated. The Study Group will work by correspondence in 1995 with a new Co-Chairman, Dr P. Petersen (USA) (C.Res. 1994/2:41).

Life Histories and assessment Methods of *Pandalus* Stocks (Chairman: Mr S. Munch Petersen): The Study Group met in Reykjavik (Iceland) from 6-10 September 1993 (K:8). The Study Group will pursue its work by correspondence in 1995 and propose a new meeting when sufficient progress on estimation of species interaction parameters will have been achieved (C.Res. 1994/2:45).

Life Histories and assessment Methods of *Nephrops* Stocks (Chairman: Dr N. Bailey): The Study Group met in Aberdeen (UK) from 23-26 November 1993 and will work by correspondence in 1995. It will be renamed the Study Group on Life Histories of *Nephrops* (C.Res. 1994/2:44).

Some Committee members mentioned that Study Groups work by correspondence were seldom as productive as those convening for a few days at a given venue. It is becoming increasingly difficult, with current external work constraints to produce a joint report without participating in a formal meeting.

It was also mentioned that Study Group or Working Group Chairmen should preferably present their reports in person at the Shellfish Committee meetings or alternatively identify a speaker to the Chairmen of the Shellfish Committee.

### Theme Sessions and Special Topics

- The Committee chose the Special Topic: "Reproduction and Recruitment Processes for Shellfish Species" for its 1995 session.
- The Committee propose a Joint Session in 1995 with the Mariculture Committee, MEQC and the Hydrography Committee on: "Mariculture: Understanding Environmental Interactions".
- The Committee supported the initiative for a Workshop on: "Principles and Practical Measures for the Interactions of Mariculture and Fisheries in Coastal Area Planning and Management" in Kiel, Germany, to be held from 19-22 July 1995.

### Scientific Sessions

#### Shellfish Assessments

Doc. K:10 analysed the effects of environmental factors on the growth and management of mussel cultures by analysis of variance, rank analysis, and multilinear regression. The immersion level, geographic location, and distance to an estuary explained 63% of the variance for growth of mussels. It is the stock density which is the most important factor for oyster growth. Conversely, this factor does not have a significant effect on mussel growth, as mussels are not presently cultivated at maximum density.

Doc. K:42 dealt with the comparison of Harps and Petersen bottom samplers. The two devices have a comparable efficiency for estimating benthos biomass. However, the Petersen sampler collects more species as a whole, but fewer crustaceans. The area covered by the Harps device is smaller than that for the Petersen device and the dispersion indices of species differ.

#### Crustaceans

Doc. K:19 reported on the meeting of the International Workshop on Majid Crabs. This Workshop is independent of ICES and is similar to the International Pectinid Workshop. It provides an enlarged forum for discussing basic scientific issues among participants from ICES as well as non-ICES countries. It was felt that a joint meeting with the ICES Majid Crab Study Group should be organised. This initiative will be brought to the attention of the respective Chairmen.

Doc. K:12 dealt with the successful introduction of north

Pacific king crab (*Paralithodes camtschatica*) and noted that while directed fishing was forbidden by agreement between Russia and Norway, some by-catches occurred; nonetheless, the stock was spreading well. In discussion, it was pointed out that the ICES Code of Practice for avoiding accidental introduction of non-indigenous species involved releasing reared F1 generation stock only.

Doc. K:30 showed by ultrasonic telemetry that juvenile *Maja squinado* in northwestern Spain were sedentary, whilst adults dispersed mainly north-eastward. It was proposed that Dr Freire, co-author and presenter of this paper, be nominated as best junior author for the ICES meeting.

Doc. K:25 reported the use of a stock production type model to assess Icelandic *Pandalus borealis* subject to cod predation; a good estimate of a TAC (36,000 tonnes) was obtained. In discussion, the possibility of selectivity in cod predation was raised.

Dr Hillis reported on the work of the Study Group on Life Histories and Assessment Methods of *Nephrops* Stocks (K:9). Aging by lipofuscin titration is being attempted, with promising results. The dinoflagellate *Haematodinium* has been infesting certain Scottish stocks: the individuals become whitish. Sizes, rather than age at first maturity appear to vary between stocks. Direct stock estimates have been attempted by sonar and underwater television in Sweden, and by underwater television in Northern Ireland. Dr Bannister emphasised in the discussion that there appears to be a gap between life history studies and assessments for *Nephrops*. There are concerns about the direct applicability of the knowledge on life history for assessment purposes. *Nephrops* appear to have a density-dependent growth and age at first maturity, consequently, size-based models are no longer considered suitable. Nevertheless, relating size distributions to age distributions remains difficult, and age-based models are not yet operational.

Doc. K:34 dealt with cod and *Nephrops* interactions. A theoretical model predicted that predation of cod on *Nephrops* should decrease when the fishing of cod increases, consequently the catch of *Nephrops* should increase. The predictions were not verified by facts, and it was concluded that the increase is masked by the increase in fishing intensity on *Nephrops*. In the discussion it was brought up that feedback effects in multispecies interactions may be multiple and are mostly unknown: they would need to be thoroughly investigated for building multispecies models.

Doc K: 43 concerned sexual maturity of *Nephrops* in the North Sea. In the absence of the author, it was read by abstract by the Committee Chairman.

Doc K:44 provided general information on the Belgian

*Nephrops* fishery in the central North Sea. The selection curves differ in the spring and in the fall. Forty percent of the discarded sub-legal size *Nephrops* survive. In the discussion, it was noted that technical measures for effort control such as mesh size regulations could be substituted to minimal size regulations in the context of the European Union, but that the practical application was difficult in the case of *Nephrops*. Dr Hillis indicated that survival of discards may still be overestimated due to increased predation effects on *Nephrops* displaced out of their burrows.

Dr Freire informed the Committee on the progress of the Study Group on Stock Identification Protocols for Finfish and Shellfish Stocks (M:5).

The work of the Study Group on Life Histories and Assessment Methods of *Pandalus* Stocks was noted.

Docs. K:4, K:11, K:15, K:16, K:41 were withdrawn.

#### Bivalve molluscs

The good spawning of *Spisula solidissima*, the Atlantic surf clam, after an anoxic event was noted in Doc. K:14. Small surf clams appeared occasionally off New Jersey, where fishing effort had been greatest, but not in other areas such as Georges Bank and Delaware (off Delaware-Maryland-Virginia). No relationship was found between predator and surf clam abundance. In discussion, the merits of a stratified random basis of surveying and the possibility of seeding small clams were brought up.

Doc. K:39 reported on hydraulic dredge survey findings on Icelandic ocean quahogs *Arctica islandica*, with attention to meat yield and sexual maturity. The species had a slow life cycle, some individuals living to 150 years. In discussion, Dr Serchuk emphasised the extreme danger of over-exploitation of a species with such slow growth and maturation.

Doc. K:46 contrasted reproduction in Pacific oysters *Crassostrea gigas* in estuaries with reproduction in this species in a saline lagoon on the southern coast of England, and concluded that air exposure at low tide apparently contributed to reproductive success of the former. In discussion, T. Neudecker stated that this species could remain at low density levels for many years and then suddenly increase strongly in number. M. Héral suggested a possible role of the photoperiod in the breeding of the estuarine stocks.

#### Cephalopods

Dr Piatkowski, Chairman, presented the report of the Study Group on the Life History and Assessments of Cephalopods (K:7). The world landings are approximately 3 million tonnes of which some 40 000 tonnes

are landed in ICES Member Countries. The landings are increasing. The life cycles are little known, and consequently management strategies have not been developed. There are many assessment methods proposed, but none is fully satisfactory.

*Todarodes sagittatus* has spawning grounds to the south of the ICES area; the recruits appear to move north as far as Norway, and then die. It is not known how the spawning stock is replenished.

Other species harvested are *Loligo forbesi*, *Loligo vulgaris*, and *Alloteuthis subula*. Unfortunately certain ICES Member Countries, such as France and Spain, have not provided complete information on landings since 1988. Conversely a report on landings around Scotland was provided in the form of maps and contours. The Russian data are quite extensive.

Squids are an important fisheries resource. Squid constitute an important link at several levels of the food chains. Given the economic and ecological importance of the resource, the present lack of knowledge, and the potential for development of the harvesting, it was requested that the Study Group be upgraded to the status of a Working Group. It was re-established as the Working Group on Cephalopod Fisheries and Life History (C.Res. 1994/2:43).

During the discussion, M. Héral mentioned that French and Spanish cephalopod data are provided to and available from the ICES Fisheries database. Some Committee members indicated that cephalopod resources, although important, are highly variable from year to year due to the short life span of the species harvested. The cost of investing in biomass assessments of such a fluctuating, short-lived resource may be prohibitive. Management of the resource would imply biomass estimates in real-time during harvesting by exchange of information between the fishing vessels. Dr Conan indicated that such techniques are presently available in the form of real time mapping and assessment using spatial statistical techniques similar to those used for snow crab in the Gulf of St Lawrence (GulfKrig software). Still a management based on immediate decisions is difficult to administer, particularly if the resource is not harvested as a limited entry fishery.

K:13 was very clearly presented by Dr Anderson. Formerly, growth of squids had been mainly estimated by analysis of size frequencies. Estimates ranged from 9 to 20 mm per month. Statoliths are currently used for age determination of *Loligo pealei*, using the assumption that one ring is formed daily. The daily deposition is confirmed by tetracycline marking. It is now believed that males grow faster than females, up to 70 mm per month, mainly from June to August. The revised growth estimates entail revised management strategies. Such a seasonal, rapidly growing resource requires rapid data

collection and analysis, followed by prompt management decisions.

K:21 discussed the reproductive strategies of *Loligo forbesi*. There are two size modes which may be related to two different sexual maturities. The size frequency of the eggs in the oviduct is unimodal, but bimodal in the ovary; this may indicate two periods of reproduction. The time required for egg hatching can be up to 150 days. It was initially thought that reproduction may take place over two years, however, the individuals occupying the largest mode in the size frequency distributions are only slightly older than those in the smallest mode. An alternative hypothesis is that the stock harvested is actually a mixed stock. This paper was very well received by the Committee, it was nominated for consideration as best paper by ICES.

K: 29 dealt with the length distribution and catches of *Sepia bertheloti*. It was read by abstract by the Chairman, in absence of the authors.

In K: 36, a very comprehensive work presented by its first author, it was reported that *Illex illecebrosus* had southern spawning grounds, and was carried north to feeding grounds. Growth would improve as squids reach the shelf from the Gulf Stream.

K:33 dealt with the potential of *Octopus vulgaris* on the Portuguese coast. It was read by abstract by the Chairman, in absence of the authors.

K:32 was withdrawn.

#### Other Shellfish

K:38 dealt with the growing fishery for the green sea urchin *Strongylocentrotus droebachiensis* in Icelandic waters. The sea urchin fishery is almost entirely a dredge fishery providing 800 tons of landings.

K:18 provided most up to date information on the potential use of discards and under-utilised species in marine fisheries. Discards represent frequently as much as 50% of the landings in commercial fisheries. There are innovative possibilities to process discards and produce products such as chitin which are highly in demand in the industry.

#### Documents referred from other committees.

The chairman brought to the attention of the committee papers B:12, B:14, B:20, B:32, B:39. These papers were read by title by the rapporteur.

#### Poster session

Seven important communications were presented by poster during the whole 1994 Annual Science Confer-

ence. Four were on Cephalopods (K:22, K:23, K:20, K:24), one was on shrimp (K:37) and one on mollusc (K:17)

#### **Recommendations:**

The following recommendations were endorsed by the Shellfish Committee:

#### Category 1

The report of the 1991, 1992 and 1993 meetings of the *Cephalopod* Study Group compiled and edited by Dr. U. Piatkowski (Germany) should be published in the *ICES Cooperative Research Report* series (C.Res.1994/1:9) The estimated number of pages is 30.

#### Category 2

1. A Study Group on the Assessment of Shellfish Stocks in the North Atlantic will be established under the Co-chairmanship of Dr. R. Mohn, Canada and Mr B. Mesnil, France. (C.Res.1994/2:47)

By way of justification it was emphasized that shellfish fisheries are of increasing economic importance in many areas, and their level of exploitation is increasing. Except for *Nephrops* and *Pandalus* however, shellfish species are out with the ICES assessment and advisory framework, and the collection of data and conduct of assessments is poorly developed. Current Shellfish committee study groups are investigating the fisheries, life history and biology of shellfish species, but are unable to provide an authoritative view of the assessment and management aspects. In particular it is not clear whether shellfish stocks could readily be assessed by adapting existing assessment models, or whether new models are generally required. This Study Group aims to address this problem, and to set priorities for future activities by existing working groups and study groups, including a future meeting of the Methods Working Group.

2. The Study Group on Life History, Population Biology and Assessment of *Crangon* should be terminated and a new Working Group on *Crangon* Fisheries and Life History be established under the Chairmanship of Dr T. Neudecker, (Germany) (C.Res.1994/2:46).

By way of justification it was emphasized that the *Crangon* Study Group has initiated the investigation of fisheries and biological data that are necessary to assess whether current concerns about *Crangon* overfishing in the Southern North Sea can be tested and verified, and this work needs to continue. In the Southern North Sea national inshore fisheries have evolved into an international fishing with at least four countries participating. An international co-operation is required on a continu-

ous basis for compiling data and achieving sustainable yield management. Moreover, analysis of the variation of *Crangon* population biology requires intensive exchanges between researcher working on the different environments inhabited by *Crangon*.

3. The Study Group on the Life History and Assessment of *Cephalopods* should be terminated and a new Working Group on *Cephalopods* Fisheries and Life History be established under the chairmanship of U. Piatkowski, (Germany) (C.Res.1994/2:43).

By way of justification it was emphasized that the Study Group has made an excellent work with the compilation of fisheries and comparative biological data for resources which are increasingly important and widely

exploited. The Working Group needs to continue but requires a time delay of one year in order to allow progress to be made. Unlike most shellfish resources many *Cephalopods* stocks are highly mobile and accessible to fleets of many ICES countries. Recent advances in *Cephalopods* biology have been achieved through a high degree of international collaboration. National programmes in the field are small so the continuity and stability of Working Group structure will be essential if progress is to be maintained.

4. The Study Group on the Biology, Life History and Assessment of *Majid* Crabs should be terminated and a new Study Group on the Biology and Life History of *Majid* Crabs, Chairman: M L. Latrouite (France) be established (C.Res.1994/2:42).

## DOCUMENTS

K:1		Report of Activities
K:2		<b>Withdrawn</b>
K:3		Report of the Study Group on Life History, Population Biology, and Assessment of <i>Crangon</i>
K:4		<b>Not received</b>
K:5		Report of the Study Group on Spatfall and Recruitment in Bivalve Stocks
K:6		<b>Not received</b>
K:7		Report of the Study Group on the Life History and Assessment of Cephalopods, Cork, Ireland 29 September - 1 October 1993
K:8		Report of the Study Group on Life Histories and Assessment of <i>Pandalus</i> Stocks in the North Atlantic, Reykjavik, Iceland 6-10 September 1993
K:9		Report of the Study Group on Life Histories and Assessment Methods of <i>Nephrops</i> stocks, Aberdeen, UK November 1993
K:10	P.T. Goulletquer <i>et al.</i>	Mussel ( <i>Mytilus edulis</i> ) culture management along the Normandy coastline (France): Stock assessment and growth monitoring
K:11	J.P. Hillis	<b>Withdrawn</b>
K:12	S. Kuzmin and S. Olsen	Barents Sea king crab ( <i>Paralithodes camtschatica</i> ). The transplantation experiments were successful
K:13	J.K.T. Brodziak and W.K. Macy	Revised estimates of growth of long-finned squid, <i>Loligo pealei</i> , in the Northwest Atlantic based on statolith ageing: Implications for stock assessment and fishery management
K:14 Ref. L	J.R. Weinberg and L. Hendrickson	Factors associated with recruitment of the Atlantic surfclam, <i>Spisula solidissima</i> (Dillwyn)
K:15	T. Neudecker and U. Damm	<b>Withdrawn</b>
K:16	E. Hoffmann and P.S. Kristensen	<b>Withdrawn</b>
K:17 Poster	J. Pellerin- Massicotte	Validation and calibration of the responses of biomarkers in an estuarine ecosystem

K:18 Ref. H	F. Shahidi	Utilization of marine processing discards and underutilized species
K:19	G.Y. Conan and P. Noël	Report of the first meeting of the International Workshop on Majid Crab Biology
K:20 Ref. C, L Poster	M. Rasero	Relationship between cephalopod abundance and upwelling: The case of <i>Todaropsis eblanae</i> (Cephalopoda: Ommastrephidae) in Galician waters (NW Spain)
K:21	P.R. Boyle and G.J. Pierce	Reproductive strategies of the squid <i>Loligo forbesi</i> (Cephalopoda: Loliginidae)
K:22 Poster	G.J. Pierce <i>et al.</i>	Distribution and abundance of the fished population of <i>Loligo forbesi</i> in Scottish waters: analysis of research cruise data
K:23 Poster	J. Norman <i>et al.</i>	Preliminary molecular genetic analysis of stock structure in the squid <i>Loligo forbesi</i> (Steenstrup)
K:24 Poster	K. Siegert <i>et al.</i>	Application of biochemical indices to measure growth rates in cephalopods
K:25 Ref. D, G	G. Stefánsson <i>et al.</i>	The use of a stock production type model in evaluating the offshore <i>Pandalus borealis</i> stock of North Icelandic waters, including the predation of northern shrimp by cod
K:26		<b>Withdrawn</b>
K:27		<b>Withdrawn</b>
K:28		<b>Withdrawn</b>
K:29	V. Hernández-García and J.J. Castro	A note on the DML distributions and catches of <i>Sepia bertheloti</i> and <i>Sepia officinalis</i> (Cephalopoda: sepiidae) on the Saharan bank
K:30	E. González-Gurriarán and J. Freire	Habitat, movements and migration of the spider crab <i>Maja squinado</i> in the Ria de Arousa (NW Spain). Preliminary data using ultrasonic telemetry
K:31 Poster	E. González-Gurriarán <i>et al.</i>	Growth at moult and moulting seasonality of the spider crab <i>Maja squinado</i> (Decapoda: Majidae) in experimental conditions
K:32	F. M. Porteiro and J.J. Gonçalves	<b>Not received</b>
K:33	M.M. da Cunha and A. Moreno	<i>Octopus vulgaris</i> : Its potential on the Portuguese coast
K:34 Ref. G	D. B. Bennett and A. R. Lawler	Irish Sea and <i>Nephrops</i> interactions - can the model be validated?
K:35	T.A. Abrajano <i>et al.</i>	<b>Not received</b>
K:36 Poster	J.A.A. Perez and R.K. O'Dor	Critical transitions in gladius reconstructed early growth histories of short-finned squid, <i>Illex illecebrosus</i>
K:37 Poster	M. Aschan <i>et al.</i>	Results of Norwegian and Russian investigations of shrimp ( <i>Pandalus borealis</i> ) in the Barents Sea and the Svalbard area 1993, compared with earlier studies
K:38	S. Tr. Einarsson	The Distribution and density of green sea urchin ( <i>Strongylocentrotus droebachiensis</i> ) in Icelandic Waters
K:39	G.G. Thorarinsdóttir and S. Tr. Einarsson	Distribution, abundance, populations structure. Meat yield, size of sexual maturity and sex ratio of the ocean quahog <i>Artica islandica</i> in Icelandic waters

K:40		<b>Withdrawn</b>
K:41	A.M. Caramelo and F. Cardador	<b>Not received</b>
K:42	O. Bagge <i>et al.</i>	Comparative bottom sampling using "Haps" and "Petersen" samplers
K:43	F. Redant	Sexual maturity of female Norway lobster ( <i>Nephrops norvegicus</i> ) in the central North Sea
K:44	R. Redant and H. Polet	Results of a discard study on the Belgian <i>Nephrops</i> fishery in the Central North Sea
K:45	S.A. Organesyan	Biological characteristics and time of Icelandic scallop <i>Chlamys islandica</i> spawning on the Kanin Bank and off the Bear Island-Spitsbergen
K:46	N. C. Eno	Monitoring of temperature regimes to which the Pacific oyster <i>Crassostrea gigas</i> is subject to in coastal inlets in Britain (The Fleet Lagoon and Teign and Dart estuaries) in relation to their reproductive success

## BIOLOGICAL OCEANOGRAPHY COMMITTEE (L)

Chairman: Dr M. Reeve  
Rapporteurs: Dr K. Sherman

Business was conducted in three sessions on 22, 23, and 24 September. A Theme session on "Pelagic Fish and Plankton Interactions" was held on 22 September, and a Joint Session with MEQC and the Hydrography Committee on "Quality Assurance of Marine Measurements" was held on 26 September.

### Committee Business

The Chairman opened the meeting with a review and adoption of the Agenda and the appointment of Dr K. Sherman as rapporteur.

The Chairman reminded the members of the competitions for awards to be given at the Statutory Meeting for the Best Paper Presentation, Best Poster, and Best Contribution by a Young Scientist.

### Symposium and Working Group and Study Group Reports

The Chairman reported on the success of the ICES Symposium on Zooplankton Production. It was held at the University of Plymouth (UK) from 15 to 19 August 1994 with 215 registered participants from 22 countries. Unfortunately the Symposium was overshadowed by the untimely death of Dr John Gamble one of the Symposium Organisers. The President of ICES, who opened the proceedings, called for a few moments of silence in the memory of Dr Gamble, and stated that he hoped the Symposium Proceedings would be dedicated to his memory. Plans are well advanced for the publication of the Symposium Proceedings.

### Report of the Study Group on Zooplankton Production (Doc. L:18)

In the absence of the Working Group Chairman, Dr Jurgen Lenz presented the results of the meeting held from 21 to 24 March 1994, in Plymouth (UK). It was attended by 11 participants from 6 Member Countries. There was also an informal meeting for information purposes at the Plymouth Symposium, attended by the Biological Oceanography Chairman.

The results of a Workshop for Intercomparison of Methods for the Determination of Copepod Growth Rates were discussed. The Workshop was organised by Prof. U. Båmstedt in October 1993, at the University of Bergen, and was attended by 14 scientists from 6 Member Countries. The Workshop used cultures of *Acartia clausi* as the basis for intercomparison experiments. A second Workshop organised at the University of Bergen by Prof. Båmstedt on *Calanus* was

held in April 1994 to evaluate methods of measuring copepod growth and production using *Calanus finmarchicus* as the model organism (Doc. L:9). A third activity of the Study Group included a seagoing Workshop in June, 1993. Comparisons were made on the catching efficiencies of MOCNESS, BIONESS, LHPR, and other sampling systems listed in the report. Discussions were held on factors influencing the variance in the size of the zooplankton sample. Dr D. Sameoto is conducting an analysis of the data that is to be completed by 1 November 1994.

These results will be included in the Zooplankton Methodology Manual to be produced in collaboration with IOC and SCOR in 1996. A second meeting of the Study Group was held in Los Palmas (Spain) to discuss standardization in zooplankton measurements, consider the proposed standard protocols, and assign writing responsibility for the chapters of the Zooplankton Manual. June 1995 has been targeted as the completion date for the draft of the Manual. The Committee reviewed and approved the timetable of the Study Group. The Study Group proposed holding a meeting in Woods Hole (USA) from 19 to 23 June 1995 (C. Res. 2:53).

### Workshop on Trans-Latitudinal Study of *Calanus finmarchicus* in the North Atlantic (Doc. L:10)

This report was presented by Dr G. Miller, Co-Chairman of the Workshop. The Workshop was held in Oslo, Norway 6-8 April 1994, and was attended by 22 participants from 9 ICES Member Countries. The Workshop Co-Chairmen, Dr C. Miller and Prof. K. Tande, reported on the results highlighting the four areas of research focus:

1. Generation cycles and large scale circulation patterns;
2. Overwintering and reproductive strategies;
3. Latitudinal impact on growing, and
4. Trophic interaction and field sampling.

The papers presented to the Workshop provided the basis for focusing on major problem areas for future study, and were highlighted in Dr Miller's presentation to the Committee. The Committee expressed their thanks to the Co-Chairmen for their fine report and in recognition of the importance for follow-on activity, contingent on reorganising the recommendations to conform with ICES protocol. The Committee endorsed

the plan to publish the papers presented to the Workshop in a single issue of *Ophelia*. The Committee endorsed the effort of the Workshop participants to maintain communications through the production of a newsletter to be funded by agencies outside of ICES. The Committee also recommended that the research effort be more formally organised through ICES as a Sub-group on TransAtlantic Studies of *Calanus finmarchicus* (TASC), within the proposed new Zooplankton Ecology Working Group (see below).

The BOC Chairman proposed to re-establish the Zooplankton Production Study Group as the Zooplankton Ecology Working Group (C. Res. 2:53), since there was ongoing need for zooplankton advice. The Working Group would also be the home for TASC. The Committee approved the proposal.

#### Working Group on Recruitment Processes (Doc. L:12)

The Working Group met in Lysekil (Sweden) from 14-17 June 1994.

The report of the Working Group was presented by Dr Anderson, on behalf of the Chairman (Dr M. Heath). The fifteen participants were from 8 ICES Member Countries. The Committee was advised that the Cod Checklist was completed and would be submitted to ICES for publication as an *ICES Cooperative Research Report*. Much of the deliberations focused on growth of larvae using otoliths and somatic growth relationships. The Working Group reviewed the Report of the Study Group on Spatial and Temporal Integration (ICES Doc. C.M.1993/L:9) and provided a series of recommendations to the Committee for further research effort of the Study Group and of the Working Group. To further the development of an effective strategy for determining spatial patterns in stage-specific abundances and mortalities of fish eggs and larval fish, the Working Group proposed that the Study Group on Spatial and Temporal Integration work by correspondence in 1995 and then a meeting in 1996. To address uncertainties on the relationships between otolith length and linear measurements of fish size, the Working Group recommended that a workshop be convened in Canada in 1996. The next meeting of the Working Group is planned for June 1996 in Halifax (Canada), and a new Chairman, Dr Pierre Pepin was proposed. The financial implications of the recommendation submitted for consideration by the BOC for the reconvening the Study Group on Spatial and Temporal Integration were deemed by the Committee as important and difficult issues which ICES needed to consider. A highly technical Sub-group activity is hard to accomplish when the convening Chairman has little control over who attends the meeting. The Biological Oceanography Committee agreed to the recommendations of the Working Group (C. Res. 2:51, 2:52).

#### Cod and Climate Change Working Group (Doc. A:7)

The Chairman of the Working Group, Dr Keith Brander described the considerable effort presently underway in the ICES area on studies relating to "Cod and Climate Change". He underscored the importance of maintaining co-ordination among the various groups involved (e.g., GLOBEC ongoing and planned in the US, Canada, the UK), extensive research underway by Norwegian scientists, and growing interest by Baltic scientists. In addition, the proposed North Sea Ichthyoplankton surveys would be directly contributing to the Cod and Climate Change program. Dr Brander advised the Committee that a proposal has been put forward to ICES to establish a GLOBEC Co-ordinator to be based at ICES Headquarters. There was extensive discussion and the Committee acknowledged the need for a Co-ordinator. No final recommendation was made on how to fund the position, but the Committee agreed that this function should be one for consideration by the General Secretary and the Council.

#### Working Group on Phytoplankton Ecology (Doc. L:6)

The initial meeting of the Working Group was held from 23 to 26 March at ICES Headquarters. The Chairman, Dr F. Coljin, presented the report. Twelve scientists from 10 ICES Member Countries participated. The Committee was pleased with the progress made by the Working Group, particularly in its expert summary of current techniques in the measurement of algal biomass growth rate, and productivity, and the focus on important research issues including: 1) nutrient supply, 2) time and space variability of primary productivity and biomass, 3) evaluation of new techniques for biomass, and productivity measurements, and 4) physical forcing of pelagic systems. The Committee endorsed the planned activities of the Working Group. The Group proposed to meet in The Hague (Netherlands) from 29-31 March 1995 (C. Res. 2:48).

#### The ICES/IOC Working Group on Harmful Algal Bloom Dynamics (Doc. L:5)

The Working Group meeting was held from 11-12 May in Vigo (Spain). Dr Lars Edler reported the results. The meeting was well attended, with 34 scientists from 18 Member Countries and five observers. It followed 2 days of joint sessions with the ICES Working Group on Shelf Seas Oceanography. A review was given to the Working Groups on the considerable international effort underway including the IOC/FAO Intergovernmental Panel on Harmful Algal Blooms, and the SCOR/IOC Working Group on the Physiological Ecology of Harmful Algal Blooms. Plans were renewed for the Workshop on Intercomparison of *In Situ* Growth Measurements. Other agenda items dealt with: 1) Strategies for investigating HAB and mitigating

detrimental effects, 2) Creation of a database on HAB and 3) reports of HAB from 19 countries. The planned activities of the Working Group were reviewed and endorsed by the Committee. The next meeting of the Working Group is planned for 1995 in Helsinki (Finland) (C. Res. 2:49).

#### Joint Meeting of the Working Group on Harmful Algal Bloom Dynamics and the ICES Working Group on Shelf Seas Oceanography (Doc. L:11).

The Joint Meeting was held in Vigo (Spain) from 9-10 May 1994. It was very well attended by 44 scientists from 18 Member Countries. The purpose of the joint session was to focus on the multidisciplinary aspects of HAB problems. A summary of the meeting was provided to the Committee by Dr H. Dahlin. He indicated some of the initial difficulties in addressing the terms of reference considering the different scientific backgrounds of the participants. However, a common framework for advancing a more multidisciplinary approach was reached in focusing on specific case studies (e.g., Gulf of Maine, Skagerrak-Kattegat, Iberian coast). A series of recommendations were proposed and approved. The next meeting of the ICES/IOC Working Group on Harmful Algal Blooms Dynamics is planned for spring 1995 in Helsinki (Finland), where a joint session of WGHABs and WGSSO again is recommended to be convened.

#### Benthos Ecology Working Group (Doc. L:4)

The Working Group met in Yerseke (The Netherlands) from 9 to 13 May 1994. It was well attended with 28 participants. The report of the meeting was presented to the Committee by Dr H. Rumohr. The Committee was pleased to note the initiatives by the Working Group to maintain contact with related scientific initiatives including those of the Baltic Marine Biologists, the LOICZ program of the IGBP, HELCOM, BIOMAR, JMAP, AMAP, ASMO and a study of Long-Term Changes in the Macrofauna of the Gulf of Gdansk. Dr Rumohr provided a brief overview of the effects of physical disturbance of the sea floor on benthos from trawling, and comparisons of benthos from both disturbed and undisturbed areas. He noted the possibility of producing computer aided taxonomic identification of benthos using user-friendly multi-media databases. The Working Group reviewed; 1) sampling techniques, and quality assessment guidelines including those prepared jointly by ICES and HELCOM; 2) the progress made toward the further integration into benthic data into the ICES Environmental Database. A working paper dealing with methods for integrating the data from the North Sea benthos survey of 1986 into the ICES data bank was annexed to the report of the Working Group. A proposal to conduct a survey of the North Sea was discussed. It was pointed out by the Chairman of ACME, that consideration should be given in the design

of the survey to ensure that issues relevant to tasks of the ACME are incorporated into the plan. Based on this consideration and a modification of the Work Plan of the Working Group, the Committee endorsed the proposed activities. The next meeting of the Working Group is planned for Kaldbak (Faroe Islands) from 3-6 May 1995 (C. Res. 2:50).

#### Report of the Study Group on Seabird/Fish Interactions 1993 (Doc. L:3) and 1994 (Doc. L:34)

The Study Group conducted its business in 1993 with a meeting at ICES Headquarters from 6 to 10 September 1993, and a meeting in Aberdeen (UK) from 5-7 September 1994. Prof. G. Hunt presented the results of both meetings. He indicated that the broad terms of reference were partitioned into workable segments for the initial report of the Study Group. The focus of the 1993 report was on the prey of seabirds and the trophic linkages of seabirds to fish stocks. Among some important findings of the Study Group, is the observation that pelagic production consumed by seabirds is generally inversely related to ocean area, suggesting that competitive interactions with fisheries are more likely at the mesoscale than at larger spatial scales. Food supplies around colonies may depend more on the advection of prey than on local production. Consumption rates among seabirds over large scales imply that seabirds are unlikely to compete with fisheries, but do not indicate that seabirds are unaffected by commercial fishing.

With regard to shellfish consumption by seaducks and waders, the Study Group concluded that there is no firm evidence that birds affect the yield of the fisheries for muscles and cockles. The Study Group indicated that future sampling of seabird diet should include an assessment of the age of fish in the diet to allow for the inclusion of seabird predator effects of multispecies models. Strategies were outlined by the Study Group to address the spatial and temporal variability in the breeding ecology of seabirds in the North Sea.

The Committee complemented Prof. Hunt and the Study Group for the excellent introduction provided to the ICES community on seabird-fish interaction contained in the two reports. In recognition of the importance of the topic, the Committee endorsed the groups promotion to a Working Group status to the effort, and convened a small group to work with Prof. Hunt in drafting appropriate terms of reference.

#### The Workshop on Intercomparison *in situ* Growth Rate Measurements (Dinoflagellates) (Doc. L:13)

The Workshop was held in Aveiro (Portugal) from 25-29 July 1994. It was well attended with 34 participants. Among the activities carried out was the comparison of <sup>14</sup>C methodology for determining primary productivity.

The results are intended to be completed and published in the *ICES Cooperative Research Report* series. The participants indicated that more intercalibration workshops are desirable and that the participants reconvene for two days prior to the meeting of the Working Group on Harmful Algal Blooms Dynamics planned for Helsinki (Finland) in 1995.

#### Study Group on Gulf III Sampler Efficiency Calibrations (Doc. L:15)

The Study Group conducted their work by correspondence. Prof. D. Schnack, the group's Chairman, reported on progress made by the Group. Among the accomplishments towards reaching the objectives of the terms of reference are the successful development of a proposal for a "Concerted Action" to be funded by the European Commission. He also reported on testing of the sampling efficiency of the German Dutch and English Gulf III Samplers. The Committee commended the Chairman for his final report and the successful initiative for obtaining funding from the EC to continue the sampler testing and evaluation programme.

Following the presentations of the activity reports, the Committee completed action initiated during the earlier sessions by recommending the formation of two Working Groups - the Working Group on Zooplankton Ecology to be chaired by Mr H-R Skoldal (Norway) (C. Res. 2:53), and the Working Group on Seabird Ecology to be chaired by Dr R. Furness (UK) (C. Res. 2:55). The Committee also endorsed the recommendation of the Chairmen that the Study Group on Fishbase be dissolved, based on the successful completion of its terms of reference. The Committee was advised that FISHBASE would shortly be made available as on CD-ROM.

A Special Topic for the 1995 Annual Science Conference on "Scale and Pattern in Fisheries and Biological Oceanography" was proposed, and endorsed by the Committee. Drs Houde and Pepin will serve as Co-Convenors.

### **Scientific Contributions**

#### Plankton

Four presentations were made on studies of plankton (Docs. L:24, L:21, L:22, and L:28), spawning of *C. finmarchicus*, *C. glacialis* and *C. hyperboreus*, in different water masses was related to the timing and progress of the spring bloom (Doc. L:22). The distribution of phytoplankton pigments in relation to the vertical structure of the water column and zooplankton biomass was examined across the Norwegian coastal current in the northeastern North Sea, and the results presented in a poster (Doc. L:28).

#### Fish

Five papers were presented to the Committee on fish. These were documents Docs. L:23, L:16, L:25, and L:26.

#### Ecosystems

Four papers examined changes in marine communities from an ecosystem perspective. A description was given of changes in the zooplankton prey-field during the collapse and recovery of pelagic fish in the US northeast shelf ecosystem (Doc. L:18).

An outline was given of a core strategy for monitoring and assessing the changing states of large marine ecosystems in support of post-UNCED sustainability and development programmes supported by international funding agencies (Doc. L:19). The results of a synthesis of available data on the phytoplankton, zooplankton, macrofauna, fishes, birds, and geochemistry of the North Sea was given in Doc. L:27. The authors suggest that rapid changes have occurred since the late 1970s, and explored a hypothesis and implications of these changes.

#### Biodiversity

Interactions among fisheries, systematics and marine biodiversity were discussed in a paper originally scheduled for presentation in Theme Session T. The authors argued that fisheries agencies are among the best equipped organisations to study marine biodiversity and special effort should be made to ensure that marine interests are appropriately represented in major biodiversity initiatives. They also urged close co-operation between fisheries and systematics in marine biodiversity studies (Doc. T:57).

#### Sampling

Three presentations provided new information on sampling techniques and their application to fisheries and marine ecological studies. The results of a comparison between cylindrical and circular piston transducers for use in the measurement of zooplankton or other marine scatterers was described in Doc. L:29.

In a related paper, a specific design was evaluated to explore the potential of multifrequency acoustic technology for quantifying fish and plankton using an acoustic sonde (Doc. L:30).

A description of methods for the determination or concentration of total dissolved and particulate organic carbon was given in Doc. L:31 as a poster. The system described was used successfully in biochemical monitoring of the Black Sea, White Sea, and Bering Sea ecosystems.

## DOCUMENTS

L:1		Report of Activities, 1993
L:2		<b>Not received</b>
L:3 Ref. C		Report of the Study Group on Seabird/Fish Interactions 1993
L:4		Report of the Benthos Ecology Working Group, Yerseke, Netherlands 9-13 May 1994
L:5 Ref. C		Report of the ICES/IOC Working Group on Harmful Algal Bloom Dynamics, Vigo, Spain 11-12 May 1994
L:6 Ref. E		Report of the Working Group on Phytoplankton Ecology, Copenhagen 23-26 March 1994
L:7		<b>Withdrawn</b>
L:8		Report of the ICES Study Group on Zooplankton Production, Plymouth, UK 21-24 March 1994
L:9		Report on the Laboratory Workshop on <i>Calanus</i> , Bergen, Norway 15-30 April 1994
L:10		Report of the Workshop on Trans-Latitudinal Study of <i>Calanus finmarchicus</i> in the North Atlantic, Oslo, Norway 6-8 April 1994
L:11 Ref. C		Report of the Joint Session of the Working Group on Harmful Algal Bloom Dynamics and the Working Group on Shelf Seas Oceanography, Vigo, Spain 9-10 May 1994
L:12		Report of the Working Group on Recruitment Processes, Lysekil, Sweden 14-17 June 1994
L:13		Report of the ICES/IOC Workshop on Intercomparison on <i>in situ</i> Growth Rate Measurements (Dinoflagellates), Aveiro, Portugal 25-29 July 1994
L:14 Ref. G, H, J		<b>Not received</b>
L:15		Report of the Study Group on Gulf III Sampler Efficiency Calibrations
L:16 Ref. G, H	Maria H. Alfonso <i>et al.</i>	Study of the ichthyoplankton of commercial species off Portuguese continental coast
L:17 Ref. M	Sabine Alshuth and R. Grant Gilmore	Salinity and temperature tolerance limits for larval spotted seatrout <i>Cynoscion nebulosus</i> C. (Pisces: Sciaenidae)
L:18	K. Sherman <i>et al.</i>	Zooplankton prey field variability during collapse and recovery of pelagic fish in the Northeast Shelf Ecosystem
L:19	K. Sherman	Sustainability, biomass yields, and health of coastal ecosystems: An ecological perspective
L:20 Ref. H, J	H. Müller and B. Klenz	Quantitative analysis of Rügen spring spawning herring larvae surveys with regard to the recruitment of the western Baltic and Division IIIa Stock
L:21	E. Gaard	Advection and seasonal development of the copepod <i>Calanus finmarchicus</i> on the Faroe Plateau
L:22 Ref. D	W. Melle and H.R. Skjoldal	Spawning and development of <i>Calanus</i> spp. in the Barents Sea

L:23 Ref. H	J.M. MacGregor and E.D. Houde	Onshore-offshore pattern and variability in distribution and abundance of bay anchovy, <i>Anchoa mitchilli</i> , eggs and larvae in Chesapeake Bay
L:24	Ø. Kaasa and K. Gudmundsson	Seasonal variations in the plankton community in Eyjafjörður, North Iceland
L:25 Ref. G	P. Solemdal <i>et al.</i>	<b>Not received</b>
L:26 Ref. G <b>Poster</b>	P. Ouellet <i>et al.</i>	Cod ( <i>Gadus morhua</i> ) spawning and vertical egg distribution in the northern Gulf of St. Lawrence
L:27 Ref. C, E, G	H.J. Lindeboom <i>et al.</i>	(Sudden) changes in the biota of the North Sea: Oceanic influences underestimated?
L:28 <b>Poster</b>	C. Veeschkens <i>et al.</i>	Distribution of plankton parameters in the northeastern North Sea in relation to vertical physical structures (Campaigns ECOFRONT 88 and 94).
L:29	K.G. Foote	Comparison of equal-area cylindrical and circular piston transducers
L:30	K.G. Foote	Performance of an acoustic sonde design
L:31 <b>Poster</b>	A.I. Agatova <i>et al.</i>	Biochemical monitoring of marine ecosystems
L:32		<b>Withdrawn</b>
L:33 Ref. Pub.	J.A. Lindley	ICES Identification Leaflets for Plankton. Editors Report 1993/1994.
L:34		Preliminary report of the Study Group on Seabird/Fish Interactions, Aberdeen, UK 5-7 September 1994

## ANADROMOUS AND CATADROMOUS FISH COMMITTEE (M)

Chairman: Mr Á. Ísaksson  
Rapporteur: Dr K. Friedland

### Administrative Matters

The Anadromous and Catadromous Fish Committee (ANACAT) met in two sessions 24 and 26 September. During the first session a rapporteur was appointed and the agenda adopted. The Chairman reported that Docs. M:16 and M:27 will be presented as posters. He also reminded the Committee of the desire of ICES to strengthen the scientific content of the Council Meeting and to foster greater inter-disciplinary work.

The Chairman reviewed the report of activities (Doc. M:1) and the list of publications of interest to ANACAT (Doc. M:2). The Council had decided to discontinue the production of these documents for future meetings. The compilation of marks and tags applied to salmon (Doc. M:28) was also reviewed. This document will be continued in the future as it is part of the request for information from NASCO.

### *Report from NASCO*

Dr Peter Hutchinson, Assistant Secretary of NASCO, presented a brief report on the Eleventh Annual Meeting of NASCO, which was held in Oslo (Norway) from 6-10 June 1994. During the year, NASCO had established a Working Group, with participation from the salmon farming industry, to consider how aquaculture could be conducted in a way designed to reduce adverse impacts. In its report to the Council of NASCO, the Working Group identified four areas where progress should be made:

- 1) improvement in the present standard of physical containment for salmon farming units;
- 2) improvement in the prevention of diseases and parasites in salmon aquaculture facilities;
- 3) areas for the protection of wild salmon should be further assessed and introduced where appropriate;
- 4) the use of sterile fish in aquaculture should be further investigated as a matter of urgency.

The Working Group also considered that an agreement containing a statement of principles and practical measures designed to minimise the impacts should be considered by NASCO. This agreement was adopted by the Council of NASCO as a Resolution and it was further agreed that the question of impacts would be raised annually and that the situation with regard to

implementation of the recommendations should be re-examined in 1998.

NASCO had taken further action to try to eliminate the problem of fishing for salmon in international waters by vessels reflagged to avoid the provisions of the Convention. These actions include further diplomatic pressure to encourage those States whose registers have been used to adhere to the NASCO Protocol and further measures to improve surveillance. The problem now appears to be restricted to one vessel which, as a result of actions taken by NASCO, has experienced considerable difficulty landing its catch.

Other issues examined by the Council of NASCO included the spread of *Gyrodactylus salaris* in the Northeast Atlantic, the economic value of salmon, research fishing in relation to the provisions of the Convention and long-term trends in salmon abundance. Guidelines on catch and release sports fishing and on stocking practices are being developed.

The North-East Atlantic Commission of NASCO had established a Working Group on Introductions and Transfers to consider the development of Protocols similar to those agreed in the North American Commission area. A regulatory measure was agreed for the Faroese fishery which established a quota of 550 tonnes together with an effort limitation programme. In the West Greenland Commission, the regulatory measure agreed in 1993 provided a mechanism for setting quotas for 1993-1997. Under this agreement, a quota of 159 tonnes was set for 1994.

### *Report from IBSFC*

Dr Walter Ranke, Executive Secretary of the International Baltic Sea Fishery Commission (IBSFC), gave a review of the activities of the Commission including the protection and rational utilisation of Baltic salmon.

The 20th Session of the IBSFC (Gdynia, Poland, 12-16 September 1994) established the 1995 salmon TACs for the:

- Main Basin and Gulf of Bothnia;
- Gulf of Finland;
- Fishery zones of the contracting parties.

Special attention was given to the protection of wild salmon.

The results of the *Ad Hoc* Working Group on Delayed Release of Salmon (Knivesta, Sweden, 22-23 February 1994) were analysed and it was decided to hold another Working Group meeting in June 1995 in Sweden. The Working Group will consider different strategies and objectives for the management of salmon of both wild and reared origin taking into account biological, economic, and social factors.

#### **Election of Chairman**

Dr Kevin Friedland (USA) was elected ANACAT Chairman for the forthcoming three-year period. The Committee expressed its gratitude to the outgoing Chairman Mr Árni Ísaksson of Iceland for his leadership during this important period of transition for both ICES and the Committee, where a new attitude of approaching ANACAT problems through interdisciplinary sessions has been emphasised.

#### **Working and Study Group Reports**

##### *North Atlantic Salmon Working Group*

The report of the Working Group on North Atlantic Salmon (Assess:16) was presented by Mr D. Reddin in the absence of its Chairman Mr E.C.E. Potter. During its meeting, the Working Group considered reports prepared by the Workshop on Salmon Spawning Stock Targets in the Northeast Atlantic (M:6), a preliminary report from the Study Group on Interactions of Wild, Ranched (Enhanced) and Reared Salmon (M:3), and a further 24 papers submitted by participants.

The total catch of Atlantic salmon reported for all fisheries (3,564 t) and for homewater fisheries (3,533 t) continued the declining trend observed in recent years. Catches in many countries were among the lowest on record. The Working Group concluded that the data indicated a reduced abundance of wild salmon populations. The Faroes and Greenland quotas were purchased in 1993 by the North Atlantic Salmon Fund. The unreported catch continues to be a large proportion of the total catches.

The Working Group continued its work on continental run reconstruction and catch advice models. The pre-fishery abundance of North American stocks was predicted similarly to last year by a regression model based on winter salmon thermal habitat. Catch quota options were presented in a risk assessment framework.

The major recommendations of the Working Group were as follows:

- a) The Working Group noted that unreported catches form a significant part of salmon landings and are likely to have a significant effect on assessment. The Working Group therefore recommended that

efforts be made to improve the methods used to estimate unreported catches.

- b) The Working Group recommended that a sampling programme be organised at West Greenland.
- c) The Working Group provided catch advice for West Greenland based on the relationship between stock abundance and an index of over-wintering habitat for North American salmon stocks. The Working Group recommended that similar relationships be developed for European stocks in order to provide additional catch advice to managers.
- d) The Working Group recommended that further work be carried out to improve and develop predictive models of annual migration and distribution.
- e) The Working Group recommended that further studies of grilsification mechanisms for individual salmon stocks be carried out.

##### *Workshop on Spawning Targets in the Northeast Atlantic*

Dr L.P. Hansen presented the report of the Workshop on Spawning Targets in the Northeast Atlantic (M:6) in the absence of the chairman E.C.E. Potter. This report is the first step in developing methods for setting targets for spawning escapement in the Northeast Atlantic area. However, it was noted that stock-recruitment relationships for large rivers were few. Variability in the data used for setting targets was identified and several difficulties in transferring data between river systems were noted. ANACAT endorsed the recommendations given in the Study Group report.

##### *Study Group on the Interactions of Wild, Ranched (Enhanced), and Reared Salmon*

In the absence of the Chairman Mr A. Youngson, Dr R. Porter presented the report of the Study Group on the Interactions of Wild, Ranched (Enhanced), and Reared Salmon (M:3) that met in Reykjavik, Iceland, in April 1994. The primary task was to respond to a request from NASCO to evaluate the impact of salmon aquaculture on wild stocks. Although there have been improvements in knowledge, much of the information necessary to evaluate the impacts is not available and many relevant studies are under way. The Study Group concluded that there is the potential for negative genetic, disease/parasite, ecological and environmental impacts from salmon aquaculture; however, it is not possible to quantify the risk at this time. The risk will vary depending on local conditions and factors. There is the possibility that genetically modified salmon will become available for use in aquaculture. If this occurs, then the potential for interactions with wild salmon will exist,

which should be considered in relation to the genetic modification. The Study Group emphasised that the widespread use of triploid stocks in salmon rearing would reduce any possibility of genetic interactions with wild salmon. A Symposium on the interactions of salmon aquaculture and wild stocks is recommended.

#### *Study Group on Stock Identification Protocols for Finfish and Shellfish*

The report of the Study Group on Stock Identification Protocols for Finfish and Shellfish (M:5) was presented by its Chairman Dr K. Friedland. During its meeting, the Study Group considered working papers on genetic methods of stock identification, parasites as biological tags, and image processing techniques to separate herring stocks. These recent findings were incorporated in their report. The Study Group continued its work on stock identification methodology by adding six new sections on the following subjects: image processing, parasite tags, chemical composition tags, allozymes, random amplified polymorphic DNA, and classification statistics. Some of these sections were contributed by correspondence, which is consistent with the intent of being inclusive and building consensus on the content of the methodology.

#### *Sub-group of the Baltic Salmon and Trout Assessment Working Group*

The report of the Sub-group of the Baltic Salmon and Trout Assessment Working Group (Assess:10) was presented by its Chairman Dr K. Friedland. The Sub-group, in preparation for the meeting of the full Working Group, evaluated models and model parameters used in the assessment of Baltic salmon. The two population models used in the Baltic salmon assessment were reviewed. The Sub-group made recommendations on strategies to improve the tuning of the combined stock VPA. The biological assumptions of the run-reconstruction model were considered and analyses of environmental data were begun during the Sub-group session. The sub-group considered general strategies to provide advice on Baltic salmon stocks with regard to the management objective of safe-guarding wild stocks. Finally, the Sub-group also reviewed stock identification techniques to identify wild versus hatchery-origin salmon in the catches.

#### *Baltic Salmon and Trout Assessment Working Group*

Mr L. Karlsson presented the report of the Baltic Salmon and Trout Assessment Working Group (Assess:15) in the absence of the Chairman Mr C. Eriksson. The total Baltic salmon catch in 1993, including the Gulf of Finland, was 4,019 tonnes. This was a 12% decrease from the 1992 catch of 4,540 tonnes. The offshore catch was 2,683 tonnes or 66.7% of the entire catch, which was slightly higher than the

proportion of 61.1% in 1992. The effort of the drift-netting gear used in the Baltic Main Basin continued to decrease, but the decline was offset by extremely high CPUE figures in the autumn of 1993. Scale reading, used to age and identify wild or reared salmon, continues to be problematic.

The M-74 syndrome has continued to cause large mortalities in newly hatched alevins of reared salmon, particularly in Swedish hatcheries. Mortalities in the range of 50-98% have been recorded in the years 1992-1994. Reared smolt production has not decreased in 1994 but will decrease in 1995 as a result of M-74. There is now also evidence that parr densities in rivers having wild salmon stocks are starting to show the influences of M-74. The estimated wild smolt production in 1994 will be the highest recorded for many years, about 455,000 smolts in the Gulf of Bothnia and 635,000 in the entire Baltic. In 1995, however, the estimated smolt run will decrease to about 109,000 fish in the Gulf of Bothnia and 279,000 smolts in the entire Baltic. Because of these large problems, the Working Group refrained from giving catch options, as the current status of wild salmon suggested that no fishing exploitation could be allowed.

The current status of sea trout was considered in more detail than in earlier years. Sea trout can be found in at least 250 Baltic rivers having a total smolt production of 300,000-400,000. Detailed information on the status of sea trout populations is not available, but many populations in the Gulf of Bothnia and the Gulf of Finland are overexploited. The reared smolt production has varied in the range of 2.5-3.0 million smolts in recent years. Because the widely migrating sea trout from southern stocks are caught in the offshore salmon fishery, the Working Group suggested that it may also be managed on an international level.

#### *Study Group on Anadromous Trout*

The report of the Study Group on Anadromous Trout (M:4) was presented by the Chairman Dr B. Jonsson. Naturally, anadromous brown trout is distributed in western Europe along Atlantic and Baltic coasts from the White Sea in the northeast to Spain in the southwest. It is also naturally occurring in the Black Sea and the Caspian Sea. To the north and south, the distribution is mainly limited by water temperature. The distribution has been reduced by river regulations, loss of habitats, pollution and over-exploitation. It has been expanded by stocking.

Rainbow trout occur in rivers and coastal waters throughout western Europe. Here, successful spawning is uncommon.

Due to heredity and environment, anadromous brown trout populations are partly migratory, i.e., split into

freshwater residents and sea-run migrants. Males prevail among residents, females among migrants. Sex ratio and smolt and adult size vary little among countries. Smolt age and age at maturity increase with increasing latitude.

## Scientific Contributions

### *Sea Trout*

Two papers on sea trout stocks were presented to the Committee. One study reported on homing fidelity of sea trout released as smolts in Polish rivers (Doc. M:22). It was pointed out that most of the strays that were sexually immature were recovered closer to the river mouths and that maturing strays were more frequently recovered well up the river systems. For many of the same rivers, pyloric caeca counts were evaluated as a potential stock identification character for sea trout populations (Doc. M:23). Though differences were found between some of the river stocks, it was also stressed that this particular morphologic character has shown annual variation in recent years that may obscure the stock differences.

### *Atlantic Salmon*

A series of seven papers was presented dealing with the ecology and management of Atlantic salmon. Detailed analyses of survival and sources of marine mortality for river stocks on the west coast of Ireland were presented. Salmon in the Burrishoole River were microtagged and fishing and natural mortality were determined for distant and homewater fisheries (Doc. M:9). Similar models and tagging experiments were applied to reared salmon in the River Shannon and County Limerick area rivers. The point was raised that the migration of non-maturing salmon (those destined to return as 2SW fish) was incompletely described by the tag return data.

An analysis of post-smolt growth and age at maturation for the hatchery component of a USA salmon stock was presented (Doc. M:7). Summer growth appears to be an important determinant of maturation for this stock. It was suggested that this analysis could be used as the basis of a search for the environmental determinants of maturation for this stock, and that the same technique could be applied to understanding maturation in other stocks and precocious parr.

The incidence of farmed escapee salmon in Norwegian and Faroese fisheries was summarised in Doc. M:13. Farm-origin salmon continue to comprise a large proportion of the catch in the respective areas. Further information on the migration and natural mortality of farm-origin fish may be gained by at-sea tagging of adults in the Faroes fishery area. Recent changes in the proportion of farm-origin salmon at the Faroes may represent changes in farming practices or changes in the

wild stock. It was pointed out that the recapture rate for farm-origin salmon was lower than that for wild-origin fish. It is suspected, however, that the migration may differ. A high priority was placed on modelling the population dynamics of farm-origin fish, but the database on this part of the stock is too limited at this time.

The relationship between indicators of stock abundance and environmental variables for Icelandic and Russian stocks was examined (Doc. M:20). Significant lagged relationships, indicative of the ocean circulation patterns in the Northeast Atlantic, were identified as potential causative factors in cycles of salmon abundance. Concern was expressed over the use of running means in some of the analyses. It was pointed out that only certain lags produced significant results. The forage base and potential predators do not appear to be equivalent between the two areas, for example, the recruitment of capelin and the abundance of some marine mammals.

An automatic fish counting system utilising line camera technology was described (Doc. M:14). The system has the advantage of low power consumption, making it useful in field settings. The system was found to have little behavioural effect on salmon, but does appear to cause some delays in char migration due to changes in the fish ladder. The system can differentiate the two species based on shape analysis.

The methods used to estimate the escapement of salmon in Quebec rivers were presented in Doc. M:21. The models incorporated the best available information on catch and environmental conditions such as river flow.

### *Baltic Salmon*

Four papers were presented related to various aspects of the assessment of Baltic salmon. The results of a scale reading intercalibration test were reported (Doc. M:11). It was found that there were significant differences between readers in their interpretation of both origin and age of Baltic salmon. It was not known why readers had difficulty in contrasting wild and reared origin salmon, but this is also known to be a problem in the North Atlantic when farm salmon escape at the smolt stage. It was pointed out that since readers were required to make a determination, i.e., no unknown category was used, no measure of reader indecisiveness was available. The temporal changes in reader performance were not tested. It was suggested that the approach being used in Ireland to intercalibrate age readers using computer imagery should be investigated in the Baltic area. The timing of salmon runs in the Gulf of Bothnia was described in Doc. M:17. Environmental correlates to the run and the effect of delayed runs on escapements were described. It was noted that the results in this study were similar to findings made in Atlantic Canada and in the Pacific area.

Estimates of the smolt run in the River Torne, which flows into the Bothnian Bay, were considered in Doc. M:19. The size of the wild smolt run was presented and the effect of M74 was considered. The trapping facility on the river was used to estimate the smolt run and in-river parr and smolt mortality. These mortality rates were considered similar to those observed for Norwegian rivers. The 1995 smolt class will probably reflect the impact of M74. The decline in the smolt run in the River Torne is believed to have begun well before the effects of M74 manifested themselves.

The stocking programme for rainbow trout in the Gulf of Finland was described (Doc. M:8). Young trout are recruited to coastal gill net fisheries in the Gulf of Finland at a very young age, and because these fish have a wide sea migration, they are harvested outside Finnish waters at a high rate. This stocking strategy does not appear to offer a mechanism to decrease the exploitation of the wild salmon stock since they are harvested by the same gears in the same areas and times. The smolts stocked in this programme are all females.

There were four additional papers available to the Committee that were not presented at the session. Two of these papers dealt with salmon stocks in the Kola Peninsula of Russia. The spawning grounds and spawning potential of the River Tuloma were described in Doc. M:24. Concern was raised in the paper about the status of this stock and recent increases in illegal fishing. The status of the Kola River was reviewed in Doc. M:25. Trend analysis and a review of the hatchery system on the Kola were considered. The committee also received two papers on the genetics of salmon populations in Spain. These papers were presented as posters. An analysis of genetic variation and age of maturity was presented in Doc. M:16. The authors were able to make some inference on the genetic influences on age of maturity. In a related study, genetic variability and maturation during the parr stage were considered (Doc. M:27). The results suggested a positive relationship between heterozygosity and physiological variables under hatchery conditions.

### Other Business

The Committee engaged in a discussion of mutual research interests with the Chairman of the Working Group on Diseases and Pathology of Marine Organisms.

The Chairmen and the Committee agreed that greater co-operation would be worthwhile and productive.

### Recommendations

The Committee considered and endorsed the terms of reference for the Working Group on North Atlantic Salmon and the Baltic Salmon and Trout Assessment Working Group, which will both meet at ICES Headquarters, the first from 3-12 April 1995 (C.Res.1994/2:6:19) and the second from 5-12 April 1995 (C.Res.1994/2:6:3). It was noted that the groups were expected to hold a half-day joint session to discuss items of mutual interest and to explore the possibilities of a merger or close co-operation between the two Working Groups.

In response to a proposal from the Study Group on Interactions of Wild, Ranched and Reared Salmon, the Committee recommended that a Symposium on the Interactions of Wild and Reared Salmon, including fish from Ranching, Farming and Enhancement be held in the UK in 1997 with Mr Alan Youngson and Dr Lars P. Hansen as Co-Convenors. It was further recommended that NASCO be invited to co-sponsor the event and nominate one Co-Convenor. The Proceedings should be published in the *ICES Journal of Marine Science*.

The Committee recommended that the Study Group on Stock Identification Protocols for Finfish and Shellfish under the chairmanship of Dr Kevin Friedland (USA) meet in October 1995 in Aberdeen (UK) and report to the 1996 ICES Annual Science Conference (C.Res.1994/2:56).

The Committee also recommended that the ICES Secretariat explore the possibilities of co-operating with other scientific organisations, such as PICES in the Pacific area, on stock identification methodology (C.Res.1994/3:6), which would strengthen the ICES efforts.

The Study Group on Anadromous Trout will not meet again but proposed that its report be published as a technical report for its reference value. The Committee recommended that the report be published in the *ICES Cooperative Research Report* series and be edited by the Chairman, Bror Jonsson (Norway) (C.Res.1994/1:11).

### Theme for 1995

The Committee approved the following theme for its 1995 meeting: "The Movement and Transition for Juvenile and Adult Anadromous and Catadromous Fish Migrating Between the Freshwater and Marine Environments: Triggers, Strategies and Mechanisms".

## DOCUMENTS

M:1		Report of Activities, 1993
M:2		Publications of interest to the Anadromous and Catadromous Fish Committee, 1993
M:3 Ref. F		Report of the Study Group on Interactions of Wild, Ranched (Enhanced), and Reared Salmon
M:4		Report of the Study Group on Anadromous Trout
M:5 Ref. G, H, K		Report of the Study Group on Identification Protocols for Finfish and Shellfish
M:6		Report of the Workshop of Salmon Spawning Stock Targets in the North-East Atlantic
M:7	K. Friedland and R.E. Haas	Patterns of post-smolt growth and early maturation of Atlantic salmon ( <i>Salmo salar</i> )
M:8 Ref. J	Ari Saura	Stocking results of the cultivated rainbow trout ( <i>Oncorhynchus mykiss</i> ) smolt in the Gulf of Finland
M:9	N. O'Maoileidigh <i>et al.</i>	Exploitation of reared salmon released into the Burrishoole river system
M:10	N. O'Maoileidigh <i>et al.</i>	High seas and homewater exploitation of an Irish reared salmon stock
M:11 Ref. J	E. Ikonen <i>et al.</i>	Results of a blindfold test on Baltic salmon ( <i>Salmo salar</i> L.) scale reading
M:12 Ref. J	E. Ikonen	<b>Withdrawn</b>
M:13	L.P. Hansen <i>et al.</i>	The incidence of farmed Atlantic salmon in the long-line fishery at Faroes and in Norwegian home waters
M:14	S. Gudjonsson and H. Gudmundsson	Development and testing of a new light gate fish counter in rivers
M:15		<b>Withdrawn</b>
M:16 Ref. F	G. Blanco <i>et al.</i>	Genetic variation and age at maturity in populations of Atlantic salmon of northern Spain
M:17	L. Karlsson <i>et al.</i>	Timing of the Baltic salmon run in the Gulf of Bothnia. Influence of environmental factors on annual variation.
M:18		<b>Withdrawn</b>
M:19	Ö. Karlström and P. Byström	Estimates of the smolt run in the river Torne Älv 1987-1993
M:20	T. Antonsson <i>et al.</i>	Environmental continuity in fluctuation of fish stocks in the North Atlantic ocean; with reference to Atlantic salmon stocks
M:21	J. Guillouët and F. Caron	Indirect estimate of Atlantic salmon escapement in Quebec rivers
M:22	P. Debowski	Homing of tagged sea ( <i>Salmo trutta</i> L.) smolts trout released into Polish rivers
M:23	J. Domagala and H. S. Faryniarz	Number of Pyloric Caeca as Possible Marker of Trout ( <i>Salmo trutta m. trutta</i> L.) Stocks in Pomeranian Rivers

M:24	A.V. Zubchenko	Salmon rivers of the Kola Peninsula. Their reproductive potential and Atlantic salmon stock state in the river Tuloma
M:25	A.V. Zubchenko	Salmon rivers of the Kola Peninsula. Analysis of status and possible measures to manage population structure of Atlantic salmon in the Kola river
M:26	D. Dunkley <i>et al.</i>	<b>Withdrawn</b>
M:27 Ref. F	I.A. Sanchez <i>et al.</i>	Relationships between genetic variability and precocious maturity and smolting in Atlantic salmon
M:28		ICES Compilation and Microtag, Finclip and External Tag Releases in 1993

## MARINE MAMMALS COMMITTEE (N)

Chairman: Dr A. Bjørge  
Rapporteurs: Dr R.V. Miller

The Marine Mammals Committee has met on Monday 26 September from 09.00-13.00. Further, the Committee had a Joint Session with MEQC on Saturday 24 September on the Occurrence and Effects of Contaminants in Marine Mammals. A separate report is available from the Joint Session.

### Committee Business

The Chairman informed the Committee that following a decision taken by the Council at the 1993 Council Meeting, an *Ad Hoc* Group had met and prepared a draft policy document on how to handle marine mammals questions within ICES. This document would be discussed later by the Council at this Annual Science Conference. However, independent of the outcome of the discussion on an ICES policy on marine mammals, the *Ad Hoc* group had identified a set of research topics of high priority. These are summarised as follows:

- 1) Studies of marine mammals as components of marine food webs, and two-way trophic relationships between marine mammals and fisheries;
- 2) Studies of population dynamics as a basis for assessment of impact on marine mammals stocks by incidental mortality in fishing operations and by directed harvest;
- 3) Descriptions of marine mammal foraging habits in order to understand their exposure to contaminants and to reveal the contaminant flow in ecosystems as basis for scientific advice on management of marine mammal habitats;
- 4) Investigations on marine mammal epizootic diseases and on marine mammal vectors for the transmission of parasites.

These priorities set a demand for incorporating marine mammal research into a wider interdisciplinary framework within ICES. The Chairman felt that these priorities probably can provide guidelines for the directions of future work in the Committee and for the establishment of new, integrated Study or Working Groups.

A proposal for an international collaborative project to study the population structure of North Atlantic harbour porpoise was presented by Dr G. Waring. This proposal was endorsed by the Scientific Committee of the International Whaling Commission (IWC) in 1994, and will be presented to the first meeting of parties to the Agreement on Small Cetaceans in the Baltic and North

Seas (ASCOBANS). The by-catch of harbour porpoises has been a matter of concern to the Committee, and knowledge of the population structure is a necessary basis for an evaluation of the impact of by-catches on porpoise stocks. The Committee therefore endorsed the proposal and recommended a closer collaboration between the relevant organisations (ASCOBANS, ICES and IWC) in the conduct of this project. The Committee welcomed the submission of reports on progress and results from the project to ICES.

A joint ICES/NAFO Symposium on the Role of Marine Mammals in the Ecosystem will be convened in Dartmouth, Nova Scotia (Canada) from 6-8 September 1995. The NAFO Co-Convenor, Dr G. Stenson, reported on the progress of preparations for the Symposium. A call for contributions will be issued by 1 December 1994 and a deadline of 1 March 1995 is set for submission of titles and abstracts.

### Election of Chairman

Dr H. Benke (Germany) was elected Chairman of the Committee for a three year period from 1 November 1994. Dr Benke has recently been working on the biology, distribution and abundance of harbour porpoise in European waters.

### Working and Study Group reports

In the absence of the Chairman of the Study Group on Seals and Small Cetaceans in European Seas, the Chairman of the Committee summarised the Study Group report (Doc. N:2). The Study Group on Seals and Small Cetaceans in European Seas met in Cambridge (UK) from 14-18 March 1994 to: 1) review current and historical population sizes of the respective seal and small cetacean populations; 2) assess the relative importance of factors which are believed to have an effect upon survival and reproduction in marine mammal populations; and 3) evaluate the size of seal populations in the Baltic Sea and assess their condition in relation to contaminants and by-catches.

The Study Group made a set of recommendations on: 1) by-catch data collection and analysis, 2) baseline monitoring of abundance and population characteristics of marine mammal populations under normal conditions, and 3) a continued monitoring of contaminants levels in marine mammal populations where high contaminant levels have been reported and of the possible effects of contaminants in these populations. The Committee endorsed these recommendations.

The Study Group further recommended modelling studies of the population dynamics of all three species of seals in the Baltic Sea, including the effects of current reported by-catches on the recovery of the ringed and grey seal populations. The Committee agreed that these studies should be carried out but underlined the urgent need for an evaluation of the impact of by-catch, disturbance and contaminants on the threatened and probably genetically distinct Baltic populations of harbour seals.

The Committee endorsed the recommendation for a new meeting of this Study Group (C.Res. 1994/2:57). The meeting will be convened in December 1995 to assess the status of small cetaceans in the North Sea and seals in the Baltic Sea in the light of new information on abundance and by-catches.

To facilitate future work of the Study Group, the Committee endorsed a recommendation urging ICES Member Countries to collect and report data on by-catches of marine mammals (C.Res. 1994/4:8). Members of the Committee stressed that this probably would result in incomplete information on the extent of by-catches but agreed that such statistics should be recorded.

Dr F. Kapel, Chairman of the Working Group on Harp and Hooded Seals, summarised the report (Doc. Assess:5) of a meeting held in Copenhagen from 15-21 September 1993, to: review new data on stock identity and migration of harp and hooded seals; assess stock size and pup production of harp and hooded seals in the Greenland Sea; and provide catch options for the 1994 sealing season in the Greenland Sea. The Working Group provided catch options for the harp seals, but felt

that available data were incomplete as a basis for advice on catch options for hooded seals.

The Chairman of the Committee reported on the progress of the Study Group on Long-Finned Pilot Whales (Doc. A:8). Since its first meeting in Copenhagen from 30 August - 3 September 1993, this group has been working by correspondence. At the first meeting, a set of questions to be addressed was identified before the group could complete its work. An analysis of data on the gestation period has now been completed. Other questions to be addressed would not require substantial time once deadlines are in place. The Chairman of the Study Group has therefore requested a new meeting in late 1995 to complete their work. The Committee was supportive of the group holding a new meeting, and advised the Committee Chairman to report this support to the Consultative Committee (C.Res. 1994/2:4).

#### Scientific Contributions

The Committee reviewed and discussed papers on:

- Foraging ecology: N:2, N:12, N:14 and N:16
- Marine mammal utilisation: N:7
- Migration, distribution and abundance: N:6, N:8 and N:10

#### Recommendations

Recommendations endorsed and made by the Marine Mammals Committee are described above under Committee business and under Working and Study Group reports.

## DOCUMENTS

N:1		Report of Activities 1993
N:2		Report of the Study Group on Seals and Small Cetaceans in European Seas, Cambridge, UK 14-18 March 1994
Ref. E		
N:3		Publications of interest to the Marine Mammals Committee
N:4	Finn O. Kapel	Variation in the feeding of harp seals ( <i>Phoca groenlandica</i> ) in the Southwest Greenland waters
Ref. H, L		
N:5	Finn O. Kapel	A review of recoveries in Greenland of tagged or branded harp and hooded seals
Ref. B, D		
Poster		
N:6	S. Northridge and T.D. Smith	The use of a geographical information system in analyzing and representing catch or sightings data
N:7	F. Shahidi and J. Synowiecki	Potential benefits and quality characteristics of carcass components of harp seal ( <i>Phoca groenlandica</i> )
N:8	G.B. Stensson <i>et al.</i>	Pup production and population growth of hooded seals ( <i>Cystophora cristata</i> ) Near Newfoundland, Canada

N:9 Poster	B. Sjare and G.B. Stenson	Comments on Incidental Catches of Seals in the Newfoundland Gillnet Fishery
N:10	A. Garcia-Castrillo <i>et al.</i>	Les mammifères marins du Nord et du Nord-Ouest de L'Espagne en 1993
N:11 Poster	M.B. Santos <i>et al.</i>	Diets of small cetaceans stranded from the Scottish coast
N:12 Ref. G, H	K.T. Nilssen <i>et al.</i>	Studies of food availability and diet of harp seals ( <i>Phoca groenlandica</i> ) in the southeastern Barents Sea in February 1993
N:13		<b>Withdrawn</b>
N:14 Ref.H, G, L	T. Haug <i>et al.</i>	Studies of minke whale ( <i>Balaenoptera acutorostrata</i> ) ecology in the Northeast Atlantic: Description of the 1993 scientific catch operations and preliminary results from stomach analyses and resource surveys
N:15		<b>Withdrawn</b>
N:16	V. Hernández-García <i>et al.</i>	Stomach contents of two short-finned pilot whale ( <i>Globicephala macrorhynchus</i> Gray, 1846) (Cetacea, Delphinidae) off the Canary Islands: A preliminary note



**REPORTS OF JOINT COMMITTEE SESSIONS AND THEME SESSIONS**



## JOINT SESSION OF THE MARINE MAMMALS AND MARINE ENVIRONMENTAL QUALITY COMMITTEES ON OCCURRENCE AND EFFECTS OF CONTAMINANTS IN MARINE MAMMALS (E+N)

Chairman: Dr A. Bjørge  
Rapporteurs: Mr S. Carlberg

Dr R.V. Miller presented an overview of the effects of the Exxon Valdez oil spill on cetaceans Doc. (E+N):2). The oil spill took place in Prince William Sound, Alaska, on 24 March 1989 when the oil tanker Exxon Valdez ran ashore and spilled 11.2 million gallons of oil into the coastal waters. Prince William Sound was rich in marine life with several seal and marine bird species. Six species of cetaceans occurred regularly in the area: Dall's porpoise, harbour porpoise, killer whale, minke whale, grey whale and humpback. Humpbacks and killer whales were selected for further studies because relevant background information was available and because the Prince William Sound was an important feeding area in summer and fall for these two species. Both species were studied by photo identification and individual recognition.

For humpbacks two hypothesis were tested:

- the abundance and distribution were not changed;
- the natality and mortality were not changed.

A shift in distribution of foraging humpbacks was recorded within the affected area. This shift, however, could probably have been caused by change in distribution of prey species or by increased disturbance from the clean-up activity.

The observed natality and mortality following the oil spill were within the normal range for humpbacks in the area.

The same hypothesis as for humpbacks were also applied for killer whales. In addition a hypothesis that pod structure and integrity were not changed, was tested. One pod suffered loss of 14 whales in 1989-1991. No emigration out of the area was documented and based on the knowledge of social structure of resident killer whales, the missing whales were presumed dead. This mortality (19.4% in 1989 and 20.7% in 1990) was significantly higher than expected based on previous knowledge. Although other sources of mortality cannot be ruled out, and there was not a clear cause and effect relationship documented, it is likely that the Exxon Valdez oil spill caused extra mortality of killer whales in Prince William Sound.

Six presentations focused on different aspects of organochlorine (OC) burdens in marine mammals. Doc. (E+N):6, presented by Dr B.M. Jensen, reported on possibilities for the use of biomarkers in blood to evaluate biological effects of OC exposure in free-living grey

seal pups. The study was based on biopsy of blood samples from grey seal pups at two locations in northern Norway and one location in the Gulf of St. Lawrence, Canada.

Doc. (E+N):10, presented by Mr R.J. Law, described a technique for pattern recognition of OC residues in marine mammals. Samples from stranded marine mammals in Scotland were analysed for OC residues. The raw data were normalized to a single compound, CB153, which effectively eliminated the co-factors such as age, sex, body condition and location. Discriminant analyses were used on normalized data of a variety of species to distinguish between different patterns of OCs in blubber.

Organochlorine contaminants in marine mammals from the Norwegian Arctic, Doc.(E+N):3, and the seasonal variation in OC concentration in Barents Sea harp seals, Doc. (E+N):4, were presented by Dr O. Espeland. OC levels in about 800 individuals of nine species of mammals (harp, hooded, grey, harbour and ringed seals, walrus, harbour porpoise, minke whale and polar bear) were monitored. Alarming high PCB levels were recorded in polar bears at Svalbard. Decreasing trends in OC concentration from south to north in harbour porpoise and harbour seals along the Norwegian coast, and from east to west in Northeast Atlantic harp seals were observed. Significant seasonal differences in OC concentrations in harp seal blubber were reported.

Doc. (E+N):9 presented by Dr. R.J. Law, reported on differences between Cardigan Bay (Wales) and Moray Firth (Scotland) in OC concentration in blubber of bottlenose dolphins and harbour porpoises. Although neither of these areas are considered to be severally polluted, dolphins from Cardigan Bay had very high concentrations of PCB in their blubber. Surface sediments and fish from the Cardigan bay have been examined, but no source likely to have caused the high concentrations of PCB in dolphins has yet been revealed.

Mr L. Kleivane reported on OC levels in blubber of male harbour porpoises from Scandinavian waters, in Doc. (E+N):5. Decreasing trends from south (Kattegat) to north (Barents Sea) were observed for SDDT, SHCH and SPCB. However, the highest levels of chlordan metabolites and endrin were recorded in animals from Barents Sea waters.

In the discussion following the presentations, the audience acknowledged the high quality of the OC analyses and the awareness of certified reference materials and

intercalibrating procedures. The predominance of reports of OC occurrence over effect studies was noticed. However, several ongoing effect studies in the North Atlantic region were noted.

The Chairman of the Marine Environmental Quality Committee concluded that this joint session had been successful and advised that the work be followed up with

a future joint session focused on biological effects of contaminants in marine mammals. The Chairman of the Marine Mammals Committee informed that a Workshop on Biological Effects of Pollutants in Cetaceans will be convened by the International Whaling Commission, probably 27-29 March 1995, in Bergen, Norway. An invitation will be forwarded to ICES for the participation of ICES scientists in this Workshop.

## DOCUMENTS

(E+N):1 <b>Poster</b>	J. Hellou and G. Stenson	Fluorescing compounds PAH, PCB and biogenic hydrocarbons in muscle, liver, kidney and blubber of marine mammals
(E+N):2	M.E. Dahlheim	<b>Not received</b>
(E+N):3	J. Utne Skaare <i>et al.</i>	Organochlorine contaminants in marine mammals from the Norwegian Arctic
(E+N):4	O. Espeland <i>et al.</i>	Seasonal variation in organochlorine concentrations in harp seal ( <i>Phoca groenlandica</i> ) from the Barents Sea region
(E+N):5	L. Kleivane <i>et al.</i>	Organochlorines in harbour porpoise ( <i>Phocoena phocoena</i> ) from Scandinavian waters
(E+N):6	B. Munro Jenssen <i>et al.</i>	Biomarkers in blood to evaluate biological effects of organochlorines in free-living grey seal pups
(E+N):7 <b>Poster</b>	B. Kløven <i>et al.</i>	Body burdens of organochlorines in grey seal pups
(E+N):8 <b>Poster</b>	O. Haugen <i>et al.</i>	Vitamin A plasma-status and organochlorine concentration in blood of free-living grey seal pups
(E+N):9	R.J. Law and C.R. Allchin	Organochlorines in the blubber of bottlenose dolphins ( <i>Tursiops truncatus</i> ) and harbour porpoises ( <i>Phocoena phocoena</i> ) from Cardigan Bay (Wales) and the Moray Firth (Scotland)
(E+N):10	D.E. Wells and C. MCKenzie	Techniques for pattern recognition of organochlorine residues in sea mammals from Scottish coastal waters
(E+N):11	W. T. Stobo	<b>Not received</b>

# JOINT SESSION OF THE HYDROGRAPHY COMMITTEE, THE MARINE ENVIRONMENTAL QUALITY COMMITTEE AND THE BIOLOGICAL OCEANOGRAPHY COMMITTEE ON QUALITY ASSURANCE OF MARINE MEASUREMENTS (C+E+L)

Conveners: Mr S. Carlberg, Dr M. Reeve, Mr H. Loeng  
Rapporteur: Dr L. Edler

The session, opened by the MEQC Chairman Mr Stig Carlberg, was co-chaired by the Chairmen of BOC, Dr Mike Reeve, and HYC, Mr Harald Loeng. Dr Lars Edler was appointed rapporteur. Approximately 50 persons attended the session. The scope of the session, as outlined by the Chairman, was to:

- define what quality is;
- describe the concept of Quality Assurance (QA);
- provide spot-checks/state-of-the-art descriptions of QA in biology, chemistry, physics and data handling;
- relate data quality to interpretation of data.

## Scientific Contributions

Six papers were presented.

Doc. (C+E+L):2 described the relation between quality assurance standardization and accreditation and how it is possible to introduce and assure that a certain quality is achieved.

Doc. (C+E+L):3 discussed the problems of introducing QA to the daily marine biology work and gave illustrations of how the ICES/HELCOM initiative to introduce QA principles into the monitoring programmes is being implemented.

Doc. (C+E+L):4 described the QUASIMEME programme which aims at identifying and reducing sources of error in analytical measurements. The programme has identified the needs to be tackled in the near future as: 1) training for specific analyses; 2) guidelines on sample storage; 3) guidelines on sampling; 4) availability of appropriate materials for quality control purposes; and 5) a continuing proficiency testing programme with regular intercomparison exercises.

Doc. (C+E+L):1 described the QA procedures of the British Oceanographic Data Center. The procedures common for all sorts of data include a transfer system (reformatting operation and standardization), a data assembly system (bringing together the data documentation), and data screening.

Doc. (C+E+L):5 discussed the aim of quality assurance and stressed the idea that the ultimate goal is to provide data which are environmentally meaningful.

To reach this goal, sample details, analytical and environmental validation are necessary.

Doc. (C+E+L):6 described the problems the ICES Oceanographic Data Centre (ICES ODC) is faced with to secure the quality of data. Case stories were given to demonstrate mistakes in data submitted. In order to establish a high quality ICES Data Bank, the establishment of the Standard Seawater Service and the existing guidelines have played an essential role, as well as the promotion of standards and protocols. Overestimation or misunderstanding of the capabilities of modern instrumentation, including software systems, is a major threat to the high quality of data submitted to the ICES ODC.

## Discussion

In the discussion following the presentations, it was stressed that modern and advanced instrumentation does not secure high quality data. Instead it is the use of the mind, the skill and the continuous training of the personnel that are of greatest importance. This may be in conflict with the fact that research projects and other programmes are often short lived and the technical personnel consequently hired on a short-term basis.

The responsibility of the data user was also stressed.

The difficulty of introducing quality assurance in marine biology may be due to the problem of the high diversity of marine organisms. It takes years, if not decades, to learn to identify the species present in a given area. Again it was stressed that training programmes are the best way to overcome the problem.

Intercalibrations/intercomparisons between laboratories are also a good way of enhancing the quality of the data produced. The exercise should be executed in a way that it is possible to pin-point, realize, and change mistakes. It is only of value if the participants accept that problems may occur in their routines and agree to implement necessary changes.

It was suggested that our main task is to identify anthropogenic effects and other problems in the environment. While the funds for doing this decrease, the need to understand the problems increases. Therefore, one should be careful and not let too much money go to QA. In response to this, it was argued that QA is a management system and an instrument rather than a separate

activity of its own. QA should be a natural part of re-search activities.

It was stressed that a very important part of the QA work concerns the sampling step. Until now too much

focus has probably been given to the analytical step. The different conditions at sea when obtaining the samples will probably introduce larger variations than small differences in some part of the analytical step.

## DOCUMENTS

(C+E+L):1	L.J. Rickards	BODC Quality assurance procedures for physical oceanographic data
(C+E+L):2	S. Carlberg	Quality assurance - What it is and what it is not
(C+E+L):3	L. Hernroth	Quality assurance - a new fashion? Maybe, but certainly a tool to improve the quality of data
(C+E+L):4	D.E. Wells <i>et al.</i>	Quality assurance of marine measurement QUASIMEME: the first year of an holistic QA project
(C+E+L):5	P.A. Gurbutt and K.J. Medler	Data quality is more than an intercomparison
(C+E+L):6	H.D. Dooley	When data are good they are very very good, but when they are bad they are horrid

## JOINT SESSION OF FISH CAPTURE, STATISTICS, DEMERSAL FISH, AND PELAGIC FISH COMMITTEES ON ESTIMATING ABUNDANCE FROM FISHING SURVEYS AND ACOUSTIC MEASUREMENTS (B+D+G+H)

Convener: Mr E.J. Simmonds

Rapporteur: Mr W. Warren

K. Foote presented two papers, the first (Doc. (B+D+G+H):2) "Extinction Cross Section of Herring; New Measurements and Speculation" of which he was author, being a precursor to the second, "Acoustic abundance estimation of wintering Norwegian spring spawning herring with emphasis on methodological aspects" by I. Røttingen, K.G. Foote, I. Huse and E. Ona. In contrast to the immediately preceding years, when weather was a problem, conditions for the measurement of extinction cross section were satisfactory during the acoustic survey of wintering herring in the Ofotfjorden-Tysfjorden system in January 1994. Using an exceptionally flat seabed, estimates were obtained for four different criteria on depth stability. Variation between day and night effects could not be explained and, indeed, there was little evidence to support such effects. Balancing the requirement for flatness and number of data led to an estimate of the ratio of the extinction cross section to backscattering cross section, averaged over day and night, of 2.41 with a standard error of 0.33, compared with historic data that range from 1.6 to 2.6. The internal consistency of the new data suggests the value of 2.41 can be applied to survey data to compensate for the effect of extinction. Some of the variation was conjecturally attributed to differences in orientation and swim bladder state, and an analogy was made with work on light extinction in the optics literature. Questions concerned the effect of orientation on the estimate of abundance; it was explained that this would be addressed in the second paper.

The second paper (Doc. (B+D+G+H):1) dealt with the estimation of abundance from the 1993-1994 survey of wintering Norwegian spring spawning herring in the Ofotfjorden-Tysfjorden system, as well as a number of auxiliary studies. The migration biology of the stock was described. Conditions for acoustic estimation of this stock were excellent; the stock is confined to a limited geographic region which is protected from the ocean and admixture with other species is almost negligible. Features of the sampling design were described, e.g., zig-zag coverage of the irregular area with more intensive coverage by parallel transects of selected areas, and the criteria for post stratification. Estimates of abundance and their precision were obtained by geostatistical methods. Estimates were internally consistent. Auxiliary studies included the estimation of extinction cross section (described in the first paper), fish orientation *in situ* (measured by underwater

equipment with strobe illumination; this revealed day-night differences), target strength *in situ* (differences were found between target strength *in situ* using split-beam techniques and target strength-length relations used in the acoustic biomass estimation of herring stocks), geographical differences in size distribution (leading to post stratification), measurement of herring fat content, hydrographic measures, especially dissolved oxygen content which seems to be related to herring density. In addition, acoustic measurements made simultaneously at 4 frequencies, 18, 38 120 and 200 kHz showed differences that, although small, may be biophysically meaningful. Questions concerned whether oxygen consumption could be used as an indicator of stock abundance and the consequences of some of the auxiliary studies for which it was explained that the analyses had not been completed.

The focus of the paper "Mapping and assessment of fisheries resources with coastal and depth constraints, the case study of snow crab in the bay of islands fjord, Newfoundland", (Doc. (B+D+G+H):4) presented by G. Conan, was the problem of kriging in highly irregularly shaped areas, such as bays, fjords and lakes, and containing discontinuities, such as islands and troughs. Under ordinary kriging, global estimation may be a little affected but not variance estimation or mapping. There is also a complication when the resource is of limited value so that relatively little time can be justified for its assessment. A remedy was suggested whereby the influence, on the variogram, of points either side of a land mass or other boundary is suppressed. This, however, may still leave discontinuities in the mapped contours that are not pleasing to the eye. Incorporation of depth via 3D splines helps to close the contours and thus produces a more pleasing result, but can also produce abrupt changes in density that appear unrealistic or high densities in unexplored areas. Improvements can be made by building on the biology of the species. The methods were illustrated with snow crab in the bay of Islands fjord, Newfoundland. Spatial segregation of the basis of sex and size was sometimes observed. Distribution may also be limited by temperature. It was suggested that it might be useful to consider distance to a limiting thermocline rather than depth as covariate. Questions concerned whether the variograms differed and, if so, whether the difference was related to abundance (answer - although the sill may vary, the range was relatively constant) continuity of the variogram at the origin and the number of samples employed.

Doc. (B+D+G+H):3 by S.J. Smith ("Evaluating statistical properties of trawl survey estimates of mean abundance") observed that the conventional stratified random sampling designs used to monitor groundfish populations, estimation of the mean and variance is based on finite population theory and no statistical model need be postulated for the data. On the other hand, the construction of confidence limits invokes the central limits theorem and, with the sample sizes employed, asymptotic theory may not be applicable, with the result that the calculated limits often seem unrealistically wide or that the lower limit is negative. The viability of other approaches, such as logarithmic transformation or the delta distribution, involve assumptions and the results do not appear to be robust against violations of these assumptions. Thus, bootstrap confidence intervals were suggested as an appropriate alternative. Three ways of bootstrapping from a stratified random design were described, these being denoted as the naive bootstrap, the rescaling bootstrap and the bootstrap with replacement (BWR). Tests showed that the naive bootstrap gave a biased estimate of the variance but that the rescaling bootstrap and BWR were essentially unbiased and roughly equivalent, with the BWR perhaps being preferred because of its greater simplicity. Questions concerned the possibility of collapsing strata (though, to be viable for the Scotian Shelf). It was noted that, with small sample sizes, exact calculation of the bootstrap distribution could be accomplished with less computational effort than repeated sampling, although there would exist a sample size above which the reverse would apply.

The final paper of the session "Age Structure and Estimated Mortality as an error indicator for acoustic

surveys with information on numbers at age" (Doc. (B+D+G+H):5) by E. J. Simmonds presented a smoothing technique for abundance estimates using the correlated errors in age structure that is common in most acoustic surveys where abundance is derived from acoustic data and combined with age derived from trawls. The paper examined a very wide range of stock conditions by simulation. The impact of the magnitude and correlation of errors in abundance and age determination were investigated on a simulated stock with variable mortality and recruitment. The conclusions were that for most circumstances smoothing could give improvements in the mean square error in abundance estimation of 2 to 3 times and for estimates of total mortality of 6 to 9 times. The best results were obtained when the errors in abundance were large and uncorrelated and variability in mortality was small. A simple formula was provided to allow estimates of the most appropriate correction power factor. Following the paper the issue of age dependant mortality was discussed.

The session continued with a discussion of the use of covariates to improve information on the distribution of a population of interest. The usefulness of this was agreed but the importance of ensuring that only appropriate related covariates be used was stressed. The session concluded with a discussion of the importance of correct sampling strategy. The use of strata for effort allocation was stressed as useful. The use of random sampling as a method of providing assumption free estimates of variance was raised but the practicality of pure random sampling in an environment with temporal change was noted.

## DOCUMENTS

(B+D+G+H):1	I. Røttingen <i>et al.</i>	Acoustic abundance estimation of wintering Norwegian spring spawning herring, with emphasis of methodological aspects
(B+D+G+H):2	K.G. Foote	Extinction cross section of herring: New measurements and speculation
(B+D+G+H):3	S.J. Smith	Evaluating statistical properties of trawl survey estimates of mean abundance
(B+D+G+H):4	G.Y. Conan <i>et al.</i>	Mapping and assessment of fisheries resources with coastal and depth constraints, the case study of snow crab in the Bay of Islands fjord (Newfoundland)
(B+D+G+H):5	E.J. Simmonds	Age structure and estimated mortality as an error indicator for acoustic surveys with information on numbers at age

## THEME SESSION ON NON-TARGET SPECIES (O)

Convener: Dr O.A. Bergstad  
Rapporteur: Dr J.D.M. Gordon

After welcoming the participants the Convener described the background to the Theme Session and listed the reasons for requiring more information on non-target species. These were as follows:

- since "non-target species" are not monitored or assessed regularly, they may become over-exploited as indirect effects of the fishery for target species;
- in a wider context of preserving "biodiversity" (c.f. UNCTAD conference 1992), there is a growing demand for monitoring the health of entire communities and ecosystems, not only populations of species being commercially exploited;
- non-target species may have to feature more explicitly in the assessment and management models, particularly in the multi-species models for various ICES areas;
- even minor by-catches may constitute potentially marketable resources in a time when markets demand diversity and specialities;
- during their extensive trawl surveys and other activities, most national laboratories collect data on many more species than those which are assessed by ICES Working Groups. This information often rests in more or less inaccessible databases for long periods of time. To justify the costs of collecting these data and to avoid unnecessary repetitive or overlapping efforts, opportunities to analyze and present this information in an organised manner should exist. At a time of growing interest for "non-target species" and limited funds for new studies, such presentations would seem particularly timely.

Nine papers had been contributed to this Theme Session but one (Doc. O:5) had subsequently been withdrawn. Three posters were also contributed. Contribution Doc. O:11, was not received. Docs. O:12, O:10, and O:9, which all dealt with non-target species in the Barent Sea, were read by title only.

Doc. O:8 described the ecology and the resource of long rough dab (*Hippoglossoides platessoides*) in the Barents Sea and Svalbard area. The problems of adequately sampling non-target species on surveys designed for target species were considered in the discussion. In the case of the long rough dab the total distribution and depth range had not been sampled. There was insufficient data on ageing to follow year classes or to show whether maturity might be age rather than length related.

Data on the distribution and abundance of polar cod (*Boreogadus saida*) off southern Labrador and eastern Newfoundland was presented in Doc. O:6. In the ensuing discussion it became apparent that relatively little was known of the biology of this species in the western Atlantic. It is an important competitor of capelin and prey species of cod. Changes in distribution were described but in the absence of information on spawning areas, relationships with physical phenomena etc., any association with changes in the distribution of other fish species, such as cod, were purely speculative.

Doc. O:4 dealt with the distribution and biology of non-commercial cephalopod species from the Atlantic continental shelf of the United States. This paper emphasized the difficulty of accurately identifying some non-target species, which in the case of some cephalopods, require dissection. There was a suggestion that routine photography of non-target species in survey catches could be a useful source of information.

Doc. O:3 summarised what little was known about the biology of the grey gurnard (*Eutrigla gurnardus*) in the North Sea. Analysis of its distribution in the International Bottom Trawl Surveys for 1970 to 1993 showed both annual and seasonal changes. The discussion illustrated how a lack of age data could reduce the value of this information for the estimation of natural mortality of non-target species.

Brief reports were given of the results presented in the three posters (Docs. O:1, O:2, O:7). Doc. O:1 dealt with the unusual occurrence of the deep-water species, *Helicolenus dactylopterus* (bluemouth) in the North Sea. Doc. O:2 discussed the distribution of four ray species in the North Sea while Doc. O:7 described aspects of the distribution and ecology of the two most abundant elasmobranch, *Etmopterus spinax* and *Chimaera monstrosa*, in the Norwegian Deep.

Time permitted a brief presentation of Doc. G:10 which was intended for this Theme Session but had been allocated to the Demersal Fish Committee. It dealt with the, mainly estuarine and coastal surveys that had been carried out in the eastern North Sea from 1980. The discussion again emphasized the need for age data as an aid to the interpretation of such survey data.

In the general discussions following the presentations the main comments centred on the acquisition of data on non-target species. Fisheries agencies have both the mandate and the means of carrying out long time-series of data collection. The interest in the non-target species

often resides on universities and other institutes which depend on short-term funding. It was recommended that collaboration between fisheries agencies and other bodies should be encouraged.

As fisheries decline some long time-series of data collection by fisheries agencies could be at risk. The future role of environmental agencies in continuing these time-series should be evaluated.

## DOCUMENTS

O:1 Poster	H.J.L. Heessen	Bluemouth ( <i>Helicolenus dactylopterus</i> ): a new species in the North Sea?
O:2 Poster	H.J.L. Heessen and P. Walker	Distribution and biology of four ray species in the North Sea
O:3	H. Heessen and N. Daan	Distribution and abundance of grey gurnard ( <i>Eutrigla gurnardus</i> ) in the North Sea
O:4	M. Vecchione <i>et al.</i>	Distribution and biology of non-commercial cephalopod species from the Northeastern Continental Shelf of the United States
O:5		Withdrawn
O:6	G.K. Lilly <i>et al.</i>	Distribution and abundance of polar cod ( <i>Boreogadus saida</i> ) off southern Labrador and Eastern Newfoundland
O:7 Poster	Å. Dagrunn Wik and O.A. Bergstad	Distribution, size composition and trophic ecology of velvet belly ( <i>Etmopterus spinax</i> , L. 1758) and rabbit fish ( <i>Chimaera monstrosa</i> L., 1758) in the Norwegian Deep
O:8	O.T. Albert <i>et al.</i>	Long rough dab ( <i>Hippoglossoides platessoides</i> ) of the Barents Sea and Svalbard area: ecology and resource evaluation
O:9	M.S. Shevelev	Migration pattern of spotted catfish ( <i>Anarhichas minor</i> Olafsen) in the Barents Sea and adjacent waters
O:10	K.M. Sokolov and M.S. Shevelev	New findings of egg clutches of wolffish ( <i>P. anarhichas</i> ) in the Barents Sea
O:11		Not received
O:12	A.V. Dolgov	Some aspects of biology of non-target fish species in the Barents Sea

## THEME SESSION ON MULTISPECIES INTERACTIONS OF IMPORTANCE TO THE GROUNDFISH ABUNDANCE FLUCTUATIONS (P)

Conveners: Dr G.H. Winters and Prof. N. Daan

The Theme Session occurred on the afternoon of 26 September and the morning of 27 September, as a joint session of the Demersal and Marine Mammals Committees. The rationale for the session was the recent focus of research on food-chain interactions such as seal predation on groundfish and food limitations for growth and reproduction. Such studies are important in advancing our understanding of the causes of fluctuations in the abundance of groundfish and in defining management actions.

A total of 11 papers were presented by their authors. These covered a wide geographic area from northern Spain to the Gulf of Alaska, including such areas as West Greenland, Scotian Shelf and Georges Bank. Significant topics covered included the role of Walleye pollock in the Gulf of Alaska ecosystem, a multivariate analysis of fish community dynamics on Georges Bank and the role of dogfish in haddock population fluctuations, and a model of grey seal predation on Scotian Shelf cod. Surprisingly, there were no contributions on multispecies effects on predator growth and reproduction, nor were there contributions from the Barents Sea where multispecies models have been developed and are currently in use. In addition, a short summary of the Report of the Multispecies Assessment Working Group was given elucidating some new advances in evaluating multispecies effects in the North Sea.

The major conclusions arising from the presentation and discussion of papers at the theme session are summarized as follows:

- a) understanding trophic relationships is crucial to predicting the results of changes in the abundance of predators on prey and vice versa. This knowledge remains elusive and reflects the lack of high quality sampling data combined with the high levels of natural variability in community dynamics;
- b) stock abundance of commercially exploited groundfish is determined by a complex interaction of environmental variability, species interactions and fish mortality. All possible interactions cannot be included into any simplified model so that the unique community structures observed in nature are difficult to reproduce with confidence unless more complicated models are used. Such models, however, require extensive time-series data on species interactions which usually do not exist and therefore the models become assumption-driven. Nevertheless, multivariate analyses appear to provide a means to add some predictability to management regimes applied to groundfish resources;
- c) the incorporation of explicit predation can provide a better fit to traditional assessment models (eg. VPA) and, may significantly alter perspectives on stock-recruit dynamics as well as yield per recruit calculations;
- d) emphasis should continue to be placed on collections of stomach content data as well as monitoring of community dynamics and vital rates of the major predators (in many cases marine mammals).

### DOCUMENTS

P:1	P.A. Livingston	Overview of multispecies interactions involving walleye pollock in the eastern Bering Sea and Gulf of Alaska
P:2	S.A. Pedersen	Multispecies interactions on the offshore West Greenland shrimp grounds
P:3	M.J. Fogarty and J.K. Brodziak	<b>Not received</b>
P:4	G.T. Waring	Spatial and temporal patterns in harbor seal entanglements in the Gulf of Maine sink gillnet fishery
P:5	E. Grunwald and F. Köster	Feeding habits of Atlantic cod in West-Greenland waters
P:6		<b>Withdrawn</b>
P:7	M. Shima <i>et al.</i>	Models examining marine mammal fishery interactions in the Gulf of Alaska, USA and comparisons to other ecosystems

P:8	G.Y. Conan	Can simple linear correlation analysis satisfactorily detect environmental or interspecific effects on fisheries landings in a chaotic oceanic universe?
P:9	I. Olaso <i>et al.</i>	Influence of anchovy and blue whiting in the feeding of northern Spain hake
P:10		<b>Withdrawn</b>
P:11	B.K. Mohn and W.D. Bowen	<b>Not received</b>
P:12	O.P. Pedersen	A multispecies model of a fjord system
P:13		<b>Withdrawn</b>
P:14	P.D. Spencer and Jeremy S. Collie	Modeling seasonally dependant predation in marine environments

## THEME SESSION ON THE IMPACT OF THE 1993 MAJOR INFLOW TO THE BALTIC SEA (Q)

Convener: Mr H. Dahlin  
Rapporteur: Mr H.P. Hansen

The Chairman, Mr Hans Dahlin, opened the session and suggested that as the audience were well acquainted with the inflow event as well as the general Baltic Sea background no introduction was required. He informed that he had arranged the presentations in three logical blocks:

- Description of the physical properties of the 1993 and consequent inflow events (Docs. Q:1, Q:2, and Q:9);
- General aspects and effects of inflow events (Docs. Q:3 and Q:8);
- Biological effects of the inflow (Docs. Q:4 and Q:5).

Questions and discussion were postponed until after a group of presentations.

In accordance with the Chairman's proposal Dr Hans Peter Hansen was appointed as rapporteur.

Doc. Q:1 identified characteristic patterns of pressure fields over the North Atlantic and Europe and geostrophic winds over the transition area between the North Sea and the Baltic Sea during a 15 day pre-inflow period and the inflow events. A positive correlation between inflow intensity and pressure gradients was shown. The characteristic atmospheric circulation patterns were suggested as triggering the inflows of highly saline and oxygen-rich water into the Baltic Sea.

The dynamic control of the water exchange may be described using a regional numerical model of the Baltic Sea (Doc. Q:2). The model is initialized with the mean summer stratification and forced by buoyancy and wind. A simulation of the January 1993 Baltic inflow by means of a three-dimensional eddy-resolving baroclinic model starting from a three-dimensional autumn mean distribution of temperature and salinity and forced by wind fields computed from atmospheric pressure charts (Q:9 Poster) resulted in realistic salinity distributions of the Western Baltic compared with hydrographic measurements taken during February and March 1993.

The consequent discussion was related to the positioning of routine observation stations (e.g., in monitoring programmes) as the water exchange dynamics modelling (Doc.Q:2) displayed two opposing currents simultaneously at either coast of the Fehmarn Belt.

The surprisingly rapid oxygenation of the Baltic Basins was explained (Doc. Q:3) to be a consequence of a series of inflows following that in January 1993. The first inflow filled the Arcona and Bornholm Basins with highly

saline water so that consequent inflows could directly pass on top of this into the Gotland Deep. The extension of areas with oxygen/salinity situations matching the requirements for cod egg survival was calculated before, during, and after the 1993/1994 inflows (Q:8 Poster).

The following discussion considered the term "major inflow". According to Matthäus, major inflows are identified by their durations and salinities rather than their volumes.

Several speakers contributed observations related to the item. The spreading of good salinity/oxygen conditions due to the inflows coincides with observations of very high spawning activities in August in the Bornholm area, however, an ichthyoplankton haul in July 1994 yielded seven cod larvae which is only two more than in July 1993.

As a possible consequence of the improving conditions due to the inflows a migration of smaller sized cod (no old ones) into the Baltic was observed.

Video observations in the Gotland Deep in 1993 (after the first inflow) registered a layer of milky turbid water from 130 to 200 m depth and again clear water from 200 m to the bottom. The white turbidity was explained as elementary sulfur from the oxygenation of  $H_2S$ .

A mechanism of cod egg transport throughout the Sound associated with salt water inflows was illustrated (Doc. Q:4). Doc. Q:5 was only available in printed form and not presented orally. The saved time was given to Dr H. Rumohr for a presentation of slides displaying the benthos situation in some of the Baltic basins before and after the inflow events. Prior to 1991 the bottom of the Bornholm basin was totally covered with *Beggiatoa* sulfur bacteria. After 1991 the situation improved. The bottom area became oxic again but *Beggiatoa* patches are still to be found.

The bottom of the Gotland basin displayed a considerable number of small polychaetes on top of the sediment still black from anoxia. This kind of life has not been observed there since the 1930s. The polychaetes may serve as food for cod and additionally reduce the amount of detritus accumulated on top of the sediment.

The following discussion noted that considerable numbers of 0-group and 1-group cod were found in the Gotland area in July 1994. This confirms the transport of cod eggs from the Kattegat into the Baltic as these stages cannot be grown from cod eggs spawned in this

area. It was evident from the presentation Q:8 that even after the inflows there was a risk for cod eggs to be trapped in the depth range 130 to 150 m in the Gotland area by a salinity of 10.5 and insufficient oxygen. The

discussion about survival chances of cod eggs, indicated that acceptable or good conditions were assumed from March to end of September.

## DOCUMENTS

Q:1	W. Matthäus and H. Schinke	Mean atmosphere circulation patterns associated with major Baltic inflows
Q:2	W. Fennel and T. Seifert	Dynamics of the transition area between the Baltic Sea and the North Sea
Q:3	W. Matthäus <i>et al.</i>	Effects of the inflows of salt-rich water during 1993 and early 1994 in the Central Baltic Sea
Q:4 Ref. C.	H. Westerberg	The transport of cod eggs and larvae through Öresund
Q:5	B. Klenz	Distribution of ichthyoplankton in the Western Baltic regarding cod recruitment
Q:6		<b>Withdrawn</b>
Q:7 Poster	B. Hekansson and B. Carlsson	Exchange of salt and water volumes taking place between the North Sea and the Baltic Sea through the Sound in 1993
Q:8 Poster	H. Dahlin and B. Broman	On the importance of smaller inflows succeeding the major inflow of January 1993 to the Baltic Sea
Q:9 Poster	A. Lehmann	The major Baltic inflow 1993 - A numerical model simulation

## THEME SESSION ON PELAGIC FISH AND PLANKTON INTERACTIONS IN MARINE ECOSYSTEMS (R)

Conveners: Prof. E.D. Houde and Mr H.-R. Skjoldal

Rapporteur: Prof. E.D. Houde

The Theme Session was held on Thursday 22 September from 14.30-18.00 hrs. There were six papers presented orally and two posters.

Trophic interactions between pelagic fish and plankton potentially may structure communities in pelagic ecosystems. Predator-prey relationships generate significant "top-down" effects in relatively closed freshwater ecosystems, but whether such effects are important in more open marine systems is less understood and also less studied. An increasing interest within ICES on multispecies and whole ecosystem management provided the Theme Session idea, which focused on trophic interactions that link fish stocks to planktonic prey and system productivity.

Papers in the session covered a broad range of topics that included experimental, field and modelling studies. Emphasis ranged from models of prey selection from the perspective of individual fish (Doc. R:1) to ecosystem models dependent upon size-structured, trophic interactions (Doc. R:2). Population-level behaviour and bioenergetics relationships of herring (Doc. R:9) and capelin (Doc. R:7) which affected their seasonal distributions were reported. Other presentations included discussions of a possible critical predator-prey relationship between juvenile sockeye salmon and zooplankton king crab (Doc. R:10), and the relationship between phytoplankton blooms and snow crab larval release (Doc. R:12).

A series of questions, derived from discussions of papers presented during the session, may help to focus future work and research on fish-plankton interactions:

1. Is hydrography more important than prey resources in directing migrations and leading to aggregations of pelagic fish (Doc. R:9)?
2. Is "top-down" control important and do "trophic cascades" exist in the sea (Doc. R:2, Doc. R:7)?
3. What are the consequences of arrival of shoals of migrating fish (e.g. herring, mackerel, salmon) on the standing stock and productivity of plankton (Doc. R:9, Doc. R:10)?
4. Do size-structured predator-prey relationships

control plankton biomasses and potential productivity (Doc. R:2, Doc. R:7)?

5. Can a clear link via bioenergetics relationships, be established between the well being of fish and the ocean environment (Doc. R:2, Doc. R:7, Doc. R:10)?
6. Is the relationship between spawning times and production cycles critical to fish production and recruitment success (Doc. R:9, Doc. R:12)?
7. What controls the selection process in predator-prey relationships between pelagic fish and zooplankton (Doc. R:1)?
8. What are the consequences to recruitment of variable (time and space) production of planktonic prey for fish larvae (Doc. R:12, Poster R:5, Poster R:6)?

Although papers in the session were diverse, two chief ideas emerged as key elements. These were:

### Bioenergetics:

Bioenergetic principles and models that consider both trophic and environmental variables have played an important role in research on freshwater ecosystems for at least two decades. The potential and constraints in applying such models to more "open-ended" marine stocks, such as herring and capelin, were demonstrated and discussed (Doc. R:7, Doc. R:9, Doc. R:10).

### Migrations:

The question of whether pelagic fish migrate in response to plankton abundances and distributions, or whether such migrations are "programmed" by stock genetics and directed by hydrography was addressed although not resolved (Doc. R:9). The possible role of migrating shoals of predatory fish in structuring and stabilizing marine plankton communities (top-down control) was proposed and contrasted with freshwater systems where such migratory planktivores are rare (Doc. R:2).

## DOCUMENTS

R:1	J. Luo and B. Brandt	Virtual reality of planktivores: Are fish really size selective?
R:2	W. Silvert	Bloom dynamics in marine food chain models with migration
R:3		<b>Withdrawn</b>
R:4 <b>Poster</b>		<b>Withdrawn</b>
R:5 <b>Poster</b>	V. Puvanendran and J.A. Brown	Differential response of longitudinally separate populations of cod larvae ( <i>Gadus morhua</i> ) to light levels
R:6 <b>Poster</b>	V. Gotceitas <i>et al.</i>	An investigation of the match/mismatch hypothesis with Atlantic cod larvae
R:7	Ø. Fiksen <i>et al.</i>	<b>Not received</b>
R:8	H. Gjøsæter <i>et al.</i>	<b>Withdrawn</b>
R:9	W. Melle <i>et al.</i>	Feeding and migration of Norwegian spring spawning herring in the Norwegian Sea
R:10	V. Wespestad <i>et al.</i>	Juvenile sockeye salmon ( <i>Oncorhynchus nerka</i> ) predation on Bering Sea red king crab ( <i>Paralithodes camtschatica</i> ) larvae as a cause of recruitment variation
R:11		<b>Withdrawn</b>
R:12	G.Y. Conan <i>et al.</i>	Is match/mismatch the universal ill fated mechanism de-regulating stock/recruitment models? Snow crab ( <i>Chionoecetes opilio</i> ) prove that some species may precisely sense optimal plankton production for a timely release of their larvae.

## THEME SESSION ON LARGE SCALE CIRCULATION CHANGES IN THE NORTH ATLANTIC ON TIME SCALES OF CLIMATIC CHANGE (S)

Convener: Dr P. Koltermann

Rapporteur: Dr E. Buch

The Theme Session took place, on Friday 23 September 1994 from 9.00 to 13.00 hrs. and was chaired by Dr Koltermann; the meeting elected Dr Buch to serve as its rapporteur. A total of 10 papers were presented to an audience of approximately 100 participants.

### Papers

Three papers analysed the changes in hydrographic conditions at three latitudinal sections - 24°N, 36°N and 48°N - comparing observations from the late 50s, early 80s and early 90s. At intermediate depths a cooling and freshening was reported at the two northernmost sections attributed to changed formation of Labrador Sea Water, while at 24°N a tendency towards warmer and saltier conditions at intermediate depths was reported. In the deep layers all sections reveal cooling, and freshening over the last 35 years the size and tendency of changes is considered to be relatively large.

Ocean Weather Ship 'C' data from 0 m and 125 m for the period 1940-1990 reveal two distinct signals:

- linear decrease in temperature over the last 50 years;
- periodicity in the signal with a period of 10-15 years.

A preliminary analysis of sea level pressures over the same area indicates that frontal movements can explain the periodicity.

A horizontal distribution of trends of temperature anomalies at 125 m in the North Atlantic shows an increase south of 40°N and a decrease of temperatures in the sub-polar Gyre.

Two papers focused on the variability in the Faroese waters with special emphasis on the two great salinity anomalies experienced this century - around 1910 and in the mid-1970s. The papers question the generally accepted explanation, that the salinity anomaly is advected through the North Atlantic, and instead suggest a reduction in the strength of the North Atlantic Current and an increase in the East Icelandic Current to be the explanation.

Analysis of data from North-, East- and South Icelandic

waters shows time delays in the appearance of salinity anomalies supporting the theory of advection. Data additionally show good correlations between salinity, the size of the Icelandic capelin stock and the weight of 5 year cod.

A paper dealt with modelling attempts to predict temperature conditions in the Barents Sea. Three different approaches were taken, they all predict decreases in temperature in the Barents Sea up until the year 2000 although with varying intensity and likelihood.

### Discussion

The data from the Faroese region renewed the discussion of the forcing mechanism behind the "mid-1970s anomaly" and there were supportive arguments for both the theory of advection as well as to the theory of changes in the current strength and effects of enhanced air/sea forcing.

The question of sampling strategy was raised especially with regard to finding specific monitoring sites that can reveal the changes observed on the latitudinal sections. The chairman summarized the discussion by stating that the most practical and economical strategy will likely be:

- decadal observation on latitudinal sections supplemented with observation at selected sites (time-series stations) and the use of satellite altimetry to monitor sea surface topography variability.
- ICES standard sections and stations will play a key role in this respect. The sampling strategy on these should possibly be changed, so that all stations were operated at "full depth" and additional parameters were to be observed.
- The use of drifters and floats should be incorporated to provide in addition horizontal fields of velocity, SST and possibly salinity.

The Chairman closed the session by stressing the importance of submission of data (old and new) to the data centers. The ICES Hydrography Committee was encouraged to actively involve itself more heavily in the ongoing and future climate and large scale programmes, based on its important role in such fields in the past and the experience it still maintains.

## DOCUMENTS

S:1		<b>Withdrawn</b>
S:2	G. Ottersen <i>et al.</i>	Statistical modelling of temperature variability in the Barents Sea
S:3	A. Lavin <i>et al.</i>	Decadal time changes in the circulation at 24°N in the Atlantic Ocean
S:4	B. Hansen and R. Kristiansen	Long-term changes in the Atlantic water flowing past the Faroe Islands
S:5	B. Hansen <i>et al.</i>	Bottom temperature between Iceland and Shetland 1906-1962 measured in telegraph cables
S:6	S. Levitus <i>et al.</i>	<b>Not received</b>
S:7	K.P. Koltermann and K. Warrach	Large scale changes in the North Atlantic circulation on decadal time-scales at intermediate depths
S:8	S-Å Malmberg <i>et al.</i>	Long time series in Icelandic waters in relation to physical variability in the northern North Atlantic
S:9	I.M. Yashayaev	<b>Not received</b>
S:10	S.S. Lappo <i>et al.</i>	Long-period changes in the intermediate and deep water circulation in the North Atlantic
S:11 Poster	U.V. Paul and A. Sy	Differences of properties and circulation in the North Atlantic from two long hydrographic sections between Greenland and Ireland

## THEME SESSION ON IMPROVING THE LINK BETWEEN FISHERIES SCIENCES AND MANAGEMENT: BIOLOGICAL, SOCIAL AND ECONOMIC CONSIDERATIONS (T)

Conveners: Dr M. Sinclair, Dr P. Clay and Dr J. Catanzano

In the opening remarks, Dr M. Sinclair reviewed the origin of the Theme Session. The topic had been developed at the last annual meeting in Dublin where the need for further analysis and discussion of the link between fisheries science and management had become evident several times. Fisheries management had not met its biological objectives in many cases - as a result social and economic objectives had not been met. There had been considerable interest in defining ICES role. A strategic planning Working Group had just released its report which concluded that "there is a compelling need to undertake studies of fisheries systems, in particular the relative impact of alternative approaches to fisheries management", and suggested that "it is now essential to provide a forum for the planning and discussion of analytical case studies on fisheries management systems which allows robust conclusions to be drawn on the reasons why some regulatory approaches are more successful than others in achieving management objectives". This Theme Session idea was accepted as a step towards the aim of broadening the scope of ICES activity in the study of fisheries management systems. It is a specific attempt to stimulate the interaction among workers in different disciplines to improve fisheries management.

A total of 48 papers were contributed to the Theme Session. Most were presented orally, and several as posters, in sessions which spanned three days (22-24 September).

The presentations were arranged by the following topic areas:

- North Atlantic Overview and Canadian Case History (Rapporteur: Dr R. Stephenson)
- Property Rights (Rapporteur: Dr J.P. Hillis)
- Importance of People in Successful Management (Rapporteur: Dr J.P. Hillis)
- Objectives, Decision Making and Institutional Constraints (Rapporteur: Dr P. Clay)
- Bioeconomic Models in Fisheries Management (Rapporteur: Dr P. Rodger)

### North Atlantic Overview and Canadian Case History (Thursday 22 September)

This portion of the session heard two papers summarizing events in the eastern Atlantic, and four papers focusing on management experience in a portion of the Canadian groundfish fishery. It dealt with aspects of cur-

rent management system - but varied in scope from studies of large regions to small villages.

K. Crean (Doc. T:21) described the progress by the European Community at developing social objectives in a Common Fisheries Policy (CFP), based on the results of the workshop "An Agenda for Social Science Research in Fisheries Management" held in Brussels in May 1994. The CFP, structured around three basic tenets (a "common pond", "equal access to the fishing fleets of member states" and "relative stability" for the fishing industries) has resulted in little flexibility for change in management. Progress requires appreciation of three aspects: 1) creation of policies to suite the diverse European social objectives, 2) how to institutionalize such policies, and 3) how to make this work in a variable situation. Two issues were seen as core parts of the social agenda: social recognition, and attention to specific needs. It was suggested that a "system of devolved management", with several interlocking strategies was required if there was to be an increase in the role of social science in development of the CFP.

G. Biais (Doc. T:2) evaluated the past decade of management by TAC in European fisheries by asking the questions - to what extent were TACs really implemented in management, and to what degree was that management followed? There have been problems of implementation, but even when apparently implemented fully there have been problems caused by uncertainty and fishery behaviour (misreporting etc.). The author concluded that it is necessary to address these challenges before advocating instruments other than TACs for management.

M. Sinclair *et al.* (Doc. T:58) presented an evaluation of objectives and their degree of success in a number of the Canadian groundfish stocks. Three observations were apparent in each case evaluated: TACs were set higher than advised - especially during reduction; catches were higher than TACs; and the TACs were not limiting (retrospective analysis indicates that population estimates were over-optimistic). In the workshop on which this paper was based there was consensus that conservation objectives had not been met, but there was no consensus on why. The author suggested that there is a mismatch between the single species approach being used and the multispecies nature of this fishery. The incentive under quota management was to under-report, and regulation was incapable of stopping that. Even in one of the most regulated fisheries in the world, with the will to make management work, it did not.

M. Gardner (Doc. T:53) examined the underlying economics and motivation of the Canadian fishery under a system of input control compared with that of rights based management (output control). The paper was critical of the use of allocation as a single tool being used in an attempt to solve a multitude of problems. It was suggested that there are a variety of tools used to achieve multiple objectives.

#### Discussion of the first three papers:

- It was suggested that the "common fishery pond" will create competition which cannot be controlled.
- Reduction of discarding at sea was seen as a potentially fruitful goal with respect to rehabilitation of the current fisheries.
- The point was reiterated that there seems to be an inherent problem in managing multispecies situations - that all multispecies groundfish fisheries have collapsed.

R. O'Boyle *et al.* (Doc T:35) presented the background, implementation and results to date regarding the ITQ system in Nova Scotia, Canada. The history of this fishery demonstrates the correlation between capacity increase (vessel construction) and price changes or market changes. The implementation of ITQs in 1991 resulted in a reduction in active licenses, concentration of activity, temporal distribution of effort, reduction in administration paperwork, and diversion of effort onto other ("previously underutilized") species. The authors see three major influences in the future: the natural attributes of the resource; the need to limit the commercial fishery; and a move to "co-management".

C. Creed *et al.* (Doc. T:27) described an anthropological study of response to ITQ implementation from the perspective of a small community. Concentration of ownership has changed social relationships in the community; both at sea and while on land. Concentration of ownership has increased stratification in the village, and created "fish lords". On the other hand, the ITQ system is perceived as having some conservation benefit in that fish are seen as a limited good, management rules have reduced cheating, and there is a sense of "stewardship" with respect to the resource.

#### Discussion:

- perhaps fishermen think that they have been more conservation minded, but in fact are not.
- if people are involved in making rules, then one will see benefits.

#### Property Rights (Friday 23 September)

The session dealing with property rights contained seven papers (Docs. T:55, T:6, T:4, T:15, T:22, T:29, T:49) Doc. T:55 compared different versions of property rights schemes, and their implementability, noting that to date success in implementation had been poor. Doc. T:6 proposed fishery trusts to administer rights-based fishing programmes on behalf of the fishermen, and also rolling (overlapping) seven years periods for tenure of rights, Doc. T:4 and Doc. T:15, examined the effect of the Icelandic and east coast USA ITQ schemes respectively regarding distribution of rights ownership, both recorded a considerable degree of concentration of quota amongst reduced numbers of owners, and leasing of quota from large-scale owners to small. Doc. T:22, surveying an American ITQ scheme in its early stages demonstrated reduction in effort and increases in fish prices, implying improvement in quality. Doc. T:29 compared an enterprise allocation (EA) - controlled scallop fishery with a competitive one and found that catch-rate and revenue appeared to have risen in the EA controlled but not in the competitive one. T:49 stated the economic issues involved in rights-based control of fishing and stated the economist's solution to the problem in terms of the internalisation of externalities imposed by fishermen on each other in freely competitive fisheries. Points made in discussion included the fact that fisheries, - like many other industries or businesses, - are moving towards a corporate model in their manner of operating and that the purpose of rights-based control was to safeguard the resource.

#### Importance of People in Successful Management (Friday 23 September)

The section on the importance of noting the role of people in fisheries management included five papers, Docs. T:10, T:48, T:20, T:28 and T:42. Doc. T:10 emphasised the importance of taking account of local customs, which were usually not recorded officially, in managing fisheries, and Doc. T:42 criticised the basing of fisheries management on principles of pure, market economics on the grounds of lack of equity. Doc. T:20 described the bodies of confidential local knowledge held by small fishing communities on the threat which outsiders could pose - sometimes unwittingly - to that confidentiality. In Doc. T:28, the presenting author, a fishermen's representative, advocated closer co-operation between scientists and fishermen and enumerated barriers tending to inhibit its development. In Doc. T:42, attempts were described to remove problems due to fishermen's distrust of managers, by building a close relationship between managers and fishermen.

The authors found some unexpected side-effects from such close relationships, but noted that by comparison

with national budget forecasting, fishery management forecasting was reasonably successful. In discussion, it was stated that the industry had many objectives, including economic, and social ones as well as stock conservation; they were not all necessarily mutually compatible. Dr L. Richards replied to Dr Sinclair's query on decision devolution that in her study the decisions were made at high level. Dr Boddeke noted that most management studies focused on small fisheries. He also stated that where "socio-economic considerations" were cited as a reason for measures, the phrase usually merely meant avoidance of unpopularity. Dr Clay pointed out that any appealing to tradition for ways to manage a fishery must realise that it was constantly changing and being redefined. Dr Williams emphasised the desirability of consensus in fisheries management, usually missing in Australia, but tending to emerge gradually in the Philippines. Asked by Dr. Hillis what was the reaction of fishermen's representatives to loss of members through measures that reduced the workforce, Mr Kearney stated that corporate concentration was already taking place in the industry even where ITQ's had not been introduced. Mr Loch regretted the absence from these sessions of actual fishery managers.

### **Objectives, Decision-Making and Institutions**

Despite the broad range of papers under this sub-theme, a number of common focuses emerged. All related in some way to a thread running throughout Theme Session T, that of fisheries as systems comprised of varied yet integrated and interacting components.

Within the human portion of the system one aspect of this variety is manifested in the diversity of stake holder groups. At the most simplistic level we list 1) the harvesting/processing sector, what Catanzano and Mesnil termed the "productive sector" 2) the science/research sector, and 3) the management/decision-making sector. Furthermore, there is heterogeneity within each of these sectors. Young and Wallace, for instance, stated that recreational fishermen in Australia are not represented in the management process to nearly the degree that commercial fishermen are. Weber found a similar situation in Côte d'Ivoire, where industrial fisherman are better represented than artisanal fishermen, and "fish mammies" (female fish dealers) are not represented at all. Within the science sector, the diversity at the broadest level is disciplinary: natural sciences such as biology and oceanography and social sciences such as anthropology, economics and sociology.

This between and within groups diversity leads to in turn to a second important point of discussion, that of defining terms. Each scientific discipline, for instance, has its own specialised terminology. Frequently these terms have also popular language meanings. Too often, confusion arises from misunderstanding, among scien-

tists or between scientists and either managers or harvesters, over terms.

A similar source of confusion lies in differences in "world view" or "cognitive model" ; that is, based on their social, cultural, and educational backgrounds, individuals and groups have frequently dissimilar basic assumptions about how the world works and their own place in it. Smith's paper, for example, contrasted the Newtonian, linear causality which is the basis for most biological assessments with the chaotic systems approach (as in chaos theory) which is held by most harvesters. Shotton described understandings of and perceptions of "risk" by harvesters, scientists, and managers. Vestergaard noted the way in which such differing world views can become stereotype to be manipulated in the media.

Both mismatches in definition of terms and in world views can foster misunderstandings and create not only confusion but ill will and distrust. Such an atmosphere hinders discussion and negotiation, and can allow fishermen to feel justified in not complying with "foolish regulations" - as both Smith and Dubinsky pointed out.

A final problem area touched upon was that the majority of national fisheries management institutions need restructuring. As Vestergaard and others noted, these institutions often do not allow or legitimate input from the productive sector - in part due to what both Weber and Dubinsky noted are their top-down (centralised) decision-making frameworks. They often are too rigid to allow for flexibility in choosing appropriate spatial and temporal scales of management - as discussed by Payne and Cochrane, and Catanzano and Mesnil, in their papers, and by McGlade during the discussion.

In seeking to rectify those problems several areas were targeted. First, we need to identify the full range of stake holders. Second, we need to carefully define our terms. Third, we need to elicit and explicitly frame the objectives of all parties. (One possible quantitative model for subsequent multi-objective analysis was mentioned by Shotton.) Fourth, we need to explore new management structures and management tools. This point was made in theoretical discussions by Caddy, and Lane and Stephenson, among others, and in case studies by Loch *et al.*, Young and Wallace, and Hoffman. Finally, the need was raised for investment in rigorous social and economic studies.

### **Bioeconomic Models in Fisheries Management** (Saturday 24 September)

The five papers in this session presented a similar theme of showing increased returns available from various stocks given changes in the exploitation pattern.

Stefansson *et al.*, asked by the Icelandic Government to devise a strategy to maximise benefits from the Icelandic fisheries, showed a model which suggested minimum spawning stocks and improved profitability at  $F_{0.3}$ . This and other results were sensitive to input values.

A.B. Hollowed *et al.*, examined marine mammal and walleye pollock interactions in the Gulf of Alaska. They noted that the fishery experienced a number of exogenous influences.

D.D. Hoggarth *et al.*, used the FAO Beam 4 model in examining management strategies in artisanal fisheries. Again, the results were sensitive and it was felt that simpler models would be equally valuable and more readily built. Hillis and O'Morchoe suggested that restoring a depleted fishery by substantially constraining effort would result in significant increases in profitability but that the results are very sensitive to the discount rate applied to future revenue flows. A.K. Veim *et al.*, suggested that by-catch rules were too strict in the shrimp fishery and that they needed to be broadened.

In this discussion the rapporteur challenged whether the models shown were truly bioeconomic. He suggested that they were biological models with a valuation mechanism. Such models are misleading. Economic theory suggest that when increased profitability occurs investment will take place. Since the availability of fish is limited, the catch will be produced at higher cost dissipating the improved profitability. Any model which fails to include this effect cannot be called bioeconomic. Paul Hillis agreed, saying that the need is to find ways to prevent such investments.

#### **Panel Discussion at the Institute of Social and Economic Research (Monday 26 September)**

The Institute of Social and Economic Research (ISER) invited participants of Theme Session T to a panel discussion held at Memorial University. Rosemary Ommer opened the Session with an overview of the research activities of ISER and welcomed the visitors to the University and St. John's. Each of the 5 panel members (Larry Coady, Ragnvaldur Hannesson, Dan Lane, John Lien and Ross Shotton) gave short presentations outlining their view of the priorities for research for improved groundfish management (with an emphasis on social, economics and management studies). The presentations were followed by a lively discussion, broad in focus. Issues addressed included institutional structures needed

to allow input of non-traditional research results into the management process, definition and implementation of objectives of fisheries management, and the need for analysis of case histories.

#### **Thoughts on Theme Session Topics**

- Defining and integrating biological, economic, and social objectives in fisheries management;
- Scope for transforming institutional structures to cope with expanded fisheries management responsibilities;
- Planning the devolution of fisheries management functions.

It was recommended that a Theme Session with the same title be held at the 1995 Annual Science Conference, along with some specific sub-themes of particular relevance to topical European fisheries issues.

#### **Concluding remarks**

The motivation for Theme Session T was that the traditional disciplines and scope of science activities within ICES are not sufficient for the provision of advice to allow the objectives of fisheries management to be met. In spite of somewhat of a "shot-gun" approach to soliciting contributions, the Theme Session was successful in attracting anthropologists, sociologists, economists, management scientists and fisheries managers to address several topical issues in fisheries management. There is definitely an interest within the broader scientific community to address management issues within ICES. The challenges are to improve our ability to understand each other. The specialized vocabularies of the various disciplines are different, and as a result communication was more difficult than anticipated. The Theme Session was rather diffuse, which led to some frustration on the part of the participants who had hoped to generate a tangible product from the meeting.

It was concluded that ICES needs to make a decision on the degree to which it wants to address fisheries management studies. Was the Theme Session a "one-off" event or the beginning of a new focus. If ICES wants the latter, Working Groups need to be given specific tasks to achieve; and these groups will need to report to a parent Standing Committee. Thus, the structural issues within ICES need to be addressed in the coming year.

## DOCUMENTS

T:1	J.F. Caddy	Checks and balances in the management of marine fish stocks: Organizational requirements for a limit reference point approach
T:2	Gérard Biais	A decade of fisheries resources management by TACs in European Community waters from 1983 to 1992
T:3		<b>Withdrawn</b>
T:4	G. Pálsson and A. Helgason	Figuring fish and measuring men: The quota system in the Icelandic cod fishery
T:5		<b>Withdrawn</b>
T:6	R. Townsend and S.G. Pooley	Comprehensive property rights: Fishery trusts
T:7 <b>Poster</b>	E. Thunberg, Thomas Helser, and R.K. Mayo	An age-structured bioeconomic model to evaluate changes in fishing mortality in the United States Atlantic silver hake fisheries
T:8 <b>Poster</b>	L. Richards and J. Fargo	Comparing data collected by observers and skippers in the British Colombia trawl fishery
T:9 <b>Poster</b>	Per J. Sparre	The data requirements for basic fisheries bio-economics
T:10	P.M. Clay and J.R. McGoodwin	Utilizing social sciences in fisheries management
T:11	J.P. Hillis and M O'Morchoe	Restoring a depleted fishery by different methods including mesh control, decommissioning and individual quota; a bio-socio-economic comparison
T:12 <b>Poster</b>	A.M. Powers	The work of culture and the culture of work: some considerations for decision making in the fisheries
T:13		<b>Withdrawn</b>
T:14	A.K. Veim <i>et al.</i>	By-catch of juvenile fish in the shrimp fishery - management based on bioeconomic criteria
T:15	B.J. McCay and C.F. Creed	Individual transferable quotas in clams and fish: a comparative analysis
T:16	A.B. Hollowed <i>et al.</i>	An examination of marine mammal and walleye pollock fisheries in the Gulf of Alaska using a stochastic bioeconomic simulation model
T:17	W. Dubinsky	Agency, structure and the interactive dimension of fisheries management: the regulated vs. the regulator
T:18	G.G. Thompson	A general diffusion model of stock-recruitment systems with stochastic mortality
T:19 <b>Poster</b>	G.M. Jansson <i>et al.</i>	A bio-economic simulation model for North Sea flatfish
T:20	A. Maurstad and J.H. Sundet	Improving the link between science and management: drawing upon local fishers' experience
T:21	D. Symes and K. Crean	Social objectives, social research and the re-calibration of management policies in fisheries: the case of the European Union

T:22	J.M. Ward <i>et al.</i>	A description and evaluation of the individual transferable quota (ITQ) fishery management program for the south Atlantic-wreckfish ( <i>Polyprion americanus</i> ) fishery
T:23		<b>Withdrawn</b>
T:24	K. Weber	Analysis of decision-making processes in the ivoirien maritime fisheries sector
T:25 <b>Poster</b>	I.M. Kaplan and C. Boyer	Ecological and policy trends related to the North Atlantic conch (BUSYCON) fishery
T:26	A.I.L. Payne and K.L. Cochran	Managing fisheries in a changing society with a well-developed science base
T:27	C. Creed <i>et al.</i>	ITQs from a community and perspective: The case of the Canadian Scotia-Fundy groundfish fishery
T:28	J.F. Kearney	<b>Not received</b>
T:29	G. L. Brander and D. L. Burke	Rights-based vs. competitive fishing of sea scallops in Nova Scotia
T:30	D.D. Hoggarth	Management strategies and their sensitivity to parameter uncertainties in a model of artisanal river fisheries
T:31	J. Mørkøre	When long term objectives and short term interests collide
T:32		<b>Withdrawn</b>
T:33	R.O. Rasmussen	Types of social importance of fisheries
T:34	E. Vestergaard	Obstacles within fisheries
T:35	L. Burke <i>et al.</i>	The Scotia-Fundy inshore dragger fleet ITQ program, background, implementation, and results to date
T:36	E. Hoffmann	A marine ecosystem and an economic and ethnological analysis of the consequences of utilizing its biological resources
T:37 <b>Poster</b>	M. Woodrow	Community adaption to fisheries management practices in Newfoundland
T:38	E.M. Smith	The nature of nature: conflict and consensus in fisheries management
T:39		<b>Withdrawn</b>
T:40 <b>Poster</b>	R.L. Stephenson <i>et al.</i>	The scale of management: An impediment to linking biological, social and economic consideration in management?
T:41	D.E. Lane and R.L. Stephenson	Fisheries management science: The framework to link biological, economic and social objectives in fisheries management
T:42	J. Rice and L. Richards	Partnership and roles. The Pacific Canadian rockfish fishery
T:43	G. Stefansson <i>et al.</i>	Utilization of the Icelandic cod stock in a multispecies context
T:44		<b>Withdrawn</b>
T:45		<b>Withdrawn</b>
T:46	J.S. Loch and J.B. Jones	An improved link between industry, management and science: a case history - the southern Gulf of St. Lawrence snow crab fishery

T:47 <b>Poster</b>	S.E. Squires	Labour recruitment and economic realities in the Newfoundland fishing industry
T:48	J.-J. Maguire <i>et al.</i>	What are we managing anyway?: The need for an interdisciplinary approach to managing fisheries ecosystems
T:49	P. Rodgers	The interface of economics with fisheries science: understanding each others potential contribution to fisheries management
T:50		<b>Withdrawn</b>
T:51	J. Catanzano and B. Mesnil	Economics and biology science used in fisheries research or when social and natural sciences try to depict together their object of research
T:52	P. Young and J. Wallace	An evaluation of the balance of power between government, industry, and science in managing Australia's federal fisheries (Setting the fox to guard the henhouse)
T:53	M. Gardner	Input controls vs. rights-based fishing: case studies in meeting resource management objectives
T:54	R. Shotton	Attitudes to risk relative to decisions regarding levels of fish harvest
T:55	R. Hannesson	Rights-based fishing: the role of property rights in fisheries management
T:56		<b>Withdrawn</b>
T:57 <b>Poster</b>	M. Vecchione and B.C. Collette	Fisheries, systematics and marine biodiversity
T:58	M. Sinclair <i>et al.</i>	A report card on quota management: the Scotia-Fundy groundfish experience

## THEME SESSION ON INTERDISCIPLINARY LINKS - THE NEXT STEPS (U)

Convenor: Mr D. de G. Griffith

Rapporteur: Dr G. Hubold

The Convenor, Mr D. de G. Griffith, opened the session and briefly outlined the agenda. He then asked Dr Colin Bannister, Chairman of the Consultative Committee, to provide an introductory statement on the general objectives of the discussion. Dr Bannister responded by showing that there is currently a predominance of "structure" over "function" in ICES work, and suggested that steps should be taken to put function first. By the establishment of Theme Sessions and Joint Sessions, ICES has already started to break the borderlines between the disciplines; this approach should be developed further to create more appropriate structures for interdisciplinary activities, especially in the areas of

- monitoring strategies,
- statistical analyses,
- population modelling,
- risk assessment.

The subject should be addressed by reference to the framework of studies on, *inter alia*,

- ecological effects of fisheries,
- interactions of fish, shellfish and seabirds,
- coastal zone management,
- marine mammals.

The Chairman invited comments on the experience of the Theme Sessions at this Council Meeting, with special reference to the positive and negative aspects and what one might learn from these.

Dr Michael Sinclair, Convenor of Theme Session T spoke positively of the new mix of people who had participated in Theme Session T including anthropologists, sociologists, economists and managers. This had led to a new discussion on problems such as "property rights" vs. "common property" or new institutional structures. He preferred to speak of challenges which had been identified by Session T (rather than "negative results"), and gave, as examples, the difficulties in communication which had arisen due to different terminology and the absence of a common conceptual framework between fisheries science and the other disciplines involved.

Further, he felt that although Session T had been a valuable initiative, it had been rather diffuse and no real issues had been resolved. He recommended that more specific aspects of the overall theme of Session T should be addressed during the coming year, but at the Working Group level. However, the question of the

reporting line of such a Working Group would need to be addressed.

Dr George Hunt, Chairman of the Study Group on Seabird-Fish Interactions, said that some Working Groups on interdisciplinary topics lacked specific areas of essential expertise in their membership. His own Study Group, for example, needed more support from the biological oceanography sector. Broader participation in these ICES activities would, he said, "open up a new window" rather than force these interdisciplinary groups to operate in a reactive way.

Concerning the Theme Sessions in their present form, it was concluded that they tended to be too diffuse. Nor enough synthesis was produced from them, a criticism which was applied to annual Council Meetings in general. Moreover, the present ACFM/ACME structure tended to divide ICES; the area between ACFM and ACME, on the other hand, is a growth area. It was pointed out that both Committees could profitably learn from each other.

One speaker drew attention to the potential risk that Theme Sessions might draw expertise away from the practical work of the Subject/Area committees, which deal with the more important problems of fisheries. Several other participants pointed out, however, that a sustainable fishery will depend on a sound ecosystem. The close co-operation in producing the recent Quality Status Report on the North Sea was cited as a prime example of the great benefits to be obtained from establishing good interdisciplinary links between fisheries scientists and environmental scientists.

The interdisciplinary ecosystem approach, with emphasis on zooplankton or primary production modelling, was suggested as a possible focus for future ICES work. The necessity to develop simple methods and produce more widely acceptable information was stressed. Interdisciplinary work should, however, not stray too far from ICES' traditional basis of excellence in marine science and should not seek to unduly expand the sphere of ICES activity.

A number of practical steps were suggested to open ICES structure to more external expertise such as:

- developing 'outreach' programmes to disseminate information to a wider public;
- affiliating with other scientific bodies;
- balancing ICES activities between the NE and NW Atlantic.

The need to foster interdisciplinary discussions along the lines of Theme Session T - but on the environmental side - was stressed. Also, internally there are fields in which ICES can improve its efficiency, e.g. in the internal co-ordination of discussions between the different scientific disciplines.

In summary, the strategy for future interdisciplinary ecological work should be to define the specific goals in the framework of the outlined areas of expertise and

follow up with the necessary structures. These structures should allow for a sufficient mixture of interdisciplinary expertise, so that scientists of different approaches actually work together at an early stage of the advice producing process. The additional cost of these, more broadly operating, structures would be balanced within the existing budgets by critically reviewing existing tasks and structures, and by analysing the actual losses and gains which would ensue from the changes envisaged.

## MINI-SYMPOSIUM ON FISH MIGRATION (Mini)

Convener: Dr G.P. Arnold

Rapporteur: Dr G. Rose

Fish migration is an important biological phenomenon confronting scientists trying to achieve rational exploitation of marine fish stocks in temperate latitudes. Although a neglected topic in recent years, its importance has long been recognised by ICES, which at its inception in 1902 set up three Committees one of which was concerned solely with migration. Appropriately, this year's Mini-Symposium was also topical and timely. It was topical because of the growing realisation that, to be effective in the long term, fisheries management needs to take account of changes in spatial distribution in fish stocks. It was timely in the light of recent technical developments that will permit studies of fish behaviour over the time-scales associated with seasonal migrations and interannual changes of distribution.

The Mini-Symposium, which was allotted two successive sessions on Friday afternoon and Saturday morning, attracted 16 papers and 3 posters. These contributions fell naturally into three categories and five papers on distribution and the environment provided a logical introduction to the following nine papers that dealt with migratory behaviour. These, in turn, led naturally to the two papers in the final session entitled 'migration, assessment and management'. There was one poster in each category and one paper (Doc. Mini:5) read by title only. But, even so, the allotted time (3½ hrs) was barely enough to deal adequately with all the available material.

The first session began with a spatial analysis of commercial catch data (Doc. Mini:1), which showed that there were significant changes in the spawning distributions and winter behaviour of Northern Cod off Newfoundland, well before this stock showed any other signs of its recent collapse. There was a progressive southward shift in the area in which the fish congregated, a reduction in speed of movement of the shoals and a shift to deeper water. While these changes were coincidental with the occurrence of very low water temperatures and heavy ice conditions, no direct link had been established and the mechanisms linking environmental change with the redistribution of the spawning stock remained speculative. The difficulty of establishing causal links between distribution and environmental factors was also apparent in several subsequent papers. Docs. Mini:2 and Mini:3, for example, which dealt with the association between cod distribution and water temperature (or salinity) in the southern Gulf of St Lawrence and the Scotian Shelf, respectively, showed that the nature of the association was different between the two areas and varied with the age of the fish (as well as with stock abundance in the Gulf of St Lawrence). Doc. Mini:6 suggested a common environmental cause for the simultaneous decline in recruitment of the American and the

European eel, which was possibly a consequence of a reduction in the speed of the Gulf Stream and a disruption of the pattern of larval transport.

Better links with the environment could be established where it was possible to describe the behaviour of the fish, either as shoals or as individuals. Doc. Mini:8 deduced the movements of mackerel shoals along the shelf edge to the north of Scotland from acoustic surveys and attempted to interpret them using moored current meter measurements. Doc. Mini:10 produced similar data, which suggested that the large numbers of pre-spawning mackerel that enter the Gulf of St Lawrence each summer do so by selective tidal stream transport, the first time this mechanism has been indicated in a fast-swimming pelagic teleost. Mackerel acoustic densities increased in the surface layer at the appropriate slackwater and remained high during favourable currents, despite the irregular periodicity of the tidal streams in the area. The same technique had been used on a larger scale (Doc. Mini:13) to track the movements of cod on the north-eastern Newfoundland shelf for 40 days in 1992. A large aggregation (ca. 10 x 10 km) of post-spawning and sub-adult fish migrated at low speed (ca. 0.5 lengths/second) through an array of 10 moored current meters, keeping in water with a very narrow range of temperature and salinity. Preliminary results suggested that, as with mackerel, the inshore movement coincided with favourable currents, although these were intermittent and of non-tidal origin.

Mini:9 described a direct method of measuring the swimming speed of schooling fish during acoustic surveys using a multi-beam true-motion sonar. During the summer of 1991 and 1992 the majority of herring in the northern North Sea were observed to migrate south at 0.5 to 1.2 m/s, speeds consistent both with theoretical considerations and earlier observations. New archival (data storage) tags for recording the behaviour of individual fish for long periods in the open sea were described by Australian and UK scientists. The Australian tag (Doc. Mini:21), which incorporated a light sensor, could be used to estimate the geographical position of the fish by measuring day length and estimating times of sunrise and sunset. It also recorded the depth of the fish, as well as internal and external temperature. Internal temperature fluctuations indicated diel patterns of activity in caged Southern Bluefin Tuna, which were clearly linked to the daily pattern of feeding. The pressure record from the first tag to be returned from a release of 180 tags in February 1994 showed a consistent diel variation in diving behaviour, with the fish swimming near the surface during the day and at depths greater than 30-40 m at night.

The Lowestoft Laboratory (Doc. Mini:11) had released 50 of its new data storage tags (Doc. Mini:19) in December 1993 and 10 tags had been returned so far, with two more tags recovered from a second release of 40 tags in March 1994. The ground tracks of these fish had been reconstructed using a computer simulation model of the tidal streams on the European shelf (Doc. Mini:17) and the vertical movement of the fish recorded by the tags. The data indicated extended periods of rapid migration by selective tidal stream transport and periods of diel vertical migration, possibly associated with spawning. Several fish from the first release had spawned after they were returned to the sea. Water temperatures recorded by the tags provided an independent check on the estimated geographical position of the fish and an additional check was anticipated from tidal information recorded while the fish was resting on the sea bed. The data for one fish, which visited the Flamborough and eastern English Channel plaice spawning grounds, showed that total track distance could greatly exceed the net distance between the release and recovery positions, even over a relatively short time interval.

Transplantation experiments (Doc. Mini:12), which used both conventional and acoustic tags, showed that there were substantial differences in migratory behaviour between Norwegian Coastal Cod, which are "territorial" and Arcto-Norwegian cod, which migrate long distances between spawning grounds on the Norwegian Coast and feeding areas in the Barents Sea-Svalbard region. The behaviour of one fish led to the suggestion that migrating cod could be guided out of the fjords by low frequency noise generated by wave action in the open sea, an idea that has wider applications in understanding the sensory cues involved in fish migration.

Three radically different approaches were considered in the final session of the Mini-Symposium, which dealt with assessment and management. Doc. Mini:15 (poster) considered the difficulties of accounting for migration in MSVPA, which can probably only be overcome by reformulating the model and reducing the number of parameters. Doc. Mini:16 presented a simulation model of the seasonal changes in distribution of North Sea plaice based on migration vectors calculated from conventional tagging data. Doc. Mini:17 described a simulation model for predicting rates and scales of movement of migratory fish on the European Shelf based on observed patterns of behaviour in demersal species, such as plaice and cod. It was intended to use this model to estimate transport coefficients, which could be compared with those derived from the previous paper, and used in the construction of spatial assessment models. The model could also be used to predict the movements of individual fish and test hypotheses about mechanisms of migration. In this respect it echoed the approach adopted by Canadian scientists (Doc. Mini:7), who were using simulation modelling and hindcasting of the physical environment to investigate the role of ocean gyres and mesoscale eddies in the high seas migration of sockeye salmon.

The Mini-Symposium appeared to stimulate considerable interest in the topic of fish migration and in subsequent informal discussion it was suggested that it might be appropriate to organise a full Symposium in 1988 or 1989. By then it was expected that recent innovations would have produced a substantial amount of new data, which could usefully be discussed by fisheries biologists and oceanographers assembled in an ICES forum. In the meantime, the Editor hoped that 5 or 6 papers from the Mini-Symposium could be published in the *ICES Journal of Marine Science* next year.

## DOCUMENTS

Mini:1	D.W. Kulka <i>et al.</i>	Changes in the winter distribution and migration patterns of northern Atlantic cod ( <i>Gadus morhua</i> ) on the Newfoundland Labrador Shelf as determined from commercial fisheries data
Mini:2	D.P. Swain	Changes in the distribution of Atlantic cod ( <i>Gadus morhua</i> ) in the southern Gulf of St Lawrence: environmental change or change in preference?
Mini:3	S.J. Smith and F. Page	Interannual trends in the association between cod and hydrographic variables: implications for the management of the 4VsW cod stock
Mini:4	K. Drinkwater	Environmental changes in the Labrador Sea and some effects on fish stocks
Mini:5	N.L. Shackell <i>et al.</i>	Diel vertical migration of capelin ( <i>Mallotus villosus</i> ) and its effect on acoustic estimates of density
Mini:6	M. Castonguay <i>et al.</i>	Is there a role of ocean environment in American and European eel decline?
Mini:7	M. Healy <i>et al.</i>	Biophysical controls of salmon migration and production in the Northeast Pacific

Mini:8	M. Walsh <i>et al.</i>	Distribution and environment of the western mackerel stock north of Scotland in January 1994
Mini:9	M.T. Hafsteinsson and O.A. Misund	Mapping the migration pattern of schooling fish by use of multi-beam sonar during conventional acoustic surveys
Mini:10	M. Castonguay and D. Gilbert	Effects of tidal streams on migrating Atlantic mackerel, <i>Scomber scombrus</i>
Mini:11	J.D. Metcalfe <i>et al.</i>	The migratory behaviour of plaice in the North Sea as revealed by data storage tags.
Mini:12	O.R. Gødø <i>et al.</i>	The use of transplantation - tagging-experiments in studies of migratory diversity of cod off Norway
Mini:13	G.A. Rose <i>et al.</i>	Tracking cod migration on the NE Newfoundland shelf: 40 days at sea in 1992
Mini:14		<b>Withdrawn</b>
Mini:15 Poster	H. Gislason and P. Sparre	Some thoughts on the incorporation of areas and migrations in MSVPA
Mini:16	A.D. Rijnsdorp and M. Pastoors	A simulation model of the spatial dynamics of North Sea plaice ( <i>Pleuronectes platessa</i> L.) based on tagging data
Mini:17	G.P. Arnold and B.H. Holford	A computer simulation model for predicting rates and scales of movement of demersal fish on the European continental shelf
Mini:18 Poster	B. Villamor and C. Porteiro	Distribution and seasonality of mackerel ( <i>Scomber scombrus</i> ) in the Cantabrian Sea and Galician waters (ICES Division VIIIc and subdivision IXa North)
Mini:19 Poster	J.D. Metcalfe <i>et al.</i>	The Lowestoft data storage tag used in studies of fish migration
Mini:20		<b>Withdrawn</b>
Mini:21	J.S. Gunn <i>et al.</i>	The development and use of archival tags for studying the migration, behaviour and physiology of southern bluefin tuna, with an assessment of the potential for transfer of the technology to groundfish research

**RESOLUTIONS ADOPTED AT THE 1994 ANNUAL SCIENCE CONFERENCE**  
**82ND STATUTORY MEETING**

**RESOLUTIONS INVOLVING PUBLICATIONS**

C.Res. /1994

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|-----|---|------|---|
| 1.1 | The report on results of the Fifth Intercomparison Exercise on the Analysis of Nutrients in Sea Water, prepared by M A. Aminot and Mr D. Kirkwood, will be published in the <i>ICES Cooperative Research Report</i> series, subject to final review by the Chairman of the Hydrography Committee. The estimated number of pages 100.  | 1:7  | The report on "Research Vessel Noise Measurement" prepared by the Study Group on Research Vessel Noise Measurement, edited by Mr R. Mitson, will be published in the <i>ICES Cooperative Research Report</i> series, subject to final review by the Chairman of the Fish Capture Committee. The estimated number of pages is 80.  |
| 1.2 | The report of Step 4 of the Intercomparison Programme on the Analysis of Chlorobiphenyls in Marine Media, prepared by Dr J. de Boer and Mr J. van der Meer, will be published in the <i>ICES Cooperative Research Report</i> series, subject to final review by the Chairman of the Marine Chemistry Working Group. The estimated number of pages 80.   | 1:8  | The "Application of the Annual and Daily Egg Production Methods to Estimation of Spawning Stock Biomass of Mackerel ( <i>Scomber scombrus</i> ) and Horse Mackerel ( <i>Trachurus trachurus</i> ) in the NE Atlantic Ocean", edited by Dr. I. G. Priede and Mr A. Eltink, will be published in the <i>ICES Cooperative Research Report</i> series, subject to final review by the Chairman of the Pelagic Fish Committee. The estimated number of pages is 100. |
| 1.3 | The report on the results of Phase 2 of the Intercomparison Exercise on the Analysis of Trace Metals in Suspended Particulate Matter, prepared by Dr C. Pohl, will be published in the <i>ICES Cooperative Research Report</i> series, subject to final review by the Chairman of the Working Group on Marine Sediments in Relation to Pollution. The estimated number of pages 60.                     | 1:9  | The reports of the 1991, 1992 and 1993 meetings of the Cephalopod Study Group will be compiled and edited by Dr. U. Piatkowski and will be published in the <i>ICES Cooperative Research Report</i> series, subject to final review by the Chairman of the Shellfish Committee. The estimated number of pages is 30.  |
| 1.4 | The 1994 ICES Code of Practice on Introductions and Transfers of Marine Organisms will be issued separately as a leaflet and distributed as widely as possible <i>gratis</i> .  | 1:10 | The report on "The Seagoing Workshop on Standardization and Intercomparison of Methods in Zooplankton Sampling, June 1993" prepared by the Study Group on Zooplankton Production, edited by Dr L. Postel and Mr H-R Skjoldal, will be published in the <i>ICES Cooperative Research Report</i> series, subject to final review by the Chairman of the Biological Oceanography Committee. The estimated number of pages is 100.                                  |
| 1.5 | The Report of the Working Group on Methods of Fish Stock Assessment (Doc. C.M.1993/Assess:12), edited by Dr G. Stefánsson (Iceland), will be published in the <i>ICES Cooperative Research Report</i> series, subject to final review by the Chairman of ACFM. The estimated number of pages is 90.   | 1:11 | The 1994 Report of the Study Group on Anadromous Trout, edited by Prof. B. Jonsson, will be published in the <i>ICES Cooperative Research Report</i> series, subject to final review by the Chairman of the Anadromous and Catadromous Fish Committee. The estimated number of pages is 80.   |
| 1:6 | The report on the "Intercalibration Exercise for Quantitative Analysis of Fatty Acids in Marine Samples" prepared by M P. Coutteau and Dr P. Sorgeloos, and edited by Dr B. Howell, Dr Y. Olsen, and Dr J. Iglesias will be published in the <i>ICES Cooperative Research Report</i> series, subject to final review by the Chairman of the Mariculture Committee. The estimated number of pages is 30. |      |   |

## RESOLUTIONS INVOLVING SYMPOSIA

C.Res.1994/

- 2:1 A Symposium on "The Interactions of Wild and Reared Salmon, including Fish from Ranching, Farming and Enhancement" will be held in the UK (venue to be decided) for 4 days in April 1997, with Mr A. Youngson (UK) and Dr L.P. Hansen (Norway) as co-conveners.

A scientific Steering Group of 4-5 members will be established to assist the Co-Conveners in planning the Symposium. NASCO will be invited to co-sponsor the symposium and nominate one convener. The proceedings will be published in the *ICES Journal*.

## RESOLUTIONS INVOLVING MEETINGS OF COMMITTEES, GROUPS, AND WORKSHOPS

### CONSULTATIVE COMMITTEE

C.Res. 1994/

- 2:2 The Consultative Committee (Chairman: Dr R.C.A. Bannister, UK) will meet at ICES Headquarters from 1-2 June 1995 at Council expense to:

- a) approve, for consideration by the Bureau, arrangements and a draft programme of sessions for the 1995 Annual Science Conference;
- b) consider the scientific and organisational implications which may arise from the initiatives generated by the 1994 "extra" Delegates Meeting;
- c) consider other topics as may be decided by the Committee.

- c) consider other means by which the data handling capabilities of the ICES Secretariat can be strengthened;
- d) consider ways of communicating information about the contents of existing ICES databases;
- e) evaluate the costs and benefits of any resulting proposals.

In addition to the Chairman of the Working Group on ADP Matters, the Group will also include the Chairman of the Consultative Committee, the Chairmen of ACME and ACFM (or their designates), and the ICES Professional Secretaries.

- 2:3 An *Ad Hoc* Group on the ICES Secretariat Databases will be established under the chairmanship of the Chairman of the Working Group on ADP Matters (Dr G. Stefansson, Iceland) and will meet at ICES Headquarters 2-3 February 1995 at Council expense to:

- a) identify the new databases that are likely to be required by ICES scientific activities in the next decade;
- b) consider the feasibility of using commercial presentational type database software (e.g., Geographical Information Systems) to facilitate the presentation of the data, including the data aggregated to a common spatial and temporal scale;

- 2:4 The Study Group on Long-Finned Pilot Whales (Chairman: Prof. D. Butterworth, South Africa) will meet in Cambridge, UK from 13-17 November 1995 to:

- a) complete an evaluation of the status of long-finned pilot whales in as many regions of the North Atlantic as possible (i.e. population size and trends, population dynamics parameters), including the importance of behavioural factors and accounting for multispecies interactions.
- b) identify key information gaps and critical long-term information needs.

2:5 The Working Group on Cod and Climate Changes (Chairman: Mr S. Sundby, Norway) will meet at ICES Headquarters from 4-6 April 1995 to:

- a) review progress in research arising from the conclusions of the Aggregation Workshop, in particular
  - statistical attempts to relate indices derived from mechanistic physical oceanographic models to variations in cod distribution, growth, condition and recruitment,
  - advances in physical oceanographic models of the mesoscale transport of eggs, larvae and juveniles from spawning grounds to potential nursery areas,
  - advances in understanding retentive circulation patterns occurring in and around fronts and banks,
  - field evidence of linkages between plankton production at intermediate scale physical oceanographic features, cod condition, growth and recruitment,
  - the understanding of how turbulence intensities in different hydrodynamic regimes affect larval and juvenile cod feeding (pursuit success, ingestion rate, prey patch dynamics and prey production);
- b) review progress in research arising from the conclusions of the Cod and Climate Data Base Workshop, and the Cod and Climate Backward-Facing Workshop;
- c) develop methods for including environmental factors in stock assessments;
- d) develop means of exchanging information and ideas between research groups around the North Atlantic;
- e) set priorities for future ICES engagements in the Cod and Climate Change Programme.

2:5:1 A Cod and Climate Data Base Workshop will be held in Woods Hole, USA from 14-

17 February 1995 under the chairmanship of Dr S. Murawski (USA) to:

- a) review existing large-scale studies of the relationships between cod, copepods and climate variables;
- b) review appropriate methods for time-series analysis and geostatistical techniques;
- c) consider the need for and issues related to the establishment of a centralized data base;
- d) review existing data sets in order to plan new data acquisition.

2:5:2 A Cod and Climate Backward-Facing Workshop will be held in Dartmouth, Canada from 8-10 March 1995 under the chairmanship of Dr R.R. Dickson (UK) and Dr K.T. Frank (Canada) to:

Assemble evidence for assessing climatic impacts on cod stocks including

- a) climate at West Greenland during the last cod period 1820-1940;
- b) the 1880s migration of cod from Labrador to New England during the tilefish kill;
- c) large-scale, long-term evidence of interstock exchange in the North American eastern seaboard (tagging, genetics, meristics);
- d) 19th century cold periods in the Barents Sea and year class strength;
- e) CPR redfish records for the Irminger Sea;
- f) catch history in northern Labrador and Baffin Island (NAFO Divisions 2GH and 0B) as evidence of inter-stock exchange;
- g) the long-term history of the cold intermediate layer on the Canadian banks and their relation to large-scale climate;
- h) evidence for historic shifts in cod spawning

## ADVISORY COMMITTEE ON FISHERY MANAGEMENT

### C.Res. 1994/

2:6 The Advisory Committee on Fishery Management (Chairman: Mr E. Kirkegaard, Denmark) will meet at ICES Headquarters from 16-24 May and from 24 October to 1 November 1995 at Council expense to:

- a) prepare the advice and information on living resources and their exploitation requested by the Fishery Commissions (NEAFC, IBSFC and NASCO), the European Commission and 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 ACME;
- c) keep under review the form of advice and methods used for assessing fish, shellfish and relevant marine mammal stocks in order to improve the quality of the advice to fishery managers;
- d) establish and review working procedures for ACFM and propose terms of reference for ACFM its subsidiary groups and other relevant Council groups;

At the discretion of the General Secretary, the Chairman of ACFM may invite relevant experts from among the Committees and other groups of the Council to attend relevant parts of the meetings at Council expense.

2:6:1 The Arctic Fisheries Working Group (Chairman: Mr K. Sunnanå, Norway) will meet at ICES Headquarters from 23-31 August 1995 to:

- a) assess the status of and provide catch options for 1996 for the stocks of cod, haddock, saithe, redfish, and Greenland halibut in Sub-areas I and II taking into account interactions with other species;
- b) for those stocks and/or fisheries where data permit, provide the information required to give advice or guidance on
  - i) medium-term management objectives (in terms of spawning stock biomass and mortality rates) and options,

- ii) the appropriateness of controls on catch (or landings) and fishing effort,
- iii) the potential for multispecies and multi-annual catch options.

The above terms of reference are set up to provide ACFM with the information required to respond to the request for advice from the North-East Atlantic Fisheries Commission and the European Commission.

2:6:2 The Atlanto-Scandian Herring and Capelin Working Group and the Blue Whiting Assessment Working Group will be re-established as the Atlanto-Scandian Herring, Capelin and Blue Whiting Assessment Working Group under the chairmanship of Mr I. Røttingen (Norway) and will meet in Bergen, Norway from 12-18 October 1995 to:

- a) assess the status of and provide catch options for 1996 and 1997 for the Norwegian spring-spawning and Icelandic summer-spawning herring stocks;
- b) provide any new information on the present spatial and temporal distribution of Norwegian spring-spawning herring;
- c) assess the status of capelin in Sub-areas V and XIV and provide catch options for the winter 1995/1996 and summer/autumn 1996 seasons;
- d) assess the status of and provide catch options for capelin in Sub-areas I and II (excluding Division IIa west of 5°W) for the winter 1995/1996 and summer/autumn 1996 seasons;
- e) consider further possibilities for the incorporation of biological interactions into the assessments of capelin, herring, and cod stocks;
- f) assess the status of and provide catch options for 1996 and 1997 for the blue whiting stocks;
- g) update the information on the spatial and temporal distribution of the stock and of the fisheries on blue whiting;

2:6:2 ctd h) for those stocks and/or fisheries where data permit, provide the information required to give advice or guidance on

- i) medium-term management objectives (in terms of spawning stock biomass and mortality rates) and options,
- ii) the appropriateness of controls on catch (or landings) and fishing effort,
- iii) the potential for multispecies and multi-annual catch options.

The above terms of reference are set up to provide ACFM with the information required to respond to the request for advice from the North-East Atlantic Fisheries Commission and the European Commission.

2:6:3 The Baltic Salmon and Trout Assessment Working Group (Chairman: Mr L. Karlsson, Sweden) will meet at ICES Headquarters from 5-12 April 1995 to:

- a) assess the status of Baltic salmon stocks and provide catch options (in numbers of fish) for 1996 by gear and sub-division with the following alternative objectives
  - i) to optimise the utilization of reared salmon stocks,
  - ii) to safeguard the wild stocks and the genetic diversity of Baltic salmon,
  - iii) to maintain the current level and pattern of fishery in 1996;
- b) compile information on the status of wild Baltic salmon stocks and describe the extent to which wild salmon are exploited in the various fisheries;
- c) provide estimates of the catch of salmon made in recreational and commercial fisheries;
- d) update catch and smolt production data for sea trout and rainbow trout stocks in the Baltic;
- e) evaluate the available information on mortality caused by M-74 in Baltic salmon stocks and the relationship between M-74 and subsequent parr and smolt abundance;

f) identify and evaluate regulatory approaches for controlling fishing mortality on Baltic salmon stocks designed to ensure adequate escapement of wild salmon, particularly into northern rivers in the Gulf of Bothnia;

g) review the available information on by-catches of fish, birds and mammals in the salmon drift-net fishery; in particular, evaluate the numbers of seals killed and any seasonal variation in this source of mortality and report to the Marine Mammals Committee and the Working Group on Ecosystem Effects of Fishing Activities and identify research needed to advise how these by-catches could be reduced;

h) identify appropriate measures to increase the escapement of wild salmon, such as boundaries of the terminal fishing areas for reared fish and opening dates for the coastal fisheries by sub-divisions;

i) identify closed areas and seasons in the river mouths and rivers supporting wild salmon stocks;

j) evaluate the effect of a change in the summer closure period in sub-division 29N to that applied in the Gulf of Finland on the proportion of wild salmon in the catches;

k) evaluate data on the prevalence of predation by seals on salmon in fishing gears in Sub-division 29N and identify research and information required to advise on how this predation might be reduced and report to the Marine Mammals Committee;

l) evaluate possible applications and effects of the delayed release technique with the objective of safeguarding wild salmon and exploiting the reared components.

The above terms of reference are set up to provide ACFM with the information required to respond to the requests for advice from the International Baltic Sea Fishery Commission and the European Commission.

A joint half day meeting with the Working Group on North Atlantic Salmon will take place at ICES Headquarters on 8 April 1995 to identify questions of mutual interest and to explore possibilities of either merging the two

2:6:3 ctd. Working Groups or organising interaction and communication between them.

2:6:4 The Herring Assessment Working Group for the Area South of 62°N (Chairman: Mr R. Toresen, Norway) will meet at ICES Headquarters from 27 March to 5 April 1995 to:

- a) assess the status of and provide catch options (by fleet where possible) for 1996 and 1997 for the North Sea autumn-spawning herring stock in Division IIIa, Sub-area IV, and Division VIIId (separately, if possible, for Divisions IVc and VIIId), 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);
- b) assess the status of the sprat stocks in Sub-area IV and Divisions IIIa and VIIId,e;
- c) provide the data requested by the Multispecies Assessment Working Group (quarterly catches and mean weights at age in the catch and stock for 1994 by statistical rectangle of the North Sea for herring and sprat);
- d) for those stocks and/or fisheries where data permit, provide the information required to give advice or guidance on i) medium-term management objectives (in terms of spawning stock biomass and mortality rates) and options; ii) the appropriateness of controls on catch (or landings) and fishing effort; iii) the potential for multispecies and multi-annual catch options;
- e) analyse the herring and sprat data from the quarterly International Bottom Trawl Surveys in the North Sea and Division IIIa and evaluate the potential usefulness of the surveys in assessments;
- f) incorporate new information from the Working Group on Pathology and Diseases of Marine Organisms to assess the impact of *Ichthyophonus* on herring.

The above terms of reference are set up to provide ACFM with the information required to respond to the requests for advice from the North-East Atlantic Fisheries Commission,

the International Baltic Sea Fishery Commission and the European Commission.

2:6:5 The Joint ICES/NAFO Working Group on Harp and Hooded Seals (Chairman: Dr G. Stenson, Canada) will meet at NAFO Headquarters, Dartmouth, Nova Scotia, Canada from 5-9 June 1995 to:

- a) assess stock sizes, distributions and pup production of harp and hooded seals in the Northwest Atlantic and estimate replacement and sustainable yields both at present stock sizes and in the long-term under varying options of age compositions in the catch;
- b) using the appropriate expertise assess the effects on harp and hooded seal populations of recent environmental changes or /changes in food supply and possible interactions with other living marine resources in the North Atlantic (both the ICES and NAFO areas);
- c) provide proposals for future research programmes.

This meeting and terms of reference have been set up at the request of the North-West Atlantic Fisheries Organization in accordance with C.Res. 1989/3:1.

2:6:6 The Multispecies Assessment Working Group (Chairman: Dr J. Rice, Canada) will meet in Bergen, Norway from 21-28 June 1995 to:

- a) continue the development of multispecies models of assessment, paying special attention to their application to boreal ecosystems and incorporating variable predator growth and spatial overlap of predators and prey;
- b) provide direction to the Arctic Fisheries Working Group and the Atlanto-Scandian Herring, Capelin and Blue Whiting Working Group with regard to approaches and means of assessing impacts of predators on the stocks assessed by those groups, including, where possible, estimates of predation mortality and amounts eaten, and/or specific analytical approaches by which those Working Groups should produce such estimates;
- c) review and extend intersessional work on data analysis and modelling of predation processes on 0-group fish;

2:6:6 ctd. d) review and extend intersessional work on comparisons of the northern and southern parts of the North Sea, with special reference to relating survey data to MSVPA results, and plan for a detailed treatment of this matter at the 1996 meeting;

e) conduct the necessary planning for a thorough review of food rations in MSVPA to be conducted at the 1996 meeting of the Working Group;

f) evaluate the status of the data required for the North Sea MSVPA and, if appropriate, carry out a key run.

2:6:7 A Planning Group on Multispecies Assessments of Boreal Systems will be established under the chairmanship of Dr K. Magnusson (Iceland) and will meet in Bergen, Norway from 24-27 January, 1995 to:

a) identify multispecies models to be examined by the Multispecies Assessment Working Group in their June 1995 meeting, and make the necessary arrangements for those programmes to run on computers which will be available at that meeting;

b) examine the structure of the models identified in a), clarify their structural similarities and differences (including how common processes, such as growth or food selection are represented) and develop strategies to allow them to operate in ways as similar as possible. The strategies might include allowing modules of different models to be interchanged, allowing outputs of one model to be used as inputs to other models, etc;

c) establish explicit criteria on which the performance of the models will be evaluated, including, where appropriate, sensitivity tests, robustness trials and statistical tests of parameter estimates, forecasts, or hindcasts, and prepare for software to be available to conduct the necessary tests at the June meeting of the Multispecies Assessment Working Group;

d) report to the Multispecies Assessment Working Group.

The North-Western Working Group (Chairman: Dr S.A. Schopka, Iceland) will meet at ICES Headquarters from 3-10 May 1995 to:

a) assess the status of and provide catch options for 1996 for the combined Greenland/Icelandic cod stock;

b) assess the status of and provide catch options for 1996 for the stocks of redfish in Sub-areas V, VI, XII, and XIV, Greenland halibut in Sub-areas V and XIV, saithe in Division Va and Division Vb, and cod and haddock in Division Vb;

c) for those stocks and/or fisheries where data permit, provide the information required to give advice or guidance on

i) medium-term management objectives (in terms of spawning stock biomass and mortality rates) and options,

ii) the appropriateness of controls on catch (or landings) and fishing effort,

iii) the potential for multispecies and multi-annual catch options;

d) provide a detailed description of the various fleets (i.e., gears, seasons, main fishing grounds, and main species) and, where possible, provide the landings, selection parameters, and annual mortalities by fleet and species;

e) update information on the stock identity, migration, spawning areas and state of exploitation of the oceanic stock of *Sebastes mentella*, paying particular attention to the question of whether the assessment based on acoustic and catch data represents the total exploitable stock taking into account the latest survey data.

The above terms of reference are set up to provide ACFM with the information required to respond to the request for advice from the North-East Atlantic Fisheries Commission.

A Study Group on Data Preparation for the Assessments of Demersal and Pelagic Stocks in the Baltic will be established under the chairmanship of Dr J. Horbowy (Poland) and will meet at ICES Headquarters from 18-21 April 1995 to:

2:6:9 ctd a) compile the data required for the assessments within the remit of the Working Group on the Assessment of Demersal and Pelagic Stocks in the Baltic;

b) recompile data on catches in tonnes, catches in numbers at age, and mean weights at age by quarter and sub-division for cod, herring and sprat in order to resolve present inconsistencies between data sets used in single species and multi-species assessments;

c) evaluate the results of the 1994 hydro-acoustic and bottom trawl surveys and compile the data required for the assessments;

d) provide the information requested by the Working Group on Multispecies Assessment of Baltic fish.

2:6:10 The Working Group on the Assessment of Demersal Stocks in the Baltic and the Working Group on the Assessment of Pelagic Stocks in the Baltic will be re-established as the Working Group on the Assessment of Demersal and Pelagic Stocks in the Baltic under the chairmanship of Mr S. Munch-Petersen (Denmark) and will meet at ICES Headquarters from 22-27 April 1995 to:

a) assess the status of and provide catch options for 1995 and 1996 for the cod stocks in the Baltic (including Sub-division 23);

b) assess the status of and provide catch options for 1996 for the cod stock in the Kattegat and sole stocks in Division IIIa;

c) assess the status of and provide catch options for 1996 and 1997 for the stocks of sprat in Sub-divisions 22-32;

d) evaluate the status of the stocks of herring in Sub-Divisions 25-32 and identify any major changes in relation to the advice given by ACFM for 1995 and 1996; evaluate the possibility of providing separate information and advice for Gulf of Riga herring and prepare the appropriate information;

e) update the description of the fisheries for demersal and pelagic stocks in the Baltic Sea;

f) provide information on the state of flat-fish stocks in the Baltic;

g) quantify the pattern and rate of migration of cod between the Kattegat and different parts of the Baltic and evaluate the effect of migration on the definition of stock units;

h) review any new information on maturity ogives;

i) for those stocks and/or fisheries where data permit, provide the information required to give advice or guidance on

i) medium-term management objectives (in terms of spawning stock biomass and mortality rates) and options,

ii) the appropriateness of controls on catch (or landings) and fishing effort,

iii) the potential for multispecies and multi-annual catch options;

j) prepare the draft section on fish and fisheries for the HELCOM third periodic review of the state of the Baltic Sea.

The above terms of reference are set up to provide ACFM with the information required to respond to requests for advice from the North-East Atlantic Fisheries Commission, the International Baltic Sea Fishery Commission, the European Commission and the Helsinki Commission.

2:6:11 The Working Group on Multispecies Assessment of Baltic Fish (Chairman: Mr B. Sjöstrand, Sweden) will meet at ICES Headquarters from 14-22 June 1995 to: complete the development of the model and datasets for Sub-divisions 22-24 and 25-32 to enable the Working Group on the Assessment of Demersal and Pelagic Stocks in the Baltic to take multispecies effects into account in its assessments.

2:6:12 The Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak (Chairman: Mr P. Degnbol, Denmark) will meet at ICES Headquarters from 2-10 October 1995 to:

a) assess the status of and provide catch options for 1996 for the stocks of cod, haddock, whiting, saithe, sole, and plaice in Sub-area IV, Division IIIa (excluding sole

- 2:6:12 ctd. in Division IIIa and cod in the Kattegat), and Division VIIId (excluding haddock and saithe), taking into account as far as possible the technical interactions among the stocks due to the mixed-species fisheries;
- b) assess the status of Norway pout and sandeel stocks in Sub-area IV and Divisions IIIa and VIa and advise on the need for any management measures;
  - c) quantify the species 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 the Working Group on Ecosystem Effects of Fishing Activities;
  - d) for those stocks and/or fisheries where data permit, provide the information required to give advice or guidance on
    - i) medium-term management objectives (in terms of spawning stock biomass and mortality rates) and options
    - ii) the appropriateness of controls on catch (or landings) and fishing effort
    - iii) the potential for multispecies and multi-annual catch options
  - e) provide the data requested by the Multispecies Assessment Working Group (quarterly catches and mean weights at age in the catch and stock for 1994 for all species in the multispecies model that are assessed by this Working Group);
  - f) evaluate the stock units used in the assessment of stocks in the North Sea and adjacent areas (Divisions IIIa, VIIId and VIa) and identify any changes required;
  - g) analyse the relevant data from the quarterly International Bottom Trawl Surveys in the North Sea and Division IIIa and evaluate the potential usefulness of the surveys in assessments.

The above terms of reference are set up to provide ACFM with the information required to respond to the requests for advice from the North-East Atlantic Fisheries Commission and the European Commission.

2:6:13 The Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine, and Anchovy (Chairman: Ms C. Porteiro, Spain) will meet at ICES Headquarters from 10-19 October 1995 to:

- a) assess the status of and provide catch options for 1996 and 1997 for the stocks of mackerel and horse mackerel (defining stocks as appropriate);
- b) assess the status of and provide catch options for 1996 for the sardine stock in Divisions VIIId and IXa, and the anchovy stocks in Sub-area VIII and Division IXa;
- c) provide data requested by the Multispecies Assessment Working Group (quarterly catches and mean weights at age in the catch and stock for 1994 by statistical rectangle of the North Sea for mackerel and horse mackerel);
- d) for those stocks and/or fisheries where data permit, provide the information required to give advice or guidance on
  - i) medium-term management objectives (in terms of spawning stock biomass and mortality rates) and options,
  - ii) the appropriateness of controls on catch (or landings) and fishing effort,
  - iii) the potential for multispecies and multi-annual catch options;
- e) analyse the mackerel and horse mackerel data from the quarterly International Bottom Trawl Surveys of the North Sea and Division IIIa and evaluate the potential usefulness of the surveys in assessments.

The above terms of reference are set up to provide ACFM with the information required to respond to the requests for advice from the North-East Atlantic Fisheries Commission and the European Commission.

2:6:14 The Working Group on the Assessment of Northern Shelf Demersal Stocks (Chairman: Dr M. Armstrong, UK) will meet at ICES Headquarters from 13-22 June 1995 to:

- a) assess the status of and provide catch options for 1996 for the stocks of cod,

2:6:14 ctd. haddock, whiting, saithe, megrim, and anglerfish in Sub-area VI, and cod, haddock, whiting, plaice, and sole in Division VIIa taking into account technical interactions in mixed species fisheries;

b) for those stocks and/or fisheries where data permit, provide the information required to give advice or guidance on

i) medium-term management objectives (in terms of spawning stock biomass and mortality rates) and options,

ii) the appropriateness of controls on catch (or landings) and fishing effort;

iii) the potential for multispecies and multi-annual catch options;

c) evaluate the stock units used in the assessments in the area carried out by the Working Group and identify any changes required.

The above terms of reference are set up to provide ACFM with the information required to respond to the requests for advice from the North-East Atlantic Fisheries Commission and the European Commission.

2:6:15 The Working Group on the Assessment of Southern Shelf Demersal Stocks (Chairman: M B. Mesnil, France) will meet at ICES Headquarters from 5-14 September 1995 to:

a) assess the status of and provide catch options for 1996 for stocks of cod, whiting, plaice, and sole in Divisions VIIe-k, and sole in Sub-area VIII;

b) provide information on the state of exploitation and, where possible, provide catch and management options for hake stocks in Sub-areas III, IV, VI, VII, VIII, and IX and for stocks of anglerfish and megrim in Sub-areas VII, VIII, and IX;

c) for those stocks and/or fisheries where data permit, provide the information required for ACFM to give advice or guidance on

i) medium-term management objectives (in terms of spawning stock biomass and mortality rates) and options,

ii) the appropriateness of controls on catch (or landings) and fishing effort,

iii) the potential for multispecies and multi-annual catch options;

d) if possible, evaluate options for technical measures appropriate to the fisheries, taking into account technical interactions between the component fleets and species;

e) evaluate the stock units used in the assessments in the area covered by this Working Group and identify any changes required.

The above terms of reference are set up to provide ACFM with the information required to respond to the requests for advice from the North-East Atlantic Fisheries Commission and the European Commission.

2:6:16 The Working Group on Long-Term Management Measures (Chairman: Dr T.K. Stokes, UK) will meet in Lowestoft, UK from 4-12 April 1995 to:

a) using examples relevant to the ICES area, develop further, methods for assessing the effects of technical conservation measures in different fisheries systems, taking account, as appropriate, of spatial and multispecies factors;

b) demonstrate the framework(s) for evaluating management strategies for fisheries systems (including MBALs), using North Sea plaice as an example. Suggest specific ways in which the results from such studies might be incorporated into the advice given by ACFM;

c) advise on the data (and quality) requirements needed to provide advice on the effects of technical conservation measures. In particular, advise on the feasibility of providing advice for widely distributed multinational fisheries and fish stocks;

d) define focus areas for further development of multispecies/multifleet assessment models for future work by the Working Group.

2:6:17 The Working Group on Methods of Fish Stock Assessment (Chairman: Dr G. Stefánsson, Iceland) will meet at ICES Headquarters from 6-14 February 1995 to:

2:6:17 ctd a) develop alternative assessment methods based on limited data for those stocks where there is a high degree of uncertainty in age determination or which have a long life span;

b) consider the utility of methods designed to estimate catch-at-age directly from catch-at-length data;

c) in view of the growing problem of mis-reported and non-reported catches, describe assessment methods which are tolerant of missing or biased landings data and consider the usefulness of methods which use only fishery-independent data.

2:6:18 The Working Group on *Nephrops* and *Pandalus* Stocks (Chairman: Dr D. Bennett, UK) will be renamed the Working Group on *Nephrops* Stocks and will meet in Lowestoft, UK from 2-9 March 1995 to:

a) review and update available fishery, sampling, and biological data for *Nephrops* assessments, reporting in particular on any improvements in effort indices;

b) continue methodological development in *Nephrops* assessment taking note of progress made by the Study Group on Life Histories and Assessment Methods of *Nephrops* Stocks;

c) assess the status of those stocks of *Nephrops* in the ICES area where new methodology or new data justify a new assessment, revising catch options only where necessary;

d) evaluate the possibility of giving longer-term advice for *Nephrops* stocks and consider the effect on assessments and catch options of working at the different levels of the functional unit, management area and the current TAC zones.

e) in the light of recent studies on mesh selection in *Nephrops* trawls, update mesh assessments where appropriate.

The above terms of reference are set up to provide ACFM with the information required to respond to the requests for advice from the North-East Atlantic Fisheries Commission and the European Commission.

2:6:19 The Working Group on North Atlantic Salmon (Chairman: Mr E.C.E. Potter, UK) will meet at ICES Headquarters from 3-12 April 1995 to:

a) with respect to Atlantic salmon in each Commission area, where relevant

i) describe the events of the 1994 fisheries with respect to catches (including unreported catches), gear, effort, composition and origin of the catch (including fish farm escapees and sea-ranched fish) and rates of exploitation,

ii) describe the status of the stocks (including the contribution to these stocks of fish farm escapees and sea-ranched fish) occurring in the Commission area and, where possible, evaluate spawning escapement against targets,

iii) specify data deficiencies and research needs;

b) evaluate the effects of the following management measures on the stocks and fisheries occurring in the respective Commission areas

i) quota management measures and closures implemented after 1991 in the Canadian commercial salmon fisheries,

ii) the suspension of commercial fishing activity at the Faroes,

iii) the suspension of commercial fishing activity at West Greenland;

c) with respect to the fishery in the West Greenland Commission area

i) provide catch options, with an assessment of risks, related to the management objective of achieving target spawning escapement,

ii) review the target spawning level in US rivers in the light of the present condition of the rivers and the stocks;

d) with respect to fisheries and stocks in the North-East Atlantic Commission area

- 2:6:19 ctd
- i) provide estimates of spawning targets for optimal production,
  - ii) develop methods which could be used in providing advice on catch quotas in relation to stock abundance and, if possible, provide catch options;
- e) report on significant research developments which might assist NASCO with the management of salmon stocks with special reference to
- i) the impacts of fish farm escapees and sea-ranched fish on the wild stocks,
  - ii) criteria for identifying recruitment overfishing of Atlantic salmon,
  - iii) predictive models of annual migration and distribution of Atlantic salmon stock complexes,
  - iv) biological (such as maturation, predation, forage base) and environmental (such as oceanographic, productivity) variables which provide interpretation of trends in salmon abundance;
- f) with respect to Atlantic salmon in the NASCO area, provide a compilation of microtag, finclip and external tag releases by ICES Member Countries in 1994.

The above terms of reference are set up to provide ACFM with the information required to respond to the request for advice from the

## North-Atlantic Salmon Conservation Organization.

A joint half day meeting with the Baltic Salmon and Trout Assessment Working Group will take place at ICES Headquarters on 8 April 1995 to identify questions of mutual interest and to explore possibilities of either merging the two working groups or organising interaction and communication between them.

- 2:6:20
- The Study Group on the Biology and Assessment of Deep-Sea Fisheries Resources (Chairman: Dr J.D.M. Gordon, UK) will work by correspondence in 1995, and report to the 1995 Annual Science Conference, to:
- a) compile and analyse available data on a number of deep-water species (namely argentinnes, orange roughy, roundnose grenadier, black scabbard fish, golden eye perch (*Beryx splendens*) and red (blackspot) seabream *Pagellus bogaraveo*) in the ICES area;
  - b) provide information on the stocks and state of exploitation of the stocks of blue ling, ling, and tusk in Sub-areas V, VI, and XIV and identify outstanding data requirements;
  - c) prepare a progress report to ACFM in May 1995 and plan a meeting in 1996.

The above terms of reference are set up to provide ACFM with the information required to respond to the request for advice from the North-East Atlantic Fisheries Commission.

## ADVISORY COMMITTEE ON THE MARINE ENVIRONMENT

- 2:7
- The Advisory Committee on the Marine Environment (Chairman: Dr K. Richardson, Denmark) will meet at ICES Headquarters from 26-31 May 1995 at Council expense to:
- a) respond to requests for advice from the Commissions, other regulatory agencies, and Member Countries;
  - b) examine ways of improving environmentally related advice, including for one

day in consultation with representatives from customer organizations;

- c) explore the potential for ICES contribution to the design and implementation of the Global Ocean Observing System (GOOS) programme, with participation of a representative of GOOS and the ACFM Chairman.

2:7 ctd The Chairman of the Statistics Committee and the Marine Mammals Committee or their designees should be invited to participate in the preparation for and attend the 1995 meeting.

2:7:1 The Marine Chemistry Working Group (Chairman: Dr W. Cofino, Netherlands) will meet in Reykjavik, Iceland from 3-7 April 1995 to:

- a) finalize, in the light of the outcome of the ASMO meeting, a list of organic contaminants which can be monitored in biota and sediments on a routine basis and advise on quality assurance measures for these contaminants (OSPAR 1.1);
- b) review an assessment of methodology for the determination of lipids in biological tissue and consider the need for an intercomparison exercise for measurements of lipids in marine samples (OSPAR 2.1);
- c) evaluate review notes on chlorinated alkanes, monocyclic aromatic hydrocarbons, modern pesticides in marine waters, and organotin compounds, and on data management systems for chemicals transported over the sea (HELCOM 2);
- d) assess and report on the outcome of the ammonia questionnaire prepared in association with the Fifth Intercomparison Exercise on the Analysis of Nutrients in Sea Water;
- e) discuss plans for the Sixth Intercomparison Exercise on the Analysis of Nutrients in Sea Water;
- f) investigate the possibilities of organizing an ICES baseline study on contaminants in the near future;
- g) review and report on the progress with respect to a project on estuarine behaviour of metals;
- h) discuss and report on the need for developing methods for the determination of speciated metals in sea water;
- i) review and report on progress with respect to an inter-laboratory study on analyses of trace metals in sea water and,

if appropriate, devise a plan and timetable;

- j) review, with a view to adopting, an overall assessment of the results of the Intercomparison Programme on the Analysis of CBs in Marine Media;
- k) assess and report on the outcome of the investigation on CB-patterns in marine mammals;
- l) review a note on organophosphorus compounds containing C-P bonds which are suitable to check recoveries;
- m) review and report on the progress made in the determination of dissolved organic carbon;
- n) discuss plans for an intercomparison exercise on non-ortho CBs in marine media.

2:7:2 A Workshop on Metals in Estuaries will be held in Reykjavik, Iceland from 29-31 March 1995 under the chairmanship of Mr S. Westerlund (Sweden) to:

- a) characterize estuaries, and assess processes which are important in transporting metals to the ocean in the different types of estuaries;
- b) evaluate different models to study estuarine processes and fluxes.

2:7:3 The Working Group on Marine Sediments in Relation to Pollution (Chairman: Dr S. Rowlatt, UK) will meet in Aberdeen, UK from 3-7 February 1995 to:

- a) prepare advice on the approach to be taken in assessing temporal trend data on contaminants in sediments in international programmes;
- b) prepare a report on current approaches to and possible future developments in the normalization of concentrations of trace metals and organic compounds in sediments in monitoring programmes to study particular areas and problems;
- c) prepare a report on the constraints imposed on retrospective temporal trend monitoring by post-depositional mobility of contaminants;

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- 2:7:3 ctd d) prepare a report on the influence of diagenetic processes on the assessment of contamination by cadmium and other elements;
- e) prepare a report on the influence of sieving techniques on the observed concentrations of contaminants in sediments;
- f) prepare a report on the relative magnitude of variance factors in sediment monitoring programmes;
- g) prepare advice on methods for the determination of organic carbon in sediments;
- h) collect and review information and prepare a report on nutrient (e.g., nitrogen and phosphorus) accumulation and cycling in sediments, including fluxes, in the context of, for example, the processes identified in the *North Sea Quality Status Report* and information obtained from the Baseline Study of Contaminants in Baltic Sea Sediments, and make this information available to the Working Group on Phytoplankton Ecology.

2:7:4 The Working Group on Biological Effects of Contaminants (Chairman: Dr R. Stagg, UK) will meet in Aberdeen, UK from 3-7 February 1995 to:

- a) review and refine, in conjunction with members of ACME, the paper prepared by the Working Group in 1994 on biological effects techniques in an integrated monitoring strategy (OSPAR 1.3, HELCOM 9);
- b) review new biological effects techniques and classify them according to classifications in the above strategy;
- c) identify further information relevant to the further development of ecotoxicological reference values (OSPAR 3.2);
- d) review and report on the progress in and results of the intercomparison exercise on scope for growth measurements in bivalve molluscs;
- e) prepare a mechanism for assessing the effectiveness of biological effects techniques recommended by the group;

- f) review and report on information on the use of molecular techniques in effects monitoring;
- g) review descriptions of biological effects techniques prepared for publication in the TIMES series and determine which are ready for publication;
- h) review research proposals concerned with chronic toxicity in sediments and genotoxicity.

Representatives of IOC and MEDPOL should be invited to attend.

2:7:5

A joint meeting of the Working Group on Marine Sediments in Relation to Pollution and the Working Group on Biological Effects of Contaminants will be held under the chairmanship of Dr I. Davies (UK) in Aberdeen, UK from 31 January to 2 February 1995 to:

- a) prepare recommendations on the integration of biological and chemical measurements on sediments in relation to the objectives of JAMP and AMAP;
- b) review and report on progress on the integration of chemical and biological techniques in sediment assessment programmes;
- c) report on the interpretation of data on EROD induction and AChE inhibition in relation to contaminants in sediment;
- d) prepare comments on progress in research into the use of the dragonet in sediment quality assessment;
- e) receive and comment on reports regarding progress in the development of chronic and sublethal whole sediment bioassays;
- f) review the proposal (to be prepared by a Steering Group chaired by Dr A.R.D. Stebbing) for an integrated study to examine processes of pollutant transfer and effects on biota and, on the basis of this report, develop a proposal for ACME;
- g) receive and comment on reports on the potential of new field techniques linking sediment chemistry and biological effects studies.

2:7:6 The Steering Group on Integrated Study of Processes of Pollutant Transfer and Effects on Biota (Chairman: Dr A.R.D. Stebbing, UK) will meet in Plymouth, UK from 10- 12 January 1995 to:

- a) review the existing data describing processes of pollutant transfer and effects on biota in the North Sea, based among others on the results of the Bremerhaven Workshop on the Biological Effects of Contaminants in the North Sea;
- b) consider relevant chemical and physical data (obtained either through ICES or by informal contacts), including information on atmospheric inputs of contaminants, which may affect contaminant distribution on a seasonal basis;
- c) taking the above information into account, prepare a proposal for an integrated study to examine processes of pollutant transfer and effects on biota, for consideration by the 1995 joint meeting of WGBEC and WGMS

2:7:7 The Working Group on Environmental Assessment and Monitoring Strategies (Chairman: Dr I. Davies, UK) will meet in Aberdeen, UK from 27-31 March 1995 to:

- a) examine the WGBEC strategy paper on the use of biological effects techniques in monitoring and recommend possible means of implementation (OSPAR 1.3, HELCOM 9);
- b) prepare further advice on the use of seaweeds in monitoring programmes, based on a review to be prepared intersessionally (OSPAR 1.2, HELCOM 4);
- c) prepare comments on the role of seabird eggs in contaminant monitoring programmes, based on a review to be prepared intersessionally (OSPAR 1.2);
- d) consider whether existing guidelines on monitoring contaminants in fish and shellfish need to be updated, in relation to scientific developments and proposals by ASMO, and coordinate an updating and completion of the table on spawning periods of fish and shellfish in relation to monitoring of contaminants, contained in the 1992 ACMP report (OSPAR 1.4);

e) discuss progress with the development of the Coastal Monitoring Programme of HELCOM (HELCOM 4);

f) discuss progress made in the revision of the HELCOM BMP/COMBINE (HELCOM 4);

g) propose an overall plan of action to implement the recommendations in the 1994 ACME strategy paper on the role of ICES in environmental monitoring;

h) develop detailed suggestions as to how ICES strengths can best be used in the design and implementation of a monitoring strategy to address major environmental concerns foreseen within the ICES area over the next decade;

i) identify chemical/physical parameters of use in forthcoming long-term monitoring projects such as the Global Ocean Observing System (GOOS);

j) update the document on environmental modelling presented in the 1991 WGEAMS report, with a view to providing ACME with an assessment of progress in, and the scope for, modelling activities relevant to ACME responsibilities, paying particular attention to the coupling of physical and biological models and their application to the management of fisheries and marine environmental issues;

k) discuss and report on the application of Geographical Information Systems in monitoring and assessment work.

2:7:8 The Working Group on Statistical Aspects of Environmental Monitoring<sup>1</sup> (Chairman: Mr M.D. Nicholson, UK) will meet in Aberdeen, UK from 27-31 March 1995 to:

a) report results of investigations concerning the appropriate basis for expressing contaminant concentrations and the effect of biological covariates on contaminant concentrations;

b) report on further refinements in methods for assessing temporal trends of contaminants in biota;

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<sup>1</sup> The Council decided to transfer this Working Group to the Statistics Committee

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- 2:7:8 ctd
- c) review and report on investigations concerning methods for analysing phytoplankton data for temporal trends;
  - d) review and report on methods for the spatial analysis of data on contaminants in sediments;
  - e) report on the results of studies to improve the design and effectiveness of monitoring programmes, including graphical aids;
  - f) provide examples of the use of non-parametric methods for trend assessments in cases with seasonality and serial dependence.

2:7:9 A joint meeting of the Working Group on Environmental Assessment and Monitoring Strategies and the Working Group on Statistical Aspects of Environmental Monitoring will be held in Aberdeen, UK from 1-2 April 1995 to:

- a) advise on the most appropriate means of monitoring to identify temporal trends under different hydrographic conditions, taking into account statistical requirements and comments from the *North Sea Quality Status Report* (OSPAR 4.1);
- b) discuss the approach proposed by the WGSAEM for assessing the power of monitoring programmes in mapping the spatial distributions of contaminants in sediment and biota, making use of, *inter alia*, the ICES/HELCOM Sediment Baseline Study, and the ICES/NSTF North Sea data sets;
- c) review a draft TIMES document on the formulation of objectives for temporal trend monitoring studies to be prepared jointly by members from the two Groups intersessionally;
- d) exchange views on plausible objectives for sediment monitoring programmes and statistical methods to address these problems.

Physical oceanographers should be encouraged to attend this meeting.

2:7:10 The Working Group on Introductions and Transfers of Marine Organisms (Chairman:

Prof. J.T. Carlton, USA) will meet in Kiel, Germany from 10-13 April 1995 to:

- a) report on the current status of fish, shellfish, algal, and other introductions in and between ICES Member Countries, including the annual report on the status of *Porphyra* in the Gulf of Maine;
- b) prepare a discussion document on different models that could be applied for evaluating the potential ecological and genetic risks that might arise from proposed introductions and transfers;
- c) begin to consider the implications of introducing marine organisms into the environment as potential agents for biological control;
- d) finalize the new *ICES Cooperative Research Report* on "The ICES Code of Practice on Introductions and Transfers of Marine Organisms: Guidelines and a Manual of Procedures," incorporating a history of the usage of the Code, an example of a prospectus relative to proposing new introductions, guidelines for evaluating the ecological effects of the release of GMOs (in consultation with the Working Group on Applications of Genetics in Fisheries and Mariculture), and a review of case histories and decisions reached by the Council on introductions and transfers;
- e) finalize plans for the 1995 Theme Session, "Ballast Water: Ecological and Fisheries Implications" to be held during the 1995 ICES Annual Science Conference (83rd Statutory Meeting) in Aalborg.

2:7:11 The Working Group on Ecosystem Effects of Fishing Activities<sup>2</sup> (Chairman: Dr S. Hall, UK) will work by correspondence in 1995, and report to the 1995 Annual Science Conference, to:

- a) analyse survey data in terms of appropriate summary parameters for species assemblages, with a view to continuing the study of biodiversity and changes in community structure;
- b) examine trends in abundance of non-target fish species using trawl survey data and other appropriate data sets;

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<sup>2</sup> This Working Group reports to ACFM and ACME.

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- 2:7:11 ctd c) refine and implement approaches for quantifying the susceptibility of species, including their juvenile stages, to fishing effects;
- d) analyse available data on system responses in areas where fishing mortality has been reduced;

- e) summarize any new work undertaken on the estimation of discards or their utilization by scavengers;
- f) initiate an analysis of the effect on the ecosystem of the removal of small fish from the ecosystem;
- g) prepare a progress report to ACFM/ACME in May 1995, and plan for a meeting in 1996.

## FISH CAPTURE COMMITTEE

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2:8 The Working Group on Fishing Technology and Fish Behaviour (Chairman: Dr. S.J. Walsh, Canada) will meet in Aberdeen, UK from 19-21 April 1995 to:

- a) advise ACFM on appropriate mesh sizes corresponding to an  $L_{50}$  of 38 cm for cod in
- i) exit windows installed in codends of cod trawls with 105 mm codends
- ii) codends with standard diamond meshes;
- b) evaluate recent experiments on the selectivity of *Nephrops* trawl and report to ACFM;
- c) consider and review studies to investigate measures of fishing effort and how these vary with gear type with the aim of improving the precision of effort data used in catch-per-unit-effort (CPUE);
- d) consider and comment on the draft version of the Manual on Recommended Methodology of Selectivity Experiments prepared by the Sub-group on Selectivity Methods;
- e) consider and comment on the report of the Study Group on Unaccounted Mortality in Fisheries.

2:8:1 The Sub-Group on Selectivity Methods (Chairman: Mr D.A. Wileman, Denmark) will work by correspondence in 1995, and report to the 1995 Annual Science Conference, to:

continue with the preparation of the Manual on Recommended Methodology of

Selectivity Experiments. A draft will be submitted to the meeting of the Working Group on Fishing Technology and Fish Behaviour for their consideration.

2:9 The Working Group on Fisheries Acoustics Science and Technology (Chairman: Mr E.J. Simmonds, UK) will meet in Aberdeen, UK on 17 June 1995 to:

- a) review the conclusions of the ICES Symposium on Fisheries and Plankton Acoustics (Aberdeen, 12-16 June 1995) to identify the most important and productive areas for future research;
- b) consider and comment on the report of the Study Group on Target Strength Methodology;
- c) consider and comment on the 1994 ICES Workshop on Hydroacoustic Instrumentation.

2:10 A Study Group on "Unaccounted Mortality in Fisheries" will be established under the chairmanship of Mr. B. Isaksen (Norway) and will meet in Aberdeen, UK from 17-18 April 1995 to:

- a) review, for major fish stocks, the relative magnitude of encounters, escapements or discards of fish from different fishing gears involved in the exploitation of these stocks;
- b) review, for major fish stocks, the potential for these fish to survive.
- c) make conclusions available to ACFM and ACME.

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- 2:10 ctd The Study Group will report to the Working Group on Fishing Technology and Fish Behaviour and to the Working Group on Ecosystem Effects of Fishing Activities.
- 2:11 The Study Group on Target Strength Methodology (Chairman: Mr E. Ona, Norway)

will meet in Aberdeen, UK from 8-10 June 1995 to:

finalize the report on "Methodology for Target Strength Measurements" with special reference to *in situ* techniques for fish and micro-nekton.

The Study Group will report to the Working-Group on Fisheries Acoustics Science Technology.

## HYDROGRAPHY COMMITTEE

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- 2:12 The Working Group on Marine Data Management (Chairman: Dr L. Rickards, UK) will meet in Dublin, Ireland from 1-3 May 1995 to:

- a) assess the post-1990 oceanographic data sent to ICES by each member state, identify problems and suggest solutions;
- b) review progress in the implementation of IOC's Global Oceanographic Data Archaeology and Rescue (GODAR) Project in each ICES member state;
- c) report on procedures for processing and storage of shipborne ADCP data;
- d) critically analyse data processing procedures for moored current meter data in ICES member countries;
- e) quantitatively analyse SCOR WG 51 recommendations for processing CTD data;
- f) assess the results of the intercomparison of quality assurance methods for station data;
- g) report on the development of an umbrella for Gopher (internet);
- h) report on the work of the IOC/IODE Group of Experts on the Technical Aspects of Data Exchange (GE/TADE);
- i) review existing and planned national and international oceanographic data distribution policies in order to advise ICES on future data policy.

- 2:13 The Working Group on Oceanic Hydrography (Chairman: Dr E. Buch, Denmark) will meet in Oban, UK from 26-28 April 1995 to:

- a) review results from research and monitoring programmes related to radioactive contamination of the Nordic Seas;
- b) evaluate the completeness of Standard Section and Stations data in the ICES databank, and consider ways of publishing these data;
- c) assess progress in the understanding of the role of climatic variability and the long term changes of the pan-Atlantic cod populations;
- d) review progress in national and international projects in the North Atlantic (WOCE, Mare Cognitum etc.);
- e) assess results from the WOCE North Atlantic Workshop;
- f) finalize the report of the ICES NANSEN Project;
- g) assess and evaluate oceanographic instrumentation;
- h) commence a review of quality assurance procedures for oceanographic data.

- 2:14 The Working Group on Shelf Seas Oceanography (Chairman: Dr H. Dahlin, Sweden) will meet in Helsinki, Finland from 18-19 May 1995 to:

- a) assist the Working Group on Harmful Algal Bloom Dynamics to develop plans

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2:14 ctd for a follow-up workshop on the Modelling of Harmful Algal Bloom Dynamics;

- b) assess the progress being made in model validation procedures, particularly in respect to particle and nutrient fluxes;
- c) evaluate progress in understanding of flux studies drawing on material and information being acquired from various major EU MAST projects in and adjacent to the shelf seas (for example, NOWESP and OMEX);
- d) continue the compilation of estimates of physical/chemical fluxes particularly

across the shelf seas/ocean and riverine/coastal interfaces;

- e) examine developments in coastal modelling in terms of quantifying alongshore and cross-shelf transport;
- f) commence a review of quality assurance procedures for oceanographic data.

2:15

The Study Group on SKAGEX (Chairman: Mr L. Foyn, Norway) will work by correspondence in 1995 to:

finalise preparation of the contributions presented to the 1992 SKAGEX Workshop for publication in the ICES *Cooperative Research Report Series*, as approved under C.Res. 1993/1:3.

## STATISTICS COMMITTEE

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2:16 The Statistics Committee Liaison Working Group (Chairman: Dr R.M. Cook, UK) will meet at ICES Headquarters from 15-17 February 1995 to:

- a) coordinate the ICES position with respect to the agenda of the 16th Session of the Coordinating Working Party on Atlantic Fishery Statistics (CWP) due to be held in March 1995;
- b) review the current status of the STATLANT 27 reporting system (including the species list);
- c) review the provision of national fishery statistics and advise on the future of "ICES Fisheries Statistics" and the Advance Release;
- d) advise on the usefulness and feasibility of extending the ICES catch database to years prior to 1973 and advise on ways of disseminating this database in electronic form;

- e) review instances of catch misreporting in the ICES area, evaluate the effect of misreporting on assessments and catch forecasts and prepare a paper on this subject for the CWP meeting.

The meeting will be attended by the Fishery Secretary and other appropriate members of the ICES Secretariat. The Chairman will attend at Council expense.

2:17

A Planning Group for a Symposium on "The Role of Physical and Biological Processes in the Dynamics of Marine Populations" will be established with a view to holding a Symposium in Crete, Greece in 1996 or 1997 with Dr. M.J. Fogarty (USA) and Prof. T. Osborn (USA) as co-conveners. A report will be prepared for the 1995 Annual Science Conference.

CIESM, FAO, IOC, NSF, ONR, PICES, and SCOR will be invited to co-sponsor the Symposium.

## MARINE ENVIRONMENTAL QUALITY COMMITTEE

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2:18 The Steering Group on Quality Assurance of Biological Measurements in the Baltic Sea (Chairman: Dr L. Hernroth, Sweden)

will meet in Gdynia, Poland from 14 - 16 February 1995 to:

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2:18 ctd a) evaluate the results of the two workshops on quality assurance of biological measurements in the Baltic Sea held in 1994;

b) on the basis of this evaluation, prepare detailed plans for the intercomparisons/intercalibrations to be held in 1995 for the purpose of developing and testing the QA procedures for benthic and pelagic biological measurements in the Baltic Sea, with particular reference to the HELCOM Baltic Monitoring Programme (HELCOM 3).

2:19 The Steering Group for the Coordination of the Baseline Study of Contaminants in Baltic Sea Sediments (Chairman: Dr M. Perttilä, Finland) will meet at ICES Headquarters from 10-12 April 1995 to:

a) review the results of the analyses of sediment samples from the Baseline Study, to the extent that they are available;

b) prepare detailed plans for the review and assessment of the full analytical results and the preparation of the overall report on the Baseline Study (HELCOM 5).

2:20 The Steering Group on Quality Assurance of Chemical Measurements in the Baltic Sea (Chairman: Dr U. Harms, Germany) will meet in Tallinn, Estonia from 21-23 March 1995 to:

prepare clear, detailed analytical quality assurance guidelines for chemical components to be measured in the fourth phase of the Baltic Monitoring Programme (HELCOM 3).

2:21 The Working Group on the Baltic Marine Environment (Chairman: Dr H.-P. Hansen, Germany) will meet in Norrköping, Sweden, from 19-21 April 1995 to:

a) report on progress in quality assurance and intercalibration/intercomparison exercises of chemical and biological determinands;

b) review the progress in projects related to or including coastal zone/open sea flux studies in the Baltic Sea;

c) review the drafts of the expert groups of the HELCOM Third Periodic Assessment of the Baltic Sea;

d) assess physical, chemical, and biological effects of salt water inflows since spring 1993 and other environmental events in the Baltic Sea, including reports of the Baltic Sea Hot Line Network and/or the modified Internet Network Newsservice on environmental events in the Baltic;

e) carry out preparations for the Conference on Marine Research to be held on Bornholm, Denmark in 1996, that will identify contributions and provide input to the discussion on the future structure of cooperative scientific research in the Baltic Sea.

2:22 The Working Group on the Effects of Extraction of Marine Sediments on the Marine Ecosystem. (Chairman: Dr S.J. de Groot, Netherlands) will meet in Dublin, Ireland from 25-28 April 1995 to:

a) review and report on the status of marine aggregate extraction activities and related environmental research as well as on the development of seabed resource mapping in ICES Member Countries;

b) review and report on the systems of sediment grain-size classification operating in ICES Member Countries, and on existing classifications of bedform analysis and recommend a preferred system;

c) prepare a report on the requirements for monitoring the environmental effects of marine aggregate extraction operations as well as the results of Environmental Impact Assessments related to such operations, for ACME;

d) review and report on developments in national authorization or administrative frameworks and procedures in accordance with *ICES Coop. Res. Rep. No. 182*;

e) identify the biological questions arising from concern about the impact of marine sediment extraction on the biota, assess how they should be addressed, and rebalance the terms of reference of the Working Group accordingly;

f) assess the quantities and effects of the recovery of material through navigational dredging.

## MARICULTURE COMMITTEE

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- 2:23      The Working Group on Pathology and Diseases of Marine Organisms (Chairman: Dr. A. McVicar, UK) will meet in La Tremblade, France from 3-7 April 1995 to:
- a) analyze national reports on new disease trends in wild fish, crustacean, and mollusc populations;
  - b) analyze national reports on new disease trends in mariculture for fish and shellfish;
  - c) evaluate the Sub-group report on the Statistical Analysis of Fish Disease Data;
  - d) evaluate the results of the proposed inter-sessional study on antibiotics aimed at establishing correlations between zones of inhibition and minimal inhibitory concentrations (MIC) or minimal bactericidal concentration (MBC);
  - e) review the current research in sea lice treatment and control methods including: chemical, biological, immunological, and management practices;
  - f) review the research on pathology and diseases in fish larvae reared in mariculture;
  - g) review the report of the BMB WG 25 "Fish Diseases and Parasites in the Baltic Sea" on the results of the "BMB/ICES Workshop on Diseases and Parasites of Flounder in the Baltic Sea" and the "BMB/ICES Sea-going Workshop on Fish Diseases and Parasites in the Baltic Sea" scheduled for late 1994 as soon as it becomes available, and report to ACME (HELCOM 6);
  - h) consider the role of flat oysters (*Ostrea edulis*), Olympia oysters (*Ostreola conchaphila*), and American oysters (*C. virginica*) as carriers of Denman Island Disease (*Mikrocytos mackini*) from Pacific oysters and evaluate the possibility that reciprocal transfers of *M. mackini* may occur among the four oyster species;
  - i) consider disease data sets currently used in shellfish pathology laboratories and to recommend means of standardization of disease records for use at the national level and by ICES;
  - j) review current monitoring procedures for detecting the prevalence of mollusc pathogens and to develop recommendations for appropriate protocols (sample size and techniques) for such surveys;
  - k) assess the usefulness of external fish diseases as a tool in the monitoring of biological effects of contaminants, and report to ACME;
  - l) review available information on fish diseases in the Baltic Sea and their possible impact on mortality of Baltic fish stocks and to prepare in cooperation with the Chairman of the Baltic Fish and the Baltic Marine Biologists (WG 25 "Fish Diseases and Parasites in the Baltic Sea") a report on this item to be included in the HELCOM Third Periodic Assessment (ACME and ACFM) (HELCOM 7);
  - m) maintain an overview of the M-74 syndrome and the *Ichthyophonus* issue as a part of its regular agenda and report to ACME if new information becomes available (HELCOM 12);
  - n) review, as a matter of urgency, the present status of *Ichthyophonus* on herring populations and to investigate problems with supplying data on its prevalence;
  - o) provide advice on methods to handle data in rapid response to disease issues in fish stocks.
- 2:23:1      A Sub-Group on Fish Disease Data Submission (Chairman: Dr A.D. Vethaak, Netherlands) will meet in La Tremblade, France from 1-2 April 1995:
- to continue preparations for the analysis of fish disease data submissions to the new ICES database with a view for full analysis prior to the 1996 meeting of the Working Group.
- 2:24      The Working Group on Environmental Interactions of Mariculture (Chairman: Prof. H. Rosenthal, Germany) will work by correspondence in 1995, and report to the 1995 Annual Science Conference, to:

- 2:24 ctd
- a) update the catalogue of completed, ongoing, and new research programmes on environmental interactions and issues related to mariculture in ICES Member Countries and identify major research priorities;
  - b) review progress in analysing contaminant residues in sediments under and near fish farms (e.g. antimicrobials) and identifying their bioactivity in order to prepare advice on adequate monitoring strategies and interpretation of monitoring data on residues with respect to their wider ecological implications;
  - c) analyze, document, and disseminate information on the status of mariculture, existing trends and future innovations in the culture of different species and concomitant resource requirements and implications for planning and management, with due attention to trends in other coastal resources development and utilization;
  - d) continue to study the interactions of mariculture with other users of the coastal resources and analyze the outcome of the proposed workshops and study groups in order to prepare guidelines for the management of mariculture within the larger context of a Coastal Zone Management Programme (CZMP).
  - e) plan for a meeting in 1996.
- Dr R. Gowen (UK), Chairman of the GES-AMP Working Party on Coastal Aquaculture Impact, should be invited to participate in this group.
- 2:25 The Working Group on the Application of Genetics in Fisheries and Mariculture (Chairman: Prof. J. Mork, Norway) will meet at ICES Headquarters from 30 January to 2 February 1995 to:
- a) continue the review of knowledge of basic population genetic topics in fisheries and mariculture, with emphasis on a combination of qualitative and quantitative aspects;
  - b) review the question of selective fishery with a view to proposing studies to identify possible long term genetic effects;
  - c) review sterilization techniques (such as triploidy) for use in mariculture and field experiments relative to efficacy and justifications for the techniques, and the risks involved (e.g., relative to reversion to a reproductive state);
  - d) prepare updated protocols of fishery and mariculture genetic research in the member countries, and identify scope for enhanced international cooperation.
- 2:26 The Working Group on Mass Rearing of Juvenile Marine Fish (Chairman: Dr. B. Howell, UK) will meet in Conwy, UK from 22-24 June 1995 to:
- a) report on current trends, problems, and prospects for juvenile marine fish production in ICES Member countries;
  - b) report on an inter-laboratory investigation of the potential use of cell symmetry as a predictive indicator of egg quality;
  - c) report on an inter-laboratory evaluation of the effects of different DHA/EPA profiles in food on production success;
  - d) report on an inter-laboratory investigation on the effects of selected weaning diets;
  - e) evaluate progress on the establishment of a data base of environmental conditions under which fish are reared;
  - f) determine the potential for quality assessment criteria for juvenile fish;
  - g) develop and coordinate plans for the Mariculture Special topic on "Advances in Marine Fish Culture" at the 1995 Annual Scientific Conference.
- 2:27 A Workshop on Modelling Environmental Interactions in Mariculture will be held in Dartmouth, Canada from 6-8 September 1995 under the co-chairmanship of Dr. B.T. Hargrave (Canada) and Dr. W. Silvert (Canada) to:
- a) identify and compare different approaches to modelling the environmental interactions of mariculture;
  - b) evaluate performance, application and cost-effectiveness of these models;

C.Res.1994/

- 2:27 ctd c) prepare input on the modelling component of the Joint Theme Session entitled "Mariculture : Understanding Environmental Interactions" in 1995;
- d) plan contributions to the modelling workshop which will be organised by the Shellfish Committee in 1996;
- e) submit a progress report on the Workshop for presentation at the Mariculture Committee (ref. Shellfish Committee) at the Annual Science Conference in 1995.
- 2:28 A Workshop on Principles and Practical Measures for the Interaction of Mariculture and Fisheries in Coastal Area Planning and Management will be held in Kiel, Germany

from 19-22 July 1995 under the co-chairmanship of Dr. P. Burbridge (UK), Prof. H. Rosenthal (Germany) and M. M. Héral (France) to:

- a) obtain opinions and concepts from other disciplines;
- b) develop scenarios on the interactions of mariculture and fisheries;
- c) identify decision making processes that pertain to mariculture and the implications for future ICES activities.

A Steering Group consisting of Dr R.H. Cook (Canada), Prof. J. McGlade (UK) and the Co-Chairmen will develop the programme including the selection of topics and speakers.

### DEMERSAL FISH COMMITTEE

C.Res.1994/

- 2:29 A Saithe Study Group will be established under the chairmanship of Mr K. Nedreaas (Norway) and will meet in Aberdeen, UK from 30 May to 2 June 1995 to:
- a) review the information on the distribution and migration of saithe in the ICES area and advise on the need for any changes in stock assessment units;
- b) review the assessment methods used for saithe with particular reference to the use of catch-per-unit-effort and recruitment indices;
- c) review the experience with research surveys and consider possibilities for improving the collection of fishery-independent assessment data.
- 2:30 A Study Group on Elasmobranch Fishes will be established under the chairmanship of Dr H. da Silva (Portugal) and will meet at ICES Headquarters from 15-18 August 1995 to:
- a) review the status of Elasmobranch stocks within the Northeast and Northwest Atlantic and, where possible, identify trends in biomass and recruitment;
- b) identify the extent of the commercial and sport fisheries in which elasmobranchs are targeted or caught as by-catch and es-

timate the amount (biomass/numbers per size class) of elasmobranchs taken as catches and lost as discards;

- c) describe/review the ecological role of elasmobranch species, their reproductive dynamics and predation of elasmobranchs by species or group of species;
- d) coordinate techniques of age determination and age verification of elasmobranchs;
- e) coordinate methods on modelling and assessment of elasmobranch stocks;
- f) identify the development of compensatory mechanisms as a response to exploitation;
- g) outline an action plan for attaining the goals set above;
- h) report to the Demersal Fish Committee in 1995.

Findings from a), b) and c) will be made available to the Working Group on Ecosystem Effects of Fishing Activities.

2:31

The Study Group on Beam Trawl Surveys (Chairman: Dr A.D. Rijnsdorp, Netherlands) will work by correspondence in 1995, and

C.Res.1994/

2:31 ctd report to the 1995 ICES Annual Science Conference, to:

- a) carry out a detailed evaluation of the data series;
- b) analyse patterns in species richness and diversity;
- c) analyse population indices by age groups and area for plaice and sole;
- d) evaluate survey designs and prepare modifications if necessary;
- e) prepare for the transfer of the Group's work to the International Bottom Trawl Survey Working Group.

2:32 A Workshop on Sandeel Otolith Analysis will be held in Flødevigen, Norway from 28 August to 1 September 1995 under the chairmanship of Dr E. Moksness (Norway) to:

- a) describe a protocol for handling sandeel otoliths including preparation of O-group otoliths for counting of day-rings;
- b) conduct comparative age determinations and evaluate the results using the methods described by the Workshop on Sampling Strategies for Age and Maturity;
- c) describe differences in otolith types with special reference to secondary rings and geographical differences in growth patterns;

- d) establish a protocol for the age determination of otoliths using diagrams and photographs to illustrate age reading criteria.

2:33 As a result of insufficient expertise, the Workshop on Age Reading of Oceanic *Sebastes mentella* originally scheduled to be held in Bremerhaven, Germany in November-December 1994 (C.Res.1993/2:30) will be renamed the Workshop on Age Reading of *Sebastes* spp. and will be held in Bremerhaven, Germany 4-8 December 1995 under the co-chairmanship of Mr D.B. Atkinson (Canada) and Dr K. Kosswig (Germany) to:

- a) evaluate the various methods for determining age in redfish species and investigate the reasons for the differences in results between methods;
- b) examine the validity of using age-conversion factors between different parts of the time series.

The theme of the Workshop will be expanded such that age reading of *Sebastes* spp. in general will be examined rather than the Oceanic stock of *S. mentella* alone.

2:34 The Study Group on Redfish Stocks (Chairman: Mr J. Magnusson, Iceland) will meet at ICES Headquarters from 1-2 May 1995 to:

explore the possibility of carrying out a joint international survey on oceanic redfish in the Irminger Sea and adjacent waters in 1996 and, if appropriate, plan the necessary coordination.

## PELAGIC FISH COMMITTEE

C.Res.1994/

2:35 The International Bottom Trawl Survey Working Group (Chairman: Dr H.J.L. Heessen, Netherlands) will incorporate the work of the Study Group on the Coordination of Bottom Trawl Surveys in Sub-areas VI, VII and VIII and Division IXa and will meet at ICES Headquarters from 20-24 November 1995 to:

- a) analyse the results of the 1991-1994 quarterly bottom trawl surveys in Sub-area IV and Division IIIa;
- b) review progress in carrying out surveys in

Sub-areas VI, VII and VIII and Division IXa, advise on future coordination and provide specifications (including resource implications) for a database for these areas;

- c) propose any improvements in the collection of biological and environmental data;
- d) propose any improvements in the survey manual;
- e) propose any improvements to data exchange and the databases;

C.Res.1994/

2:35 ctd f) evaluate the need and prepare proposals for surveys in 1997 and future years;

g) determine the feasibility of coordination of both International Bottom Trawl Surveys (IBTS) and Beam Trawl Surveys (BTS) by a single Working Group.

2:36 A Working Group on Mackerel and Horse Mackerel Egg Surveys will be established under the chairmanship of Mr A. Eltink (Netherlands) and will meet in Aberdeen, UK from 25-29 March 1996 to:

- a) plan, coordinate and conduct mackerel and horse mackerel egg surveys;
- b) continue to evaluate and improve egg survey methodologies to estimate spawning stocks;
- c) analyse the results of mackerel and horse mackerel egg surveys and report to the Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine and Anchovy;
- d) review the assessment of mackerel and horse mackerel stocks and if necessary carry out a new assessment and report to ACFM and the Pelagic Fish Committee.

2:37

A Workshop on Mackerel Otolith Reading will be held in Vigo, Spain from 8-14 February 1995 under the chairmanship of Mr A. Eltink (Netherlands) to:

- a) evaluate the results of the mackerel otolith exchange carried out in 1994;
- b) discuss and standardize age reading methods by preparing a manual and a standard collection;
- c) advise on the age groups for which valid age readings can be achieved.

2:38

The Planning Group for Herring Surveys (Chairman Mr. E.J. Simmonds, UK) will work by correspondence in 1995, and report to the 1995 Annual Science Conference, to:

- a) coordinate the timing, area allocation and methodologies for acoustic and larval surveys for herring 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) establish what level of survey coverage will occur in 1995 and in the next few years.

## BALTIC FISH COMMITTEE

C.Res.1994/

2:39 A Study Group on Assessment-Related Research Activities Relevant to Baltic Fish Resources (excluding salmonids) will be established under the chairmanship of Mr H. Sparholt (ICES) and will meet in Riga, Latvia from 23 February to 1 March 1995 to:

- a) provide a detailed description of research activities and information needed to carry out reliable assessments of the fish resources in the Baltic Sea taking into account the potential environmental influences on population parameters;
- b) evaluate the present system of sampling the commercial fisheries (species composition, length and age compositions etc.) and the existing research vessel activity in relation to item a);

c) initiate coordination of national research vessel surveys and of the sampling programme of commercial catches;

d) prepare specification of the Young Fish Survey database (including resource implications) for possible transfer to the ICES Secretariat;

e) prepare a standard format for the results of hydroacoustic surveys in order to facilitate data exchange and merging data into a common database and prepare specifications of the database (including resource implications) for possible transfer to the ICES Secretariat;

f) report to the Baltic Fish Committee, ACFM, and ACME.

C.Res.1994/

2:39 ctd The above terms of reference are set up to provide ACFM with the information required to respond to the request for advice from the International Baltic Sea Fishery Commission.

2:40 A Study Group on Baltic Cod Age-Reading will be established under the chairmanship of Dr J. Netzel (Poland) and will work by correspondence in 1995, and report to the 1995 Annual Science Conference, to:

plan a Workshop in 1996 with a view to

- i) establishing a reference collection of otoliths from different sub-divisions, seasons and length groups of cod,
- ii) reaching a common interpretation of otolith structures, i.e. first hyaline ring, double rings, edge formation,
- iii) standardizing the reading procedure,
- iv) compiling a manual on age-reading of cod otoliths.

## SHELLFISH COMMITTEE

C.Res.1994/

2:41 The Study Group on Spatfall and Recruitment in Bivalve Stocks (Co-Chairmen: Dr R. Dijkema, The Netherlands and Dr P. Peterson, USA) will work by correspondence in 1995, and report to the 1995 Annual Science Conference, to:

- a) continue the compilation and analysis of data on the variation of spatfall and recruitment in bivalve stocks;
- b) identify the causes of lack of recruitment in bivalves;
- c) coordinate future field and laboratory investigations.

2:42 The Study Group on the Biology, Life History and Assessment of Majid Crabs will be renamed the Study Group on the Biology and Life History of Majid Crabs under the chairmanship of M L. Latrouite (France) and will meet in La Coruña, Spain from 13 to 16 November 1995 to:

- a) augment the present geographical comparison of life histories by including new species and areas;
- b) identify nursery areas for the various species in the ICES area and establish survey protocols;
- c) investigate biological reference points for management and assess the possible genetic effects of size-selective harvesting;

- d) assess the future production potential of spider crabs in Europe, taking into account the factors affecting quality.

2:43 The Study Group on the Life History and Assessment of Cephalopods will be re-established as the Working Group on Cephalopod Fisheries and Life History under the chairmanship of Dr U. Piatkowski (Germany) and will work by correspondence in 1995, and report to the 1995 Annual Science Conference, to:

- a) update currently available landing statistics;
- b) combine collection and evaluation of data on the life history and exploitation of relevant cephalopod stocks in the ICES Area;
- c) describe trophic interactions between cephalopods and other marine resources;
- d) develop an ICES work programme on cephalopods;
- e) plan for a meeting in 1996.

2:44 The Study Group on Life Histories and Assessment Methods of *Nephrops* Stocks will be renamed the Study Group on Life Histories of *Nephrops* under the chairmanship of Mr N. Bailey (UK) and will work by correspondence in 1995, and report to the 1995 Annual Science Conference, to:

C.Res.1994/

- 2:44 ctd a) examine the variability of the growth of *Nephrops* between and within the existing Functional Units;
- b) continue the work on the reproductive biology and behaviour of the male stocks;
- c) estimate mortality rates and the impact of disease (*Haematodinium*);
- d) prepare a standardization in the collection of data on the survival and also collection of discard data;
- e) determine the need for the continuation of the Study Group.

2:45 The Study Group on Life Histories and Assessment Methods of *Pandalus* Stocks in the North Atlantic (Chairman: Mr S. Tveite, Norway) will work by correspondence in 1995, and report to the 1995 Annual Science Conference, to:

- a) assess the status of stocks of *Pandalus borealis* in the North Sea, Skagerrak and Kattegat;
- b) determine the predation mortality of *Pandalus* stocks;
- c) report to ACFM for its meeting in October/November 1995.

2:46 The Study Group on Life History, Population Biology and Assessment of *Crangon* will be re-established as the Working Group on *Crangon* Fisheries and Life History under the chairmanship of Dr T. Neudecker (Germany) and will work by correspondence in 1995, and report to the 1995 Annual Science Conference, to:

- a) update a time series of data on landings efforts and LPUE by functional unit and country;
- b) analyse time series on the abundance of *Crangon* and its predators, using data from appropriate bottom trawl surveys;

- c) review investigations on the *Crangon* life cycle, including studies on the timing of reproduction and settlement;
- d) develop data analyses and methods for estimating the mortality of *Crangon* due to predators;
- e) analyse eventual changes in environmental parameters which can have an impact on shrimps, their predators, or food organisms;
- f) review the status of investigations improving the selectivity of shrimp trawls for fish and shrimps;
- g) develop priorities for future work;
- h) plan for a meeting in 1996.

2:47 A Study Group on the Assessment of Shellfish Stocks in the North Atlantic<sup>3</sup> will be established under the co-chairmanship of a scientist from Canada and M B. Mesnil, France and will meet in La Rochelle, France for four days in June 1995 to:

- a) identify the needs and priorities for advice on the management of shellfish fisheries in the North Atlantic;
- b) review the data likely to be available for assessing shellfish stocks;
- c) review the available assessment methods, their likely applicability to the different types of shellfish life cycles, and the data required to apply them;
- d) determine the future strategy for ICES shellfish assessments, including the terms of reference for a future meeting on this topic at the Methods Working Group.
- e) report to the Shellfish Committee and ACFM.

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<sup>3</sup> Later determined, with the President's approval, that the Study Group will work by correspondence under the temporary chairmanship of Dr R.C.A. Bannister (United Kingdom)

## BIOLOGICAL OCEANOGRAPHY COMMITTEE

C.Res.1994/

2:48 The Working Group on Phytoplankton Ecology (Chairman: Dr F. Colijn, Netherlands) will meet in The Hague, Netherlands from 29-31 March 1995 to:

- a) consider the suitability for and mechanisms of promoting use of an ICES standard method for determining primary production employing the incubator which has been developed through the efforts of the Working Group;
- b) review and assess possible new techniques to measure algal biomass, growth rates and primary production and report to ACME;
- c) develop an understanding of nutrient to growth relationships in eutrophic coastal areas;
- d) summarise the first results on the use of automatic equipment on buoys and ferries for monitoring the spatial and temporal distribution of phytoplankton and chlorophyll;
- e) develop plans for a possible future workshop/symposium to evaluate the use of long term time series in primary production etc., in order to partition natural from man-induced environmental effects.
- f) evaluate the suitability of plankton population parameters for monitoring nutrient fluxes and changes in nutrient fluxes in and to the coastal zone, and report to ACME (OSPAR 1.5).

The Working Group will report to the Biological Oceanography Committee, (Reference Marine Environmental Quality and Hydrography Committees).

2:49 The ICES/IOC Working Group on Harmful Algal Bloom Dynamics (Chairman: Ms B. Reguera, Spain) will meet in Helsinki, Finland from 17-19 May 1995 to:

- a) review the report of the Workshop on Intercomparison of *In Situ* Growth Rate Measurements;
- b) review ongoing activities in the pilot study areas, and other ICES areas, on

physical-biological interactions investigations;

- c) develop plans, with the Working Group on Shelf Seas Oceanography, for a future practical Workshop on Modelling using real data obtained in monitoring and projects related with HAB Dynamics;
- d) assemble and compile, intersessionally, descriptive information about ongoing monitoring programmes on phytoplankton and phycotoxin monitoring, with a view to its presentation in the Intergovernmental Panel on HABs;
- e) define the time and space scales of the physical and biological processes relevant to studies of physical-biological interactions in HAB dynamics;
- f) review present knowledge of the abilities of certain harmful algal species to adapt to and modify the microscale physical environment by means of vertical migration, mucilage secretion, colony formation, etc.

The Working Group will report to the Hydrography Committee, the Biological Oceanography Committee, and ACME.

2:49:1 A Sub-Group consisting of members of the Working Group on Harmful Algal Bloom Dynamics and participants in the 1994 Workshop on "Intercomparison of *In Situ* Growth Rate Measurements" will meet under the chairmanship of Ms M. A. Sampayo (Portugal) in Helsinki, Finland from 15-16 May 1995 to:

finalize the Workshop report with a view to publication by ICES.

2:50 The Benthos Ecology Working Group (Chairman: Dr P. Kingston, UK) will meet in Kalbak, Faroe Islands from 3-6 May 1995 to:

- a) prepare and forward to ACME for consideration a plan for a North Sea Benthos Survey in 1996, taking into consideration quality assurance procedures;

- 2:50 ctd b) evaluate the use of computer aided taxonomy systems for identification of benthos species;
- c) review co-operative benthos studies throughout the ICES area;
- d) review methods for studying hard bottom substrata and intertidal communities;
- e) review studies on the effects of fishing disturbance on benthos communities;
- f) define indicator species which are sensitive to the effects of physical disturbance, and report to ACME, and the Working Group on Ecosystem Effects of Fishing Activities;
- g) prepare a detailed implementation plan for the establishment of a benthos database in the ICES Secretariat, and report to ACME and the Working Group on the Ecosystem Effects of Fishing Activities.

2:51 The Working Group on Recruitment Processes (Chairman: Mr P. Pepin, Canada) will work by correspondence in 1995, and report to the 1995 Annual Science Conference, to:

- a) develop a workshop to be held in June 1996 in Canada entitled "Towards an Otolith Growth Model" (Chairman: Dr S. Campana);
- b) plan a meeting in 1996 to
- i) review the outcome of the Workshop "Towards an Otolith Growth Model" and identify further steps to be taken,
- ii) review progress with the Study Group on Spatial and Temporal Integration,
- iii) review progress in the application of size based theory to recruitment problems and in particular
- develop explicit relationships between mortality and body size in early life and carry out sensitivity analyses to determine which parameters are most sensitive to changes in size specific survival,
  - examine stage specific survival rates and their variability, and determine

how variability changes with stage development,

- determine whether there are critical stages or sizes where variability in rates change significantly;

iv) review progress in the application of otolith elemental analysis to recruitment problems.

2:52

The Study Group on Methods of Spatial and Temporal Integration (Chairman: Prof W.S.C Gurney, UK) will work by correspondence in 1995, and report to the 1995 Annual Science Conference, to:

- a) identify shortfalls in the technical methods available for analysing field data and optimizing the temporal and spatial design of surveys for determining spatial patterns in stage-specific abundances and mortalities of fish eggs and larvae;
- b) prepare detailed specifications, budget requirements and evaluation criteria for a programme of analytical method development designed to meet the most important technical shortfalls, making use of case study data as necessary.

The Group should include the following skills: geostatistics, conventional statistics, hydrodynamic modelling, numerical methods, larval fish biology and ichthyoplankton surveys.

2:53

The Study Group on Zooplankton Production will be re-established as the Working Group on Zooplankton Ecology under the chairmanship of Mr H.-R. Skjoldal (Norway) and will meet in Woods Hole, USA from 19-23 June 1995 to:

- a) review the results of the laboratory and seagoing workshops, and complete the evaluation of methods;
- b) review and propose standardized procedures and guidelines to be included as part of the Zooplankton Methodology Manual;
- c) review and prepare for finalization the draft Zooplankton Methodology Manual;
- d) prioritise field, laboratory, and theoretical studies to advance knowledge of *Calanus finmarchicus* (TASC);

C.Res.1994/

- 2:53 ctd
- e) identify the resources necessary to undertake and complete TASC studies, with particular reference to the implementation of regional programmes;
  - f) work closely with related ICES established programmes to ensure studies are fully integrated with the objectives of the Cod and Climate Change studies (GLOB-EC);
  - g) finalize preparation of the thirteen position papers presented at the 1994 Workshop on Trans-Latitudinal Study of *Calanus finmarchicus* in the North Atlantic (C.Res 1994/2:53 and document CM 199-4/L:10) for submission to the Journal *Ophelia*.

The Working Group will report to the Biological Oceanography Committee and ACME.

2:54 The Study Group on Gulf III Sampler Efficiency Calibrations (Chairman: Prof D. Schnack, Germany) will work by correspondence in 1995, and report to the 1995 Annual Science Conference, to:

- a) evaluate results of recalibrations of Gulf III type samplers in current use in ICES-coordinated surveys;
- b) assess the implications of recalibration on the historical database;
- c) define a standard procedure for *in situ* calibration of flow meters in present use;
- d) evaluate available information on non-intrusive means of measuring volume filtered by plankton samplers;
- e) decide on revisions to be made in the design of standard sample for ichthyoplankton surveys.

2:55

The Study Group on Seabird/Fish Interactions will be re-established as the Working Group on Seabird Ecology under the chairmanship of Dr R. Furness (UK) and will work by correspondence in 1995, and report to the 1995 Annual Science Conference, to:

- a) prepare the 1993 and 1994 reports of the Study Group on Seabird-Fish Interactions CM1994/L:3 and L:34) for publication in a refereed journal;
- b) prepare for a meeting in 1996 to
  - i) evaluate the role of discards in supporting bird populations and their effect on the species composition of seabirds in the North Sea,
  - ii) explore the short- and medium-term consequences of a reduction in the quantities of fish discarded,
  - iii) review data related to the cause and consequences at the population-level of mass mortalities and strandings of seabirds,
  - iv) expand the analyses of the spatial concordance of reproductive parameters between seabird colonies, and relate the observed patterns to physical oceanographic conditions and prey stocks,
  - v) prepare data on seabird predation on fish by size group on as detailed temporal and spatial scale as possible in the North Sea,
  - vi) review issues related to seabird consumption of fish and shellfish stocks, discards, and mariculture as well as the trophic role and ecology of seabirds and waders.

The Working Group will report to the Biological Oceanography Committee, ACME and ACFM.

## ANADROMOUS AND CATADROMOUS FISH COMMITTEE

C.Res.1994/

- 2:56 The Study Group on Stock Identification Protocols for Finfish and Shellfish Stocks (Chairman: Dr K. Friedland, USA) will meet in Aberdeen, UK from 16-19 October 1995 to:
- a) continue to describe methodology for the application of stock identification and classification data, as they may vary by species, fisheries, and life history characteristics, with particular concentration of effort on the areas of genetics, parasites as biological tags, classification statistics, and life history traits;
  - b) report to the Demersal Fish, Pelagic Fish, Baltic Fish, Anadromous and Catadromous Fish, and Shellfish Committees at the 1996 ICES Annual Science Conference.

## MARINE MAMMALS COMMITTEE

C. Res.1994/

- 2:57 The Study Group on Seals and Small Cetaceans in European Seas (Chairman: Dr J. Harwood, UK) will meet in Cambridge, UK from 5-8 December 1995 to:
- a) assess the status of small cetacean populations in the North Sea in the light of the recent Small Cetacean Abundance survey in the North Sea (SCANS) and the available information on by-catches;
  - b) assess the status of the three seal populations in the Baltic Sea in the light of modelling studies of population dynamics conducted by the Study Group, and available information on by-catches HELCOM 1);
  - c) report the findings to the Marine Mammals Committee, ACFM and ACME.

## RESOLUTIONS INVOLVING COOPERATION WITH OTHER ORGANIZATIONS

C.Res.1994/

- 3:1 The ICES Secretariat will contact the EC Measurements and Testing Programme to discuss the progress of development work on analytical methods for determining natural marine toxins with the view to supporting their efforts within key laboratories.
- 3:2 With reference to C.Res.1993/3:7, ICES will work to identify an official avenue in the European Commission to establish a dialogue between ICES Member Countries and the Commission relative to the ecological and genetic impacts of increasing movements through trade of aquatic organisms and their products, and not just relative to the prevention of the spread of disease agents. The Working Group on Introductions and Transfers of Marine Organisms could serve within ICES to provide the technical and scientific expertise relative to this issue.
- 3:3 ICES will offer to co-sponsor the Conference on Baltic Marine Research to be held in Bornholm, Denmark in 1996. The ICES co-sponsorship should include the promotion and assistance in the planning of the Conference, offer of the help of relevant working groups in the identification of contributions, and provide input to the discussion on the future structure of cooperative Baltic research, a major theme of the Conference.
- 3:4 The Council approves the proposed change to the Statutes of the Coordinating Working Party on Atlantic Fishery Statistics (CWP), as set out in the Report of the *Ad-hoc* Inter-Agency Consultation on Atlantic Fishery Statistics (Appendix 1 of C.M.1994/D:2).
- 3:5 ICES will be represented at the meeting of the Coordinating Working Party on Atlantic Fishery Statistics (CWP), to be held in Madrid, Spain, from 20-25 March 1995, by the Chairman of the Statistics Committee, the Fishery Secretary (both at Council expense)

3:5 ctd and a representative from an ICES Member Country (at national expense).

3:6 The ICES Secretariat will explore the possibility of cooperation on Stock Identification Methodology with other organizations, such as FAO and PICES, to facilitate the exchange of information and to draw upon the widest base of expertise.

3:7 Given that the ICES Steering Group on Quality Assurance of Chemical Measurements in the Baltic Sea acts in accordance with and on behalf of the HELCOM-EC *Ad Hoc* Working Group on Chemical Quality Assurance, ICES will propose to the Helsinki Commission that the two groups be merged under joint sponsorship as the 'ICES/HELCOM Steering Group on Quality Assurance of Chemical Measurements in the Baltic Sea', with the present chairman (Dr U. Harms, Germany) and a combination of the present membership.

3:8 Given that the ICES Steering Group on Quality Assurance of Biological Measurements in the Baltic Sea acts in accordance with and on behalf of the HELCOM-EC *Ad Hoc* Working Group on Biological Quality Assurance, ICES will propose to the Helsinki Commission that the two groups be merged under joint sponsorship as the 'ICES/HELCOM Steering Group on Quality Assurance of Biological Measurements in the Baltic Sea', with the present chairman (Dr L. Hernroth, Sweden) and a combination of the present membership.

3:9 An ICES/HELCOM Workshop on Quality Assurance and Intercomparison of Pelagic Biological Measurements in the Baltic Sea will be held in Warnemünde, Germany from 16-20 September 1995 under the chairmanship of Dr L. Edler (Sweden) to:

- a) evaluate the hose sampling method;
- b) revise the phytoplankton species check list;
- c) evaluate the present method for measuring individual phytoplankton volumes;
- d) evaluate proposals for changes to the data reporting format;
- e) outline the principles for a primary production intercomparison exercise;

f) evaluate the present chlorophyll-*a* measurement methods via an intercomparison exercise among Baltic Monitoring Programme laboratories;

g) as a component of this workshop, conducted under the chairmanship of Mr J. Kuparinen (Finland) an evaluation of the results of past multinational cruises on microbiological measurements, propose quality assurance requirements to be included in the revised guidelines for the Baltic Monitoring Programme, and carry-out other activities relevant to quality assurance of microbiological measurements.

3:10 An ICES/HELCOM Workshop on Temporal Trend Assessment of Data on Contaminants in Biota from the Baltic Sea will be held at ICES Headquarters from 24-28 April 1995 under the chairmanship of Mr C. Agger (Denmark) to:

- a) conduct a quality control evaluation of the data available;
- b) prepare temporal trend analyses of all data sets accepted;
- c) prepare a report assessing the results of these analyses and their implications as a contribution to the Third Periodic Assessment of the Baltic Marine Environment for the Helsinki Commission;
- d) estimate the power of the Baltic Monitoring Programme component on temporal trends in contaminants in biota by quantifying the types and magnitude of changes that are likely to be detected (HELCOM 10).

3:11 A series of ICES/HELCOM Workshops on Quality Assurance and Intercomparison of Benthos Measurement Methods in the Baltic Sea (Coordinator: Dr H. Rumohr, Germany) will be held for 4 to 5 days each before autumn 1995 on a regional basis at relevant Baltic monitoring stations to:

- a) intercompare methods of sampling, sample treatment (sieving, staining, preservation), species identification, and measurement of biomass and other characteristics;

C.Res.1994/

3:11 ctd b) compare both actual field data as well as data from the HELCOM data bank to detect systematic differences among the data supplied by the various laboratories;

c) prepare the conduct of future taxonomic workshops, to be held on a regular basis with the attendance of external experts.

The regions to be covered and the countries responsible for organizing the regional workshops are:

- i) Gulf of Bothnia, Åland Sea, Gulf of Finland (Finland);
- ii) Northern Baltic Proper (Sweden);
- iii) Southern Baltic Proper, Gulf of Riga, Bornholm and Arkona Basins (Poland);
- iv) Kattegat, Belt Sea, Kiel Bay, Mecklenburg Bay (Denmark).

### OTHER RESOLUTIONS REQUIRING ACTION

C.Res.1994/

4:1 ICES will organize an intercomparison exercise on the analysis of trace metals in sea water, coordinated by Mr S. Westerlund (Sweden). This study is to be conducted on the basis that subscriptions will cover the cost of the exercise.

4:2 In the light of the spread of introduced exotic species and their potentially serious ecological damage, as evidenced by the spread of the ctenophore *Mnemiopsis* spp in Europe, and the discovery of the "phantom" fish-killing dinoflagellate *Pfiesteria piscimorte*, ICES Member Countries should be encouraged to develop ballast water and sediment management practices.

4:3 The revised 1994 Code of Practice on Introductions and Transfers of Marine Organisms (C.M. 1994/Env. 11) will be adopted by ICES and recommended for use in all ICES Member Countries.

4:4 The ICES Secretariat will produce data-entry computer software for inputting fish disease data according to the revised ICES Fish Disease Data Format.

4:5 The International Bottom Trawl Survey Working Group (Chairman: Dr H.J.L. Heessen, Netherlands) will continue to coordinate the quarterly surveys in the North Sea and Division IIIa in 1996. Countries taking part in these surveys are requested to make ship time available to continue the quarterly surveys in 1996 pending an evaluation of the 1991-1995 surveys. In the event of resource limitations, priority should be given to the first and third quarters of the year.

4:6 A joint field project will be set up in the North Sea in 1996 to determine whether there have been any changes in the benthic community over the last 10 years. The project will be known as the 1996 North Sea Benthos Survey, and will aim to detect long-term changes in the benthos at population, community and biotope levels, and will enable greater understanding of:

- a) species distribution;
- b) biodiversity changes;
- c) biomass changes;
- d) changes in size spectra;
- e) changes in predominant life history strategies;
- f) productivity.

4:7 The General Secretary will seek funding from ICES Member Countries and inter-governmental bodies for the establishment as soon as possible of a Project Office for the North Atlantic Regional Programme of GLOBEC, in particular the Cod and Climate Change Programme. The Project Office, which will be located in the ICES Secretariat, will be manned by a Project Coordinator who will:

- a) coordinate regional programmes relevant to GLOBEC (e.g., planned ichthyoplankton surveys of the North Sea), by means of planning the field work, undertaking data analysis, and overseeing archiving of datasets;
- b) facilitate the coordination of national GLOBEC programmes of ICES Member Countries;

C.Res.1994/

- 4:7 ctd
- c) provide a link between ICES Assessment Working Groups on areas of common interest;
  - d) produce a regular (quarterly) newsletter on GLOBEC news;
  - e) assist in the establishment and maintenance of environmental and fisheries databases as are considered essential by GLOBEC groups;

- f) coordinate the GLOBEC-related activities of the various ICES Groups/Meetings whose terms of reference overlap with those of GLOBEC.

4:8

ICES Member Countries are urged to record all by-catches of marine mammals in the ICES area and report these figures according to species, numbers, area, and fishing gear to the ICES Secretariat on an annual basis no later than on 1 June for data from the previous year; these reports should include a clear description of the methods used to obtain the by-catch figures.

# REPORT ON ADMINISTRATION FOR THE YEAR 1 NOVEMBER 1993 TO 31 OCTOBER 1994

## 1 THE COUNCIL AND ITS MEMBERS

### 1.1 Country Membership

The Secretariat was notified by the Danish Ministry of Foreign Affairs on 21 April 1994 that Estonia had deposited the necessary instrument of accession to the ICES Convention on 16 December 1993. Accordingly, Estonia has become the 19th Member Country of ICES.

The General Secretary has had talks with the Lithuanian Ambassador in Denmark concerning possible Council membership. Relevant literature has been sent to Lithuanian officials.

### 1.2 Payment of National Contributions

All national contributions to the Budget for Financial Year 1993/1994 have been paid. As of 1 September 1994, all Member Countries except France, Iceland, Ireland, Netherlands, Poland, and Portugal, had paid their contributions for Financial Year 1994/1995.

### 1.3 National Delegates

The following changes or additions to national Delegates have been announced since the 1993 Statutory Meeting:

- a) Professor J.G. Pope was appointed to replace Dr D.J. Garrod as a Delegate of the United Kingdom.
- b) Dr J. Thulin was appointed to replace Dr B. Dybern as a Delegate of Sweden.
- c) Dr Ahto Järvi and Dr Evald Ojaveer have been appointed as Delegates from Estonia.

### 1.4 Members of the Advisory Committees

#### ACFM

Mr E. Kirkegaard (Denmark) started his appointment as Chairman of ACFM on 01 November 1993.

The following changes have been made in the nationally nominated members, their alternates, and the *ex officio* members of ACFM since the 1993 Statutory Meeting:

- a) Dr A. Järvi has been nominated as the member for Estonia, with Dr E. Ojaveer as alternate member.
- b) Dr O. Rechlin has been nominated as alternate member for Germany.

- c) Mr E.C.E. Potter has been nominated as temporary replacement for Mr J.W. Horwood by the United Kingdom.

- d) Ms G. Pestana has been nominated as alternate member for Portugal.

#### ACME

The following changes have been made in the nationally nominated members, their alternates, and the *ex officio* members of ACME since the 1993 Statutory Meeting:

- a) Dr E. Ojaveer has been nominated as the member for Estonia, with Dr U. Suursaar as alternate member.
- b) Dr A. Yurkovskis has been nominated as the member for Latvia, with Dr A. Andrushaitis as alternate member.
- c) Dr R.H. Cook (Canada) replaced Prof. H. Ackefors (Sweden) as Chairman of the Mariculture Committee and *ex officio* member of ACME.
- d) M. Héral (France) replaced Dr R.C.A. Bannister (UK) as Chairman of the Shellfish Committee and *ex officio* member of ACME.

## 2 CO-OPERATION WITH OTHER INTERNATIONAL ORGANISATIONS

The Council has continued its active co-operation 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 protection/pollution (OSPARCOM and HELCOM).

On 7 September 1994, the President (Mr D. de G. Griffith), together with the First Vice-President (M A. Maucorps) and the General Secretary met the Assistant Director General Fisheries Department (Dr W. Krone) of the Food and Agricultural Organization (FAO) of the United Nations in Rome to explore ways and means for further developing the co-operation between ICES and FAO.

Meetings during the period 1 November 1993 - 31 October 1994 of the above named and other organisations at which ICES was (or will be) represented are included in Annex 1. Observer reports on some of these meetings are presented in Doc. C.M.1994/Gen:1.

## 2.1 IOC/SCOR

On the basis of several Council Resolutions adopted at the 1993 Statutory Meeting, IOC was invited to be represented at meetings of the following:

- Marine Chemistry Working Group held in Brest, France from 7-12 February 1994 (C.Res.1993/2:7:1);
- Working Group on Biological Effects of Contaminants held in Nantes, France from 23-25 March 1994 (C.Res.1993/2:7:3);
- Working Group on Marine Data Management held in Bergen, Norway from 21-23 April 1994 (C.Res.1993/2:14);

ICES reaffirmed its engagement in research on harmful algal blooms by renaming and elevating the status of its Study Group on the Dynamics of Harmful Algal Blooms to a joint ICES/IOC Working Group on Harmful Algal Bloom Dynamics. The Council is represented on the IOC-FAO *Ad Hoc* Intergovernmental Panel on Harmful Algal Blooms.

IOC co-sponsored and was represented at:

- the ICES/IOC Working Group on Harmful Algal Bloom Dynamics held in Vigo, Spain from 9-12 May 1994 (C.Res.1993/2:47);
- Workshop on Modelling the Population Dynamics of Harmful Algal Blooms held in Vigo, Spain from 4-7 May 1994 (C.Res.1993/2:49); and
- Workshop on Intercomparison of *In Situ* Growth Rate Measurements held in Ria de Aveiro, Portugal from 25-29 July 1994 (C.Res.1993/2:48).

IOC and SCOR have continued to co-sponsor the Study Group on Methods of Spatial and Temporal Integration which will work by correspondence in 1994 to complete the tasks assigned to it in C.Res.1992/2:51. IOC and SCOR were co-sponsors of the ICES organised Symposium on "Zooplankton Production - Measurement and Role in Global Ecosystems Dynamics and Biogeochemical Cycles" which was held in Plymouth, England from 15-18 August 1994.

The Council has continued its active role with IOC and SCOR in the GLOBEC-INTernational programme. The Council co-sponsors the Cod and Climate Change programme of research as a North Atlantic component of GLOBEC-INT. The Chairman of the ICES Working Group on Cod and Climate Change (Dr K. Brander) attended, as ICES representative, the GLOBEC-INT Scientific Steering and Organising Committee Meetings held at Jekyll Island (USA), from 11-14 January 1994.

The General Secretary and Dr K. Brander attended the GLOBEC-INT Strategic Planning Conference held at IOC Headquarters, Paris (France), from July 18-22 1994.

At the 1995 Annual Science Conference (82nd Statutory Meeting), the Council resolved (C.Res.1994/4:7) that the General Secretary would seek funding from ICES Member Countries and intergovernmental bodies for the establishment as soon as possible of a Project Office for the North Atlantic Regional Programme of GLOBEC, in particular the Cod and Climate Change Programme. The Project Office, which will be located in the ICES Secretariat, will be manned by a Project Coordinator. Encouraging progress is being made towards establishing the Office with substantial financial pledges being made by several Member Countries. The European Commission is considering possible ways and means to make a contribution.

The Oceanography Secretary participated in the IOC Training Course on Ocean-PC in Kuala Lumpur, Malaysia, from 28 November to 3 December 1994, as well as in the meeting of the IOC Group of Experts on the Technical Aspects of Data Exchange (GETADE) held in Geneva, Switzerland, from 22-29 June 1994.

## 2.2 Oslo and Paris Commissions (OSPARCOM) and North Sea Task Force

There has been considerable activity in the past year related to data handling obligations for the OSPARCOM Joint Monitoring Programme, provision of scientific advice to OSPARCOM, and the final editing of the North Sea Task Force (NSTF) *North Sea Quality Status Report* (QSR).

Meetings of OSPARCOM and their subsidiary bodies at which ICES has been represented include: a) Nutrients Working Group of the Paris Commission held in Gothenburg in September 1993 (Oceanography Secretary); b) *Ad Hoc* Working Group on Monitoring held at ICES Headquarters from 8-12 November 1993 (Mr J.R. Larsen and Ms M. Sørensen); c) Joint Monitoring Group held in Dublin from 24-28 January 1994 (Chairman of ACME, Environment Secretary, and Mr J.R. Larsen); and d) the First Meeting of the Environmental Assessment and Monitoring Committee (ASMO) held in Dresden from 14-18 March 1994 (Environment Secretary).

The General Secretary and the Secretary of OSPARCOM met at ICES on 2 February 1994 to continue preparation of a draft Memorandum of Understanding between the Council and the Commissions. It is envisaged that this will be concluded at the end of this year.

The General Secretary and the Environment Secretary attended the 16th Joint Meeting of the Oslo and Paris Commissions in Karlskrona, Sweden, from 13-17 June 1994. Amongst other things on the Agenda were the Draft ICES Work Programme for 1995 and ICES Special Budget for 1995, covering the cost of services to be provided by ICES for scientific advice and data handling for 1995. The draft Memorandum of Understanding between OSPARCOM and ICES was also discussed.

The Twelfth Meeting of the NSTF, which was its final meeting, was held in Hamburg from 23-26 November 1993. At this meeting, the NSTF finalised its work by completing a *Guide to the North Sea Quality Status Report*, which is a summary of the full document, and a NSTF Testament Document, which provided a review and evaluation of all the major activities of the NSTF and suggestions for how this work could be carried forward by its co-sponsors. ICES was represented by the Environment Secretary and Dr J.E. Portmann (NSTF Vice-Chairman). The NSTF was disbanded as of 31 December 1993.

From mid-September 1993 until mid-March 1994, Ms J. Rosenmeier, Ms M. Karlson, and Dr J. Pawlak, with the assistance of a former employee, Dr S. Wilson, were heavily involved in the final scientific and technical editing of the *North Sea Quality Status Report*. Although ICES had been contracted to serve as the technical editor of the report, the resignation of the NSTF Secretary (Dr J.-P. Ducrotoy) from the Secretariat of the Oslo and Paris Commissions in mid-September 1993 created an emergency situation under which the Executive Secretary of OSPARCOM (Ms C. Nihoul) and the Chairman of NSTF (Dr R. Ferm) requested ICES to assume full editorial responsibility for the finalization of the QSR, on the basis of the text ultimately agreed by the NSTF Heads of Delegation in mid-September. This task placed a considerably heavier burden on the ICES Secretariat than had been anticipated. The QSR was published on 30 March 1994.

A Scientific Symposium on the North Sea Quality Status Report was held in Ebeltøft, Denmark, from 18-21 April 1994. ICES representatives were the Environment Secretary, who together with the former Chairman of the NSTF presented a summary of the QSR as the keynote speech. Dr J.E. Portmann, former Vice-Chairman of NSTF on behalf of ICES, served as Rapporteur for the Symposium and presented a fitting summary at the end of the meeting.

### 2.3 The North Sea Conference Process

The Environment Secretary attended the Second Meeting of the Preparatory Working Group (Copenhagen, 11-13 October 1993, at which the *North Sea Quality Status Report* was presented, as well as the Third (2-4 November 1993) and Fourth (6-7 December 1993)

Meetings of the Preparatory Working Group, both in Copenhagen, for the Intermediate Ministerial Meeting. The Intermediate Ministerial Meeting was held in Copenhagen on 6-7 December 1993; ICES was represented by the General Secretary, the General Secretary elect, the Chairman of ACME, the Oceanography Secretary, and the Environment Secretary.

The first meeting of a preparatory group for the Fourth International Conference on the Protection of the North Sea, that will be held in Esbjerg, Denmark from 8-9 June 1995, was held in Copenhagen, Denmark, on 11-13 April 1994. ICES was represented by the Environment Secretary. Key issues of relevance to ICES that will be handled at this conference are fisheries, organic contaminants, nutrients, and species and habitats.

The preparation of a detailed report compiling information on the implementation of the Declarations from the Third International Conference on the Protection of the North Sea (The Hague, 1990) and the Intermediate Ministerial Meeting was begun at the first meeting of the Progress Report Group in Copenhagen on 13-16 September 1994. ICES was represented by the Environment Secretary. The Fishery Secretary is also taking part in this work.

### 2.4 Helsinki Commission (HELCOM)

The General Secretary represented the Council at the Fifteenth Meeting of HELCOM held in Helsinki from 8-11 March 1994. The Commission was informed of the activities that ICES is co-ordinating for HELCOM, including the conduct of two workshops on quality assurance procedures for biological measurements, both benthic and pelagic, in the Baltic Sea. Progress was also reported on the Baseline Study of Contaminants in Baltic Sea Sediments.

Considerable effort has been expended to prepare a data set on contaminants in biota, collected under the HELCOM Baltic Monitoring Programme, for temporal trend assessment using new ICES statistical procedures. This is to assist in the preparation of HELCOM's Third Periodic Assessment of the Baltic Marine Environment.

Scientific information and advice in response to requests from HELCOM were prepared by ACME at its June 1994 meeting and were presented to the Commission's Environment Committee meeting from 10-14 October 1994 in Nyköping, Sweden. ICES was represented by the Environment Secretary.

### 2.5 NEAFC

The Chairman of ACFM and the Fishery Secretary represented the Council at the Twelfth Annual Meeting of the North-East Atlantic Fisheries Commission (NEAFC) held in London from 24-26 November 1993. ACFM's

advice on the status and management of the principal fish stocks in the NEAFC area was presented. No specific regulatory measures were adopted by the Commission. ICES was asked, as in previous years, to provide the full range of scientific advice on the status of all fish stocks in the NEAFC area for 1994.

## 2.6 NASCO

Information and advice on the status and management of North Atlantic salmon and the compilation of tag releases in 1993 were prepared for the North Atlantic Salmon Conservation Organization (NASCO). The advice was prepared by ACFM at its May 1994 meeting based on the reports of the following meetings: a) Working Group on North Atlantic Salmon (Reykjavik, Iceland, 6-15 April 1994) (C.Res.1993/2:6:19); b) Workshop on Salmon Spawning Stock Targets in the Northeast Atlantic (Bushmills, Northern Ireland, 7-9 December 1993) (C.Res.1993/2:6:4); c) Study Group on Interactions of Wild, Ranched (Enhanced), and Reared Salmon (Reykjavik, 5-6 April 1994).

The ACFM advice on North Atlantic salmon was presented at the Eleventh Annual Meeting of NASCO held in Oslo, Norway, from 8-11 June 1994. The Council was represented at the meeting by the Chairman of ACFM, Fishery Secretary, and General Secretary (part-time).

The Report from the Ninth ICES Dialogue Meeting ("Atlantic Salmon: A Dialogue"), held on 7-8 June 1993 and co-sponsored by NASCO and IBSFC, was published in March 1994 as No. 197 in the *ICES Cooperative Research Report* series.

## 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 1994 ACFM meeting. This basis for this advice was provided by the reports of the following meetings: a) Sub-Group of the Baltic Salmon and Trout Assessment Working Group (31 January - 2 February 1994) (C.Res.1993/2:6:4); b) Study Group on the Occurrence of M-74 in Fish Stocks (1-3 March 1994) (C.Res.1993/2:7:9); c) Baltic Salmon and Trout Assessment Working Group (6-13 April 1994) (C.Res.1993/2:6:3); d) Working Group on the Assessment of Demersal Stocks in the Baltic (13-21 April 1994) (C.Res.1993/2:6:8); e) Working Group on the Assessment of Pelagic Stocks in the Baltic (13-21 April 1994) (C.Res.1993/2:6:13); f) Working Group on Multispecies Assessment of Baltic Fish (17-26 August 1993) (C.Res.1992/2:8:11).

This advice was presented to the Twentieth Session of IBSFC held from 12-16 September 1994 in Gdynia, Poland. In attendance from ICES were the Chairman of

ACFM, Fishery Secretary and General Secretary (part-time).

## 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 1993 and May 1994 ACFM meetings.

The Secretariat has now assumed responsibility for the large data base established by the EC's Scientific and Technical Committee for Fisheries (STCF) on disaggregated fleet-data from the North Sea fisheries.

Bi-lateral discussions were held in London on 26 November 1993 between representatives of DG XIV and ICES on various matters related to the co-operation between the two organisations.

The ACFM Chairman and the Fishery Secretary attended the European Commission's Advisory Committee on Fisheries in Brussels, on 6 December 1993.

The President and the General Secretary took part, on 26 January 1994 in Brussels, in discussions with high-level representatives of DG XI, DG XII and DG XIV on potential ways in which relationships and co-operation could be strengthened between ICES and the Commission in projects involving marine scientific research, information and advice.

Co-operation between the Secretariat and the European Commission's MAST Data Committee (DG XII) has increased. The Oceanography Secretary has actively taken part in meetings of the Committee (e.g., 15-18 March 1994 in Brussels). A supplementary call for bids in the field of marine data management is expected shortly, and the Secretariat will probably submit a resulting tender for financial grants from MAST.

There has also been continued ICES co-operation with DG XII's Measurements and Testing Programme (formerly the Community Bureau of Reference) and its programme on Quality Assurance of Measurements in the Marine Environment (QUASIMEME). The Council is represented as an observer in this work by the Chairman of the ICES Marine Chemistry Working Group, Dr W. Cofino (Netherlands).

## 2.9 AMAP

The Arctic Monitoring and Assessment Programme (AMAP) has been established as a joint intergovernmental co-operation among the eight Arctic countries (Canada, Denmark [Greenland], Finland, Iceland,

Norway, Russia, Sweden, and USA) following the Rovaniemi Ministerial Conference in June 1991. An AMAP Secretariat was established in Oslo in mid-1993 to co-ordinate the monitoring and assessment activities that will lead to the preparation of an Arctic Environmental Assessment Report by the end of 1996. The five components of the programme comprise the terrestrial, freshwater, atmospheric, and marine environments and human health of the indigenous populations. ICES offered to serve as the data centre for the monitoring data to be collected from the marine component of the programme and a contract to conduct this work was signed on behalf of the Council, by the President and General Secretary, in June 1994.

### **3 MEETINGS AND OTHER ACTIVITIES ORGANISED BY THE COUNCIL**

#### **3.1 Symposia**

The Symposium on "Fisheries and Plankton Acoustics" (Convenor: Mr E.J. Simmonds, UK) will be held in Aberdeen from 12-16 June 1995 (C.Res.1991/2:1). The first announcement was distributed in autumn 1992, and a second prospectus/call for papers was issued in April 1994.

The Symposium on "Zooplankton Production - Measurement and Role in Global Ecosystems Dynamics and Biogeochemical Cycles" (Co-Convenors: Dr M. Reeve, USA and Mr H.-R. Skjoldal, Norway) was held in Plymouth from 15-18 August 1994 (C.Res. 1992/2:2). A total of 94 papers (21 invited, 6 GLOBEC keynotes, and 64 contributed) and 92 posters were presented. Selected papers from the Symposium will be published in the *ICES Journal of Marine Science*.

The Symposium on "The Changes in the North Sea Ecosystem and their Causes: Århus Revisited" (Co-Convenors: Prof. H. Daan, Netherlands and Dr K. Richardson, Denmark) will be held in Århus from 11-14 July 1995 (C.Res.1992/2:1). A scientific Steering Group (Dr J. Backhaus, Germany; Dr J.R.G. Hislop, UK; Dr P. Kingston, UK; Dr B. Pedersen, Denmark; Dr F.M. Serchuk, USA) has been established, and a prospectus/call for papers was issued in April 1994.

The NAFO and ICES co-sponsored Symposium on "The Role of Marine Mammals in the Ecosystem" (Co-Convenors: Mr J. Sigurjónsson, Iceland and Dr G. Stenson, Canada) will be held in Dartmouth, NS, Canada from 6-8 September 1995 (C.Res.1992/3:5). A prospectus/call for papers was issued in June 1994.

#### **3.2 Bureau**

The mid-term meeting of the Bureau was held at ICES Headquarters from 6-7 June 1994. All members were

present, as were the Chairman of the Consultative Committee, General Secretary, and two members of the Secretariat's Finance and Office Administration group.

The Bureau's second meeting in 1994 was held on 21 September in St John's, Newfoundland (Canada) immediately prior to the ICES 1994 Annual Science Conference (82nd Statutory Meeting). All members, as well as the Chairman of the Consultative Committee and the General Secretary, were present.

#### **3.3 Tenth Dialogue Meeting**

A planning meeting (Dr R.S. Bailey, Fishery Secretary, Chairman; Mr E. Kirkegaard, Chairman of ACFM, Dr K. Richardson, Chairman of ACME; and with representatives of France, Portugal, Spain, and DG XIV of the European Commission) for the Tenth Dialogue Meeting on "Fisheries and Marine Environmental Problems in the Bay of Biscay and Iberian Region" (C.Res.1993/2:4) was held in Vigo, Spain, from 22-23 March 1994. As a result, it was proposed that the Tenth Dialogue Meeting be held in Vigo in October 1995, and that a Steering Group be established to hold its first meeting in conjunction with the 82nd Statutory Meeting in St John's, Newfoundland, Canada in September 1994.

At its first meeting, the Steering Group defined the themes and format for the Dialogue Meeting and agreed that it should be held with the co-sponsorship of the European Commission from 19-20 October 1995. Following this meeting of the group, names of speakers have been proposed and an announcement will be issued in four languages in March 1995. A second meeting of the Steering Group and speakers is planned for the early summer of 1995.

#### **3.4 Advisory Committees**

##### **ACFM**

ACFM held two meetings, both at ICES Headquarters, the first from 26 October - 4 November 1993 (C.Res.1992/2:8) and the second from 17-25 May 1994 (C.Res.1993/2:6).

All members or their alternates were present at the meeting in November 1993, as well as the Fishery Secretary, Mr H. Sparholt, and Mr L. Pedersen (part-time) from the Secretariat, the Chairman of the Study Group on Long-Finned Pilot Whales (Prof. D.S. Butterworth, part-time) and observers from the European Commission (Mr D.W. Armstrong) and the Faroe Islands and Greenland Home Governments (Mr H. í Jákupsstovu and Mr J. Boje, both part-time). Information on the status of numerous fish and shellfish stocks and advice on their management were prepared and submitted to NEAFC, the European Commission, and the Government of Norway with respect to Harp and Hooded Seals

in the Greenland Sea (Jan Mayen). The minutes of this meeting are presented in Doc. C.M.1994/A:2. The report prepared at this meeting was combined with that prepared in May 1993 and published as *ICES Cooperative Research Report* No. 196 in February 1994.

All members or their alternates were present at the meeting in May 1994, as well as the Fishery Secretary, Mr H. Sparholt, and Mr L. Pedersen (part-time) from the Secretariat, the Chairman of the Study Group on Seals and Small Cetaceans in European Seas (Dr J. Harwood, part-time), and observers from the European Commission (Mr D.W. Armstrong) and the Faroe Islands and Greenland Home Governments (Mr H. í Jákupsstovu and Mr J. Boje, both part-time). Information on the status of numerous fish and shellfish stocks and advice on their management were prepared and submitted to NASCO, IBSFC, NEAFC, the European Commission, and the Governments of Sweden and the UK. The minutes of this meeting are presented in Doc. C.M.1994/ A:3. The report will be combined with that prepared in November 1994 and published in the *Cooperative Research Report* series.

## ACME

ACME (Chairman: Dr K. Richardson, Denmark) met at Charlottenlund Castle on 25 May and at ICES Headquarters from 25-31 May 1994 (C.Res.1993/2:7). All members or their alternates were present (for at least part of the meeting). The Environment Secretary, Oceanography Secretary (part-time), the Chairman of the Consultative Committee (Dr R.C.A. Bannister, part-time), the Chairman of the Marine Mammals Committee (Dr A. Bjørge), the Chairman of the Working Group on Introductions and Transfers of Marine Organisms (Prof. J.T. Carlton, part-time), and the Chairman of the Working Group on the Ecosystem Effects of Fishing Activities (Mr H. Gislason) also attended the meeting. The Committee compiled scientific information and prepared advice on topics requested by the Oslo and Paris Commissions and the Helsinki Commission, particularly on further development of programmes to monitor marine contaminants and their effects, quality assurance procedures for marine monitoring, and information on specific contaminants in the marine environment. Other topics included reviews of information on environmental impacts of mariculture, introductions and transfers of marine organisms, and marine mammal populations. The minutes of this meeting are contained in Doc. C.M.1994 /A:4. The ACME Report will be published in the *ICES Cooperative Research Report* series.

The first joint meeting between ACFM and ACME was held at Charlottenlund Castle on the afternoon of 24 May 1994. This meeting was designed to promote greater co-operation between the two committees, par-

ticularly in dealing with overlapping topic areas. In addition to discussing means to promote greater co-operation between the two committees and how to handle the preparation of advice on marine mammals, the Joint Meeting agreed on a response to the European Commission request for developing criteria for designating "closed" areas of the North Sea for scientific purposes. The report of this meeting is presented in C.M.1994/A:5. The advice prepared on criteria for the designation of areas in the North Sea to be closed to fishing for conducting scientific research in the North Sea was published as *ICES Cooperative Research Report* No. 203.

## 3.5 Consultative Committee

A special mid-term meeting of the Consultative Committee (Chairman: Dr R.C.A. Bannister, UK) was held at ICES Headquarters from 1-2 June 1994 (C.Res.1993/2:1). All members of the Committee were in attendance as were the General Secretary, Environment Secretary, Fishery Secretary and Oceanography Secretary, and President. The report of the Meeting is presented in Doc. C.M.1994/Gen:4.

## 3.6 Working/Study Group Meetings and Workshops

The meetings of about 80 Working, Study, and other Groups and Workshops specified in C.Res.1993/2:2 - 2:65 will have been arranged and held, in consultation with their respective Chairmen and members, during the period 1 November 1993 - 31 October 1994. In addition 18 other Groups worked by correspondence. The reports of Groups concerned with fish stock assessments which met from November 1993 - May 1994 were reviewed by ACFM at its meeting from 17-25 May 1994 (C.Res. 1993/2:6). The reports of Groups concerned with marine pollution and associated environmental matters were reviewed by ACME at its meeting from 25-31 May 1994 (C.Res.1993/2:7).

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 Secretariat on a permanent, fixed-term, or temporary basis during the past year was 39. These persons have occupied nine permanent or fixed-term and one temporary, part-time posts at the Professional level, and 19 permanent, one one-year, and three temporary, part-time posts at the General Service level.

Professor Christopher C.E. Hopkins succeeded Dr Emory D. Anderson as General Secretary (D.2) on 3 January 1994.

Ms Merete Hänschell retired on 28 February 1994 as Administrative Secretary (C.7) in charge of the Meeting Organization and Documentation group after 40 years of service in the Secretariat. She was replaced by Ms Görel W. Kjeldsen (Senior Administrative Secretary, C.7), who started work on 21 February 1994.

Ms Sys Enevold retired on 1 November 1993 as Supervisor Administration (C.4), after 34 years of service in the Secretariat. She was replaced by Ms Karin Bundgaard, as Assistant Administrative Secretary (C.4), on 1 July 1994.

In accordance with the decision at the June 1993 Meeting of the Bureau (Bureau Mtg. No. 166), Ms Inger Lützhøft (C.5) and Ms Claire Welling (C.3) had their permanent part-time positions upgraded to full-time ones, and Ms Melodie Karlson and Ms Else Juul Nielsen were upgraded to permanent full-time positions (C.3); all these being effective on 1 November 1993.

The Bureau, at their June 1994 Meeting (Bureau Mtg. 168), agreed to promote Ms Judith Rosenmeier (Technical Editor), on the basis of her qualifications and experience, from a permanent General Service level (C.7) position to a permanent Professional level (P.2) one, in line with current United Nations (WHO) guidelines governing the grading of Technical Editors. At the same meeting, the Bureau also agreed to extend Mr Henrik Larsen's permanent employment in the General Services Grade CI working 25 hrs per week in the MOD group to 35 hrs per week. These decisions are effective on 1 November 1994.

Mr Arne Facius has continued in temporary, part-time employment (P.1), under the supervision of the Fishery Secretary, to provide computer programming assistance with the development of the ICES Fisheries Assessment Package (IFAP) and the International Bottom Trawl Survey (IBTS) data base.

Mr Kenneth H. Brøndum has continued in temporary, part-time employment (C.4), under the supervision of the Environment Secretary, to provide assistance in computer programming, in support of data handling.

Ms Michala Owens has continued as a temporary, part-time assistant (C.3), mainly for the Librarian/Information Officer, but also for the Fishery Secretary.

#### 4.2 Office Facilities and Equipment

A number of improvements have been made to the Headquarters facilities in the past year. A new ground-floor entrance (incorporating electronically operated, sliding glass-doors) with associated Reception and foyer was officially opened in May 1994. The instalment of a new, improved telephone system, together with the new

Reception has provided substantial safety and security benefits.

The planned upgrading of the two existing HP 9000/400 series Unix workstations to machines in the HP 9000/700 series occurred in March 1994. Several additional PCs, extra disk and memory capacity, and various software packages have been purchased.

The Bureau in June 1994 (Bureau Mtg. No. 168), at the request of the General Secretary, authorised the use of up to DKK 300.000 from the Computer Equipment Fund for improving, upgrading and replacing PCs, software and disk-storage facilities at ICES Headquarters. This decision will, among other things, facilitate the use of integrated software (e.g., programme packages to be run under Windows, including Microsoft Office) with a view to better dealing with the requirements of members of ICES groups and committees.

An outmoded telefax and a photocopier have been replaced by new models.

## 5 PUBLICATIONS

Activities with respect to publications since the 1993 Statutory Meeting are summarised below. Additional information is given in C.M.1994/Pub:2 and other documents for the Publications Committee.

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

Volume 50(3), pages 233-330, with a cover date of August, was distributed in early September 1993. It contains an obituary for Dr Basil Parrish written by the Editor.

Volume 50(4), pages 331-510, was scheduled for November and issued in early December 1993. Four of the papers included stem from the 1992 Mini-Symposium on "Ecosystem Modelling as a Tool to Predict Pollution-Associated Risks for the Marine Environment". The issue was larger than any of the earlier numbers in the volume and thus compensated for the earlier shortfall in the page budget.

The subscription rates for Volume 50 were GBP 96.00 or USD 170.00 for institutional subscriptions and GBP 48.00 or USD 85.00 for personal subscriptions.

Volume 51(1), pages 1-131, scheduled for February, was distributed in mid-May 1994. Academic Press attributed the time-lag to a shortage of material submitted as well as delays in the delivery of proofs from the printer and in the return of authors' proofs.

Volume 51(2), pages 133-240, scheduled for May, was off press in late July 1994 and distributed in early

August. The delay was caused by the same general reasons cited in connection with Volume 51(1), according to Academic Press. This issue includes obituaries for Arthur Lee and Knud Peter Andersen.

Volume 51(3), pages 241-344, was published in August 1994 and thus met its cover date, although in order to do so, it was necessary to proceed on the basis of the material available, resulting in an issue some 40 pages short of the usual page budget.

In recent months, however, Academic Press has received enough manuscripts to bring the final page count for the next number, Volume 51(4), which is scheduled for publication in November 1994, up to the full budget of 512 pages. There is, in addition, enough material on hand to fill most of the succeeding number, Volume 52(1).

The subscription rates for Volume 51 are GBP 103.00 or USD 177.00 for institutional subscriptions and GBP 51.00 or USD 88.00 for personal subscriptions. Volume 52, scheduled to appear in 1995, is expected to comprise four standard numbers and, in line with a proposal approved by the Council at the 1993 Statutory Meeting, an additional double number containing the proceedings of the ICES Symposium on "Zooplankton Production  $\frac{3}{4}$  Measurement and Role in Global Ecosystems Dynamics and Biogeochemical Cycles", which was held in Plymouth, England, from 15-19 August 1994. The number of issues per volume will thereby be increased to six, fulfilling a plan that was originally scheduled to go into effect in 1994 but hindered by a temporary shortage of regular papers meeting the required standards. The page budget for Volume 52 is tentatively set at 1012 pages (512 allotted for the four standard numbers and 500 for the "Zooplankton Production" volume). Additional information about the publication of Symposium proceedings in the *ICES Journal of Marine Science* for 1993" (C.M.1994/Pub:6) and "Publication of ICES Symposia Proceedings: Future Developments with Academic Press" (C.M.1994/Pub:8).

The subscription rates for Volume 52 are set at GBP 215.00 or USD 365.00 for institutional subscriptions and GBP 75.00 and USD 99.00 for personal subscriptions, to accommodate the expansion in the total size of the volume. A reduced price of GBP 11.00 will be available to Symposium Convenors for the purchase of proceedings volumes for participants in the meeting and to the Council for other special purchases, including those for selected names now on the complimentary distribution list for the series *ICES Marine Science Symposia*.

Volume 53, scheduled to appear in 1996, is expected to comprise four standard numbers as well as two separate numbers based on ICES Symposia: "Fisheries and

Plankton Acoustics", to be held in Aberdeen, 12-16 June 1995 (tentative page budget, 300 pages); and "Changes in the North Sea Ecosystem and Their Causes: Århus 1975 Revisited", to be held in Århus, 11-14 July 1995 (tentative page budget, 250 pages).

The subscription rates for Volume 53 are expected to reflect the slightly larger page budget (including 550 pages of Symposium proceedings) as well as the customary rise in costs.

Additional information about the *ICES Journal* is contained in the "Report of the Editors of the *ICES Journal of Marine Science* for 1993/94" (C.M.1994/Pub:4) and the "Academic Press Publisher's Report for 1994: *ICES Journal of Marine Science*" (C.M.1994/Pub:5).

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

Volume 197, "Measurement of Primary Production from the Molecular to the Global Scale", comprising 287 pages, and based on a Symposium held in La Rochelle in April 1992; was issued in early August 1993, approximately five months after receipt of the last manuscript from the Editors.

Volume 198, "Cod and Climate Change", based on the ICES Symposium held in Reykjavík, 23-27 August 1993, comprising 693 pages and 61 articles, was issued in late October 1994.

Volume 199 is expected to be based on the Symposium on "Shellfish Life Histories and Shellfishery Models", held in Moncton, New Brunswick, in June 1990. The Secretariat has received from the former and current Editors 49 papers of the 53 now scheduled for publication, in addition to supplementary material. In view of a number of editorial matters that still remain to be settled, including the preparation of an introductory article, the publication date has not yet been set, but it is anticipated that the volume can be published by the summer of 1995.

Volume 200 is scheduled to include the proceedings of the Symposium on "Mass Rearing of Juvenile Fish", held in Bergen in June 1993. It was the original intention of the principal Editor to deliver the manuscripts to the Secretariat by the end of 1993, a date subsequently changed to March 1994, and most recently to "spring of 1995" owing to difficulty experienced in collecting the remaining papers from the other Editors. In line with a practice initiated with Volume 196, which was published in April 1993, this is the fourth volume of proceedings that was not edited principally by the Symposium Convenor(s) but by other experts, including members of the Steering Committee.

Subsequent volumes of Symposium proceedings will be published as issues in the series *ICES Journal of Marine Science*, beginning in 1995, but will continue to carry the name of the current series (with consecutive numbering) as a subtitle. Additional information about the publication of Symposium proceedings in the *ICES Journal* is contained in "Financial Status of *ICES Journal of Marine Science* for 1993 (C.M.1994/Pub:6) and "Publication of ICES Symposia Proceedings: Future Developments with Academic Press" (C.M.1994/Pub:8).

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

The following numbers in the *ICES Cooperative Research Report* series have been published since the last report on publications was presented to the 1993 Statutory Meeting:

- No. 194: "Atlas of North Sea Fishes"; issued in September 1993. The cover was a variation on the basic design to reflect its nature as a special number. The Commission of the European Communities contributed financial support towards publication.
- No. 195: Report of the Workshop on the Applicability of Spatial Techniques to Acoustic Survey Data; issued in December 1993.
- No. 196: Reports of the ICES Advisory Committee on Fishery Management 1993 (Parts 1 and 2); issued in February 1994.
- No. 197: Ninth ICES Dialogue Meeting - "Atlantic Salmon: A Dialogue"; issued in May 1994.
- No. 198: Report of the ICES Advisory Committee on the Marine Environment, 1993; issued in March 1994.
- No. 201: Patchiness in the Baltic Sea; issued in September 1994. The cover design differs slightly from the standard model in order to indicate that the contents, a set of Symposium papers, represent a departure from the material usually included in this series.
- No. 202: Chemicals Used in Mariculture; issued in September 1994.
- No. 203: Joint Report of the ICES Advisory Committee on Fishery Management and the Advisory Committee on the Marine Environment, 1994; issued in September 1994.
- No. 204: Report of the ICES Advisory Committee on the Marine Environment, 1994, issued in September 1994.

The following numbers in the series are in an advanced stage of preparation:

- No. 199: Report of the Working Group on Methods of Fish Stock Assessment, 1991; to be issued by early spring 1995.
- No. 200: Report of the Study Group on Ecosystem Effects on Fishing Activities; to be issued by spring 1995.
- No. 205: Spawning and Life History Information for North Atlantic Cod Stocks (Edited by K. Brander), to be issued about November 1995.
- No. 205: Dynamics of Upwelling in the ICES Area (Edited by E. Hagen and A. Jorge da Silva), to be issued about March 1995.

At the 1993 Statutory Meeting the Council accepted the recommendation of the Publications Committee that another number be published in this series, the "Guide to the Identification of North Sea Fish Using Premaxillae and Vertebrae", and asked the Secretariat to look into the feasibility of producing it. The manuscript contains 231 pages of text and 296 black-and-white photographs. Following discussions with the authors, and the evaluation of a revised and updated version of the manuscript by an outside referee, the Secretariat is looking into the possibility of having the report produced by a commercial printer able to provide a better quality of photographic reproduction than can be furnished with the Secretariat's in-house facilities.

Further information on the *ICES Cooperative Research Report* series is contained in the Editor's report (C.M.1994/Pub:7).

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

No further issues of *ICES Fisheries Statistics* have been published since Volume 73 (data for 1988) in November 1992. The data for Volume 74 (data for 1989) are nearly complete, but data from Spain are lacking while those from France are not sufficiently broken-down by area.

The General Secretary wrote to the Embassies in Copenhagen of the Member Countries of ICES in December 1993, emphasising the generally deplorable lack of reporting and/or inaccuracy of fisheries statistics. He urged that the situation be suitably redressed, otherwise the ability of the Council to carry out its advisory tasks would be seriously compromised.

### 5.5 Oceanographic Data Lists and Inventories

No numbers in this series have been published this year.

## **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 two manuscripts, one on *Prorocentrum* and another on *Acartia*, *Paracartia*, and the prospect of a third on *Euchaeta* in the near future. They will be put into production as soon as the set is complete.

Further information is contained in the Editor's report (C.M.1994/L:33).

## **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. In response to a recommendation made in March 1993 by the Working Group on Pathology and Diseases of Marine Organisms, the Council will continue to publish this series in the same format, but will issue smaller sets if necessary, rather than delaying publication until the usual set of 10 can be put together. During the 1994 meeting of the Working Group, the Editor indicated that the translation of five leaflets was nearly finished and would soon be submitted to the Secretariat. Members indicated their willingness to submit additional material and to assist in revising and updating older leaflets.

The leaflets are sold at DKK 15, the price established when the series was started in 1984, but it would be advisable to raise the price for the next set to be published.

Further information is contained in the Editor's report (C.M.1994/F:32).

## **5.8 ICES Techniques in Marine Environmental Sciences**

Nos. 13-16, published in 1991, are the most recent to be published in this series.

The following five numbers are in various stages of preparation:

No. 17: Nutrients: Practical notes on determinations in sea water.

No. 18: Contaminants in marine organisms: Pooling strategies for monitoring mean concentrations.

No. 19: Common diseases and parasites of fish in the North Atlantic: Training guide for identification.

No. 20: Contaminants in marine organisms: A robust method for analysing temporal trends.

No. 21: Chlorobiphenyls in marine sediments: Guidelines for determination.

It is expected that Nos. 17 and 18 will be published by the spring 1995 and that the manuscripts for the remaining numbers will soon be completed.

Further information is contained in the Editor's report (C.M.1994/E:32).

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

The *ICES Annual Report* for 1993 was issued in January 1994.

## **5.10 ICES/CIEM Information**

Numbers 23 and 24 of this newsletter were respectively issued in March and September 1994.

## **5.11 North Sea Quality Status Report**

In addition to the technical editing of the *QSR*, which had earlier been agreed, the Secretariat assumed responsibility for the supervision and final production of the publication, owing to unforeseen developments in the North Sea Task Force Secretariat during the summer of 1993. Scientific and technical editing and other tasks were carried out by the ICES Secretariat and a former staff member with financial support from OSPARCOM.

The late delivery dates and condition of the material presented, among other factors, precluded publication in December 1993 as originally projected, and the *QSR* was issued in March 1994.

## **5.12 Guide to the North Sea Quality Status Report**

The Guide, a 12-page summary of the comprehensive *QSR*, was edited by the Secretariat and published in June 1994, in time for the Sixteenth Meeting of the Joint Oslo and Paris Commissions.

## **6 OTHER MATTERS**

In December 1993, the General Secretary wrote to the Foreign Ministers of the Baltic countries requesting that consideration be given to more flexible arrangements to allow rapid access by research vessels belonging to any Baltic Country to parts of the Exclusive Economic Zone of any other Baltic Country during situations requiring urgent action, such as major Baltic inflows and toxic algal bloom events. It was pointed out that implementation of such arrangements would be expected to protect and improve the health of the Baltic Sea.

Disappointingly, few positive responses to the above initiative have materialized.

## ANNEX 1

### MEETINGS AT WHICH ICES WAS REPRESENTED BY OBSERVERS

1. Third Meeting of the North Sea Conference Preparatory Working Group for the North Sea Quality Status Report, Copenhagen, 2-4 November 1993. ICES Representative: Environment Secretary.
2. Fourth Meeting of the North Sea Conference Preparatory Working Group for the North Sea Quality Status Report, Copenhagen, 6-7 December 1993. ICES Representative: Environment Secretary.
3. OSPARCOM *Ad hoc* Working Group on Monitoring, ICES Headquarters, 8-12 November 1993. ICES Representatives: Mr J.R. Larsen and Ms M. Sørensen.
4. Twelfth Meeting of the North Sea Task Force (NSTF), Hamburg, Germany, 23-26 November 1993. ICES Representatives: Environment Secretary and Dr J.E. Portmann.
5. Twelfth Annual Meeting of the North-East Atlantic Fisheries Commission (NEAFC), London, England, 24-26 November 1993. ICES Representatives: Fishery Secretary and Chairman of ACFM.
6. ICES/European Commission (DGXIV) Bilateral Discussions, London, England, 26 November 1993. ICES Representatives: President, General Secretary elect, Chairman of Consultative Committee, Chairman of ACFM and Fishery Secretary.
7. European Commission Advisory Committee on Fisheries, Brussels, Belgium, 6 December 1993. ICES Representatives: Chairman of ACFM and Fishery Secretary.
8. North Sea Conference Intermediate Ministerial Meeting, Copenhagen, 6-7 December 1993. ICES Representatives: General Secretary, General Secretary elect, Chairman of ACME, Oceanography Secretary and Environment Secretary.
9. Ad hoc Consultation on the Role of Regional Fishery Agencies in Relation to High Seas Fishery Statistics, La Jolla, CA, USA, 13-16 December 1993. ICES Representative: Fishery Secretary.
10. GLOBEC-INT Scientific Steering and Organising Committee Meetings, Jekyll Island, USA, 11-14 January 1994. ICES Representative: Dr K. Brander.
11. OSPARCOM Joint Monitoring Group, Dublin, Ireland, 24-28 January 1994. ICES Representative: Chairman of ACME, Environment Secretary, and Mr J.R. Larsen.
12. Fourth Meeting of the North Atlantic Marine Mammal Commission, NAMMCO), Tromsø, Norway, 24-25 February 1994. ICES Representative: Dr A. Bjørge.
13. Advanced Research Workshop on Deep Water Fisheries of the North Atlantic Oceanic Slope, Hull, UK, 1-4 March 1994. ICES Representative: Fishery Secretary.
14. Fifth Arctic Monitoring and Assessment Programme (AMAP) Working Group Meeting, Tromsø, Norway, 3-4 March 1994. ICES Representative: Environment Secretary
15. Steering Committee Baltic, Elsinore, Denmark, 8-9 March 1994. ICES Representative: Oceanography Secretary.
16. Fifteenth Meeting of the Baltic Marine Environment Protection Commission (HELCOM), Helsinki, 8-11 March 1994, ICES Representative: General Secretary.
17. First meeting of the Environmental Assessment and Monitoring Committee (ASMO), Dresden, Germany, 14-18 March 1994. ICES Representative: Environment Secretary.
18. UN Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks, New York, USA, 14-31 March 1994. ICES Representative: Dr A.A. Rosenberg.

19. Meeting of the EC MAST Data Committee (DG XII), Brussels, Belgium, 15-18 March 1994. ICES Representative: Oceanography Secretary.
20. European Committee on Ocean and Polar Sciences (ECOPS). European Ocean Science Board Planning Meeting, Strasbourg, France, 21-22 March 1994. ICES Representative: General Secretary
21. 24th Session of the IMO/FAO/UNESCO-IOC/WMO/WHO/LAEA/UN/UNEP Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP), New York, USA, 21-25 March 1994. ICES Representative: Dr J.M. Bewers.
22. First Meeting of the Preparatory Group for the Fourth International Conference on the Protection of the North Sea, Copenhagen, 11-13 April 1994. ICES Representative: Environment Secretary.
23. UNEP Open-Ended Intergovernmental Meeting of Scientific Experts on Biological Diversity. Mexico, 11-15 April 1994. ICES Representative: Mr E. Steineger.
24. Scientific Symposium on the North Sea Quality Status, Ebletoft, Denmark, 18-21 April 1994. ICES Representatives: Environment Secretary and Dr J.E. Portmann.
25. 18th Session of the European Inland Fisheries Advisory Commission (EIFAC), Rome, Italy, 20-24 May 1994. ICES Representative, Professor H. Ackefors.
26. Eleventh Annual Meeting of North Atlantic Salmon Conservation Organization (NASCO), Oslo, Norway, 7-10 June 1994. ICES Representatives: Chairman of ACFM, Fishery Secretary and General Secretary.
27. 16th Joint Meeting of the Oslo and Paris Commissions (OSPARCOM), Karlskrona, Sweden, 13-17 June 1994. ICES Representatives: General Secretary and Environment Secretary.
28. IOC Group of Experts on the Technical Aspects of Data Exchange (GETADE), Geneva, Switzerland, 22-29 June 1994. ICES Representative: Oceanography Secretary.
29. *Ad hoc* Inter-Agency Consultation on Atlantic Fishery Statistics, Madrid, Spain, 11-15 July 1994. ICES Representative: Fishery Secretary.
30. GLOBEC-INTernational Strategic Planning Conference, Paris, France, 19-22 July 1994. ICES Representative: The General Secretary and Dr K. Brander.
31. UN Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks, New York, USA, 15-26 August 1994. ICES Representative: Dr A.A. Rosenberg.
32. HELCOM Meeting on Statistics and Data for the Third Periodic Assessment, Helsinki, Finland, 22-23 August 1994. ICES Representative: Mr J.R. Larsen.
33. OECD Workshop on the Requirement of Fisheries Statistics for Management, Paris, France, 1-2 September 1994. ICES Representative: Fishery Secretary.
34. Nineteenth Session of the International Baltic Sea Fishery Commission (IBSFC), Gdynia, Poland, 12-16 September 1994. ICES Representatives: Chairman of ACFM, Fishery Secretary and General Secretary.
35. Sixteenth Annual Meeting of the NAFO Scientific Council, Dartmouth, N.S., Canada, 19-23 September 1994. ICES Representative: Mr H. Lassen.
36. Fifth meeting of the HELCOM Environment Committee, Norrköping, Sweden, 10-14 October 1994. ICES Representatives: Chairman of ACME and Environment Secretary
37. Third Annual Meeting of the North Pacific Marine Science Organization (PICES), Nemuro, Hokkaido, Japan, 14-24 October 1994. ICES Representative: Dr W.G. Doubleday.

## ANNEX 2

### ICES WORKING/STUDY/STEERING GROUP MEETINGS AND WORKSHOPS IN 1993/1994

#### Consultative Committee

1. Ad Hoc Group on ICES Marine Mammal Policy  
(C.Res. 1993/2:3)  
Chairman: Dr R.C.A. Bannister  
Held in Copenhagen, 11-12 April 1994.  
Participants: Chairmen of Marine Mammals Committee (Dr. A. Bjørge), Advisory Committee on Fishery Management (Mr E. Kirkegaard), Advisory Committee on the Marine Environment (Dr K. Richardson), First Vice-President (M A. Maucorps) and Dr M. Sissenwine.  
Report available as C.M. Doc 1994 A:5\*.
2. ICES/GLOBEC Cod and Climate "Aggregation" Workshop  
(C.Res. 1993/2:5:3)  
Chairmen: Drs B. MacKenzie and M. St. John  
Held in Charlottenlund, 22-24 August 1994.  
Countries represented: Canada, Denmark, Estonia, Netherlands, Norway, Poland, USA.  
Report available as C.M. Doc 1994/A:10.

#### Advisory Committee on Fishery Management

3. Multispecies Assessment Working Group  
(C.Res. 1992/2:8:19)  
Chairman: Dr J. Rice  
Held in Charlottenlund, 23 November - 2 December 1993.  
Countries represented: Canada, a, Denmark, Germany, Greenland, Netherlands, Norway, United Kingdom.  
Report available as C.M. Doc 1994/Assess:9.
4. Working Group on Long-Term Management  
(C.Res. 1993/2:6:15)  
Chairman: Dr T.K. Stokes  
Held in Miami, FL, USA, 18-27 January 1994.  
Countries represented: Belgium, Denmark, Canada, Iceland, Norway, Sweden, United Kingdom, USA.  
Report available as C.M. Doc 1994/Assess:11
5. Herring Assessment Working Group for the Area South of 62°N  
(C.Res. 1993/2:6:6)  
Chairman: Mr O. Hagström  
Held in Copenhagen, 31 January - 2 February 1994.  
Countries represented: Canada, Denmark, France, Ireland, Netherlands, Norway, Sweden, United Kingdom, USA.  
Report available as C.M. Doc 1994/Assess:13
6. Sub-Group of the Baltic Salmon and Trout Assessment Working Group  
(C.Res. 1993/2:6:4)  
Chairman: Dr K. Friedland  
Held in Copenhagen, 31 January - 2 February 1994.  
Countries represented: Denmark, Finland, Sweden, USA.  
Report available as C.M. Doc 1994/Assess:10

7. Working Group on *Nephrops* and *Pandalus* Stocks  
(C.Res. 1993/2:6:18)  
Chairman: Mr N. Bailey  
Held in Lisbon, Portugal, 1-9 March 1994.  
Countries represented: Belgium, Denmark, France, Ireland, Norway, Portugal, Russia, Spain, Sweden, United Kingdom.  
Report available as C.M. Doc 1994/Assess:12.
8. Baltic Salmon and Trout Assessment Working Group  
(C.Res. 1993/2:6:3)  
Chairman: Mr C. Eriksson  
Held in Copenhagen, 6-13 April 1994.  
Countries represented: Denmark, Estonia, Finland, Latvia, Poland, Sweden,  
Report available as C.M. Doc 1994/Assess:15.
9. Working Group on North Atlantic Salmon  
(C.Res. 1993/2:6:19)  
Chairman: Mr E.C.E. Potter  
Held in Reykjavik, Iceland, 6-15 April 1994.  
Countries represented: Canada, Faroe Islands, Finland, France, Greenland, Iceland, Norway, Russia, Sweden, United Kingdom, USA.  
Report available as C.M. Doc 1994/Assess:16.
10. Study Group on the North Sea "Plaice Box"  
(C.Res. 1993/2:6:21)  
Chairman: Dr R. Millner  
Held in Charlottenlund, Denmark, 12-15 April 1994.  
Countries represented: Denmark, Germany, Netherlands, United Kingdom.  
Report available as C.M. Doc 1994/Assess:14.
11. Working Group on the Assessment of Demersal Stocks in the Baltic  
(C.Res. 1993/2:6:8)  
Chairman: Mr S. Munch-Petersen  
Held in Copenhagen, 13-21 April 1994.  
Countries represented: Denmark, Finland, Germany, Latvia, Poland, Russia, Sweden.  
Report available as C.M. Doc 1994/Assess:17.
12. Working Group on the Assessment of Pelagic Stocks in the Baltic  
(C.Res. 1993/2:6:13)  
Chairman: Dr J. Horbowy  
Held in Copenhagen, 13-21 April 1994.  
Countries represented: Denmark, Estonia, Finland, Germany, Latvia, Poland, Russia, Sweden.  
Report available as C.M. Doc 1994/Assess:18.
13. Working Group on Ecosystem Effects of Fishing Activities  
(C.Res. 1993/2:6:22)  
Chairman: Mr H. Gislason  
Held in Copenhagen, 10-27 April 1994.  
Countries represented: Canada, Denmark, Germany, Greenland, Netherlands, Spain, Sweden, United Kingdom.  
Report available as C.M. Doc 1994/Assess/Env:1
14. North-Western Working Group  
(C.Res. 1993/2:6:7)  
Chairman: Dr S. Schopka  
Held in Copenhagen, 2-10 May 1994.  
Countries represented: Canada, Denmark, Faroe Islands, Germany, Greenland, Iceland, Norway, Russia.  
Report available as C.M. Doc 1994/Assess:19.

15. Working Group on the Assessment of Northern Shelf Demersal Stocks  
(C.Res. 1993/2:6:11)  
Chairman: Mr P.A. Kunzlik  
Held in Copenhagen, 14-23 June 1994.  
Countries represented: Faroe Islands, France, Iceland, Ireland, Norway, United Kingdom,  
Report available as C.M. Doc 1995/Assess:1.
16. Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine, and Anchovy  
(C.Res. 1993/2:6:10)  
Chairman: Mr A. Eltink  
Held in Copenhagen, 21 June - 1 July 1994.  
Countries represented: Denmark, France, Ireland, Netherlands, Norway, Portugal, Russia, Spain, United Kingdom.  
Report available as C.M. Doc 1995/Assess:2.
17. Arctic Fisheries Working Group  
(C.Res. 1993/2:6:1)  
Chairman: Mr K. Sunnanå  
Held in Copenhagen, 23 August-1 September 1994  
Countries represented: Canada, Germany, Iceland, Norway, Russia, Spain.  
Report available as C.M. Doc 1995/Assess:3.
18. Study Group on the Biology and Assessment of Deep-Sea Fisheries Resources  
(C.Res. 1993/2:6:20)  
Chairman: Mr B.W. Jones  
Held in Copenhagen, 24-30 August 1994.  
Countries represented: Canada, Faroe Islands, Germany, Greenland, Iceland, Norway, Portugal, Russia, United Kingdom.  
Report available as C.M. Doc 1995/Assess:4.
19. Working Group on the Assessment of Norway Pout and Sandeel  
(C.Res. 1993/2:6:12)  
Chairman: Mr D.W. Skagen  
Held in Copenhagen, 31 August - 6 September 1994.  
Countries represented: Denmark, Norway, United Kingdom.  
Report available as C.M. Doc 1995/Assess:5.
20. Working Group on the Assessment of Southern Shelf Demersal Stocks  
(C.Res. 1993/2:6:14)  
Chairman: M B. Mesnil  
Held in Copenhagen, 6-15 September 1994.  
Countries represented: Belgium, France, Ireland, Portugal, Spain, United Kingdom  
Report available as C.M. Doc 1995/Assess:6.
21. Blue Whiting Assessment Working Group  
(C.Res. 1993/2:6:5)  
Chairman: Mr J.A. Jacobsen  
Held in Vigo, Spain, 8-14 September 1994  
Countries represented: Faroe Islands, Norway, Spain, Russia.  
Report available as C.M. 1995/Assess:7
22. Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak  
(C.Res. 1993/2:6:9)  
Chairman: Dr R.M. Cook  
Held in Copenhagen, 6-14 October 1994.  
Countries represented: Belgium, Canada, Denmark, France, Germany, Netherlands, Norway, Sweden, United Kingdom.  
Report available as C.M. Doc 1995/Assess:8

23. Atlanto-Scandian Herring and Capelin Working Group  
(C.Res. 1993/2:6:2)  
Chairman: Mr H. í Jakupsstovu  
Held in Copenhagen, 17-21 October 1994.  
Countries represented: Canada, Denmark, Faroe Islands, Iceland, Norway, Russia  
Report available as C.M. Doc 1994/Assess:9

#### **Advisory Committee on the Marine Environment**

24. Marine Chemistry Working Group  
(C.Res. 1993/2:7.1)  
Chairman: Dr W. Cofino  
Held in Brest, France, 7-12 February 1994  
Countries represented: Belgium, Canada, Denmark, Finland, France, Iceland, Netherlands, Norway, Portugal, Spain, Sweden, United Kingdom, USA.  
Report available as C.M. Doc 1994/Env:1.
25. Sub-Group on Temporal Trend Monitoring Programme for Contaminants in Biota  
C.Res. 1993/2:7.7)  
Chairman: Dr R. Fryer  
Held in Copenhagen, 14-18 February 1994  
Countries represented: Denmark, Netherlands, Sweden, United Kingdom.  
Report available as C.M. Doc 1994/Env:8.
26. Working Group on Environmental Assessment and Monitoring Strategies  
C.Res. 1993/2:7.5)  
Chairman: Dr I. Davies  
Held in Gdynia, Poland, 28 February - 4 March 1994  
Countries represented: Poland, Sweden, United Kingdom.  
Report available as C.M. Doc 1994/Env:4.
27. Study Group on Occurrence of M-74 in Fish Stocks  
C.Res. 1993/2:7.9)  
Chairman: Mr S. Møllergaard  
Held in Copenhagen, 1-3 March 1994.  
Countries represented: Denmark, Finland, Norway, Sweden.  
Report available as C.M. Doc 1994/Env:9.
28. Working Group on Marine Sediments in Relation to Pollution  
C.Res. 1993/2:7.2)  
Chairman: Dr S. Rowlatt  
Held in Nantes, France, 23-26 March 1994.  
Countries represented: Canada, Denmark, France, Germany, Iceland, Netherlands, Norway, Sweden, United Kingdom.  
Report available as C.M. Doc 1994 Env:5.
29. Working Group on Biological Effects of Contaminants  
C.Res. 1993/2:7.3)  
Chairman: Dr R. Stagg  
Held in Nantes, France, 23-25 March 1994.  
Countries represented: Belgium, France, Germany, Netherlands, Norway, Sweden, United Kingdom, USA.  
Report available as C.M. Doc 1994/Env:3.

30. Joint Session of the Working Group on Marine Sediment in Relation to Pollution and the Working Group on Biological Effects of Contaminants  
C.Res. 1993/2:7.4)  
Chairman: Dr I. Davies  
Held in Nantes, France, 21-22 March 1994.  
Countries represented: Belgium, Canada, Denmark, France, Germany, Norway, Spain, Sweden, United Kingdom, USA.  
Report available as C.M. Doc 1994/Env:2.
31. Working Group on Introduction and Transfers of Marine Organisms  
C.Res. 1993/2:7.10)  
Chairman: Dr J.T. Carlton  
Held in Mystic, CT, USA. 20-22 April 1994  
Countries represented: Canada, Finland, Germany, Ireland, Norway, Sweden, United Kingdom, USA.  
Report available as C.M. Doc 1994/Env:7.
32. Working Group on Statistical Aspects of Environmental Monitoring  
C.Res. 1993/2:7.4)  
Chairman: Mr M. Nicholson  
Held in St John's, NF, Canada, 25-29 April 1994  
Countries represented: Canada, Denmark, France, Germany, Netherlands, Sweden, United Kingdom.  
Report available as C.M. Doc 1994/Env:6.

#### **Fish Capture Committee**

33. Working Group on Fishing Technology and Fish Behaviour  
C.Res. 1993/2:8)  
Chairman: Dr S.J. Walsh  
Held in Montpellier, France, 25-26 April 1994.  
Countries represented: Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Netherlands, Norway, Poland, Spain, Sweden, United Kingdom, USA.  
Report available as C.M. Doc 1994/B:2.
34. Sub-Group on Selectivity Methods  
C.Res. 1993/2:8:1)  
Chairman: Mr D.A. Wileman  
Held in Montpellier, France, 21-23 April 1994.  
Countries represented: Belgium, Canada, Denmark, Finland, France, Germany, Netherlands, Norway, Sweden, United Kingdom, USA.  
Report available as C.M. Doc 1994/B:7.
35. Sub-Group on Methodology of Fish Survival Experiments  
C.Res. 1993/2:8:2)  
Chairman: Mr G. Sangster  
Held in Montpellier, France, 22-23 April 1994.  
Countries represented: Canada, Denmark, Faroe Islands, Finland, Iceland, Japan, Norway, Sweden, USA.  
Report available as C.M. Doc 1994/B:8
36. Study Group on Research Vessel Noise Measurement  
C.Res. 1993/2:12)  
Chairman: Mr G. Sangster  
Held in Montpellier, France, 22-23 April 1994.  
Countries represented: Canada, Denmark, Faroe Islands, Germany, United Kingdom, USA.  
Report available as C.M. Doc 1994/B:5.

37.     Study Group on Target Strength Methodology  
C.Res. 1993/2:11)  
Chairman: Mr E. Ona  
Held in Montpellier, France, 25-26 April 1994.  
Countries represented: Canada, Denmark, Faroe Islands, Iceland, Norway, United Kingdom, USA.  
Report available as C.M. Doc 1994/B:6
  
38.     Joint Session of the Working Group on Fisheries Acoustics Science and Technology and the Working Group on Fishing Technology and Fish Behaviour  
C.Res. 1993/2:10)  
Chairman: Dr G.P. Arnold  
Held in Montpellier, France, 27 April 1994.  
Countries represented:  
Report available as C.M. Doc 1994/B:4.
  
39.     Working Group on Fisheries Acoustics Science and Technology  
C.Res. 1993/2:9)  
Chairman: Mr E.J. Simmonds  
Held in Montpellier, France, 28-29 April 1994.  
Countries represented: Belgium, Canada, Denmark, Faroe Islands, France, Germany, Iceland, Ireland, Norway, Spain, Sweden, USA.  
Report available as C.M. Doc 1994/B:3
  
40.     Workshop on Hydroacoustic Instrumentation  
C.Res. 1993/2:13)  
Chairman: Mr H.P. Knudsen  
Held in Cambridge, England, 3-5 May 1994.  
Countries represented: Canada, Denmark, France, Iceland, Ireland, Norway, United Kingdom.  
Report available as C.M. Doc 1994/B:9.

## Hydrography Committee

41.     Working Group on Oceanic Hydrography  
C.Res. 1993/2:15)  
Chairman: Dr E. Buch  
Held in Bergen, Norway, 18-20 April 1994.  
Countries represented: Canada, Denmark, Faroe Islands, Germany, Iceland, Netherlands, Norway, Poland, Sweden, United Kingdom, USA.  
Report available as C.M. Doc 1994/C:3.
  
42.     Working Group on Marine Data Management  
C.Res. 1993/2:14)  
Chairman: Dr L. Rickards  
Held in Bergen, Norway, 21-23 April 1994.  
Countries represented: Canada, Denmark, Faroe Islands, Finland, France, Germany, Iceland, Ireland, Netherlands, Norway, Portugal, Sweden.  
Report available as C.M. Doc 1994/C:2.
  
43.     Working Group on Shelf Seas Hydrography  
C.Res. 1993/2:16)  
Chairman: Dr H. Dahlin  
Held in Vigo, Spain, 11-12 May 1994.  
Countries represented: Canada, Denmark, Germany, Netherlands, Norway, Portugal, Spain, Sweden, USA.  
Report available as C.M. Doc 1994/C:1.

## Statistics Committee

44. Workshop on Sampling Strategies for Age and Maturity Data  
C.Res. 1993/2:17)  
Chairman: Dr G. Stefansson  
Held in Copenhagen, 3-9 February 1994.  
Countries represented: Canada, Denmark, Iceland, Latvia, Netherlands, Norway, Poland, Spain, Sweden, United Kingdom, USA.  
Report available as C.M. Doc 1994/D:1.

## Marine Environmental Quality Committee

45. ICES/HELCOM Workshop on Quality Assurance of Chemical Analytical Procedures for the Baltic Monitoring Programme  
C.Res. 1992/2:39)  
Chairmen: Dr G. Topping and Dr U. Harms  
Held in Hamburg, Germany, 5-8 October 1993.  
Countries represented: Denmark, Estonia, Finland, Germany, Latvia, Netherlands, Poland, Russia, Sweden, United Kingdom.  
Report available as C.M. Doc. 1994/E:11.
46. ICES/HELCOM Workshop on Quality Assurance of Benthic Measurements  
C.Res. 1993/3:6)  
Chairman: Dr H. Rumohr  
Held in Kiel, Germany, 21-26 March 1994.  
Countries represented: Denmark, Estonia, Finland, Germany, Latvia, Poland, Sweden, United Kingdom.  
Report available as C.M. Doc. 1994/E:10.
47. ICES/HELCOM Workshop on Quality Assurance of Pelagic Measurements in the Baltic Sea  
C.Res. 1993/3:5)  
Chairman: Dr J. Alheit  
Held in Warnemünde, Germany, 12-14 April 1994.  
Countries represented: Denmark, Estonia, Finland, Germany, Latvia, Poland, Russia, Sweden.  
Report available as C.M. Doc. 1994/E:9.
48. Steering Group on Quality Assurance of Chemical Measurements in the Baltic Sea  
C.Res. 1993/2:18)  
Chairman: Dr U. Harms  
Held in Charlottenlund, Denmark, 25-26 April 1994  
Countries represented: Denmark, Estonia, Finland, Germany, Poland, Sweden.  
Report available as C.M. Doc. 1994/E:8.
49. Steering Group for the Coordination of a Baseline Study on Contaminants in Baltic Sediments  
C.Res. 1993/2:20)  
Chairman: Dr M. Perttilä  
Held in Charlottenlund, Denmark, 26 April 1994  
Countries represented: Denmark, Finland, Germany, Sweden.  
Report available as C.M. Doc. 1994/E:6.
50. Working Group on the Baltic Marine Environment  
C.Res. 1993/2:21)  
Chairman: Dr H.P. Hansen  
Held in Charlottenlund, Denmark, 27-29 April 1994  
Countries represented: Denmark, Estonia, Finland, Germany, Poland, Sweden.  
Report available as C.M. Doc. 1994 E:3.

51. Working Group on the Effects of Extraction of Marine Sediments on Fisheries  
C.Res. 1993/2:22)  
Chairman: Dr S.J. de Groot  
Held in Keyworth, Nottingham, England, 3-6 May 1994  
Countries represented: Belgium, Canada, Denmark, France, Germany, Ireland, Netherlands, Norway, Sweden, United Kingdom, USA.  
Report available as C.M. Doc. 1994/E:4.

#### **Mariculture Committee**

52. Working Group on Pathology and Diseases of Marine Organisms  
C.Res. 1993/2:25)  
Chairman: Dr A. McVicar  
Held in Moncton, New Brunswick, Canada, 21-26 March 1994.  
Countries represented: Canada, Denmark, Finland, Germany, Netherlands, Norway, Sweden, United Kingdom, USA.  
Report available as C.M. Doc. 1994/F:5.
53. Working Group on Environmental Interactions of Mariculture  
C.Res. 1993/2:25)  
Chairman: Dr H. Rosenthal  
Held in Cork, Ireland, 28-31 March 1994.  
Countries represented: Canada, France, Germany, Ireland, Netherlands, Norway, Sweden, United Kingdom, USA.  
Report available as C.M. Doc. 1994/F:3.
54. Working Group on Application of Genetics in Fisheries & Mariculture  
C.Res. 1993/2:27)  
Chairman: Prof. J. Mork  
Held in Copenhagen, 9-11 March 1994.  
Countries represented: Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Ireland, Norway, Poland, Portugal, Spain, Sweden, United Kingdom, USA.  
Report available as C.M. Doc. 1994/F:4.
55. Workshop to Evaluate Potential Stock Enhancement  
C.Res. 1993/2:28)  
Co-Chairmen: Ms J.G. Støttrup and Mr T. Jakobsen  
Held in Charlottenlund, Denmark, 19-24 May 1994.  
Countries represented: Canada, Denmark, Faroe Islands, Germany, Norway, Spain, Sweden, United Kingdom.  
Guests: European Commission (DGXIV), Italy.  
Report available as C.M. Doc. 1994/F:9.

#### **Demersal Fish Committee**

56. Study Group on Redfish Stocks  
C.Res. 1993/2:29)  
Chairman: Dr J. Magnússon  
Held in Copenhagen, 2-3 May 1994.  
Countries represented: Faroe Islands, Germany, Iceland, Norway, Russia.  
Report available as C.M. Doc. 1994/G:4.

## **Pelagic Fish Committee**

57. International Bottom Trawl Survey Working Group  
C.Res. 1993/2:34)  
Chairman: Dr H.J.L. Heessen  
Held in Copenhagen, 12-14 January 1994  
Countries represented: Denmark, France, Germany, Netherlands, Norway, Sweden, United Kingdom.  
Report available as C.M. Doc. 1994/H:6.
58. Workshop on Herring Age Reading  
C.Res. 1993/2:33)  
Chairman: Mr A. Corten  
Held in IJmuiden, Netherlands, 20-24 January 1994.  
Countries represented: Denmark, Faroe Islands, France, Ireland, Netherlands, Norway, Sweden, United Kingdom.  
Report available as C.M. Doc. 1994/H:7.
59. Mackerel/Horse Mackerel Egg Production Workshop  
C.Res. 1993/2:34)  
Chairman: Mr A. Eltink  
Held in Vigo, Spain, 31 January - 4 February 1994.  
Countries represented: Denmark, France, Norway, Portugal, Spain, United Kingdom.  
Report available as C.M. Doc. 1994/H:4.
60. Study Group on Herring Assessment and Biology in the Irish Sea and Adjacent Waters  
C.Res. 1993/2:36)  
Chairman: Dr M. Armstrong  
Held in Belfast, N. Ireland, UK, 21-25 February 1994.  
Countries represented: Ireland, United Kingdom.  
Report available as C.M. Doc. 1994/H:5.
61. Planning Group for Herring Surveys  
C.Res. 1993/2:37)  
Chairman: Mr A. Aglen  
Held in Bergen, Norway, 24-27 May 1994.  
Countries represented: Canada, Denmark, Netherlands, Norway, Sweden, United Kingdom.  
Report available as C.M. Doc. 1994/H:3.

## **Baltic Fish Committee**

62. Planning Group for Hydroacoustic Surveys in the Baltic  
C.Res. 1993/2:38)  
Chairman: Mr E. Götze  
Held in Copenhagen, 11-13 April 1994  
Countries represented: Denmark, Germany, Latvia, Poland, Sweden.  
Report available as C.M. Doc. 1994/J:4.
63. Workshop on Baltic Cod Age Reading  
C.Res. 1993/2:40)  
Chairman: Dr J. Metzel  
Held in Gdynia, Poland. 6-10 June 1994.  
Countries represented: Denmark, Germany, Latvia, Poland, Sweden.  
Report available as C.M. Doc. 1994/J:5.

## Shellfish Committee

64. Study Group on Life History and Assessment Methods of *Nephrops* Stocks  
C.Res. 1993/2:42)  
Chairman: Dr N. Bailey  
Held in Aberdeen, Scotland, 23-26 November 1994.  
Countries represented: Belgium, Canada, France, Ireland, Portugal, Spain, Sweden, United Kingdom.  
Report available as C.M. Doc. 1994/K:9.
65. Study Group on the Life History, Population Biology, and Assessment of *Crangon*  
C.Res. 1993/2:43)  
Chairman: Dr T. Neudecker  
Held in Hamburg, Germany, 15-18 March 1994.  
Countries represented: Belgium, Denmark, Germany, Netherlands, United Kingdom.  
Report available as C.M. Doc. 1994/K:3

## Biological Oceanography Committee

66. Study Group on Zooplankton Production  
C.Res. 1993/2:51)  
Chairman: Mr H.-R. Skjoldal  
Held in Plymouth, England, 21-24 March 1994.  
Countries represented: Canada, France, Germany, Norway, United Kingdom, USA.  
Report available as C.M. Doc. 1994/L:8.
67. Working Group on Phytoplankton Ecology  
C.Res. 1993/2:56)  
Chairman: Dr F. Colijn  
Held in Copenhagen, 23-26 March 1994.  
Countries represented: Finland, Germany, Iceland, Ireland, Netherlands, Norway, Spain, Sweden, United Kingdom, USA.  
Report available as C.M. Doc. 1994/L:6.
68. Workshop on Translatitudinal Study of *Calanus finmarchicus* in the North Atlantic  
C.Res. 1993/2:53)  
Co-Chairmen: Prof. K. Tande and Dr C. Miller  
Held in Oslo, Norway, 6-8 April 1994.  
Countries represented: Canada, Denmark, Faroe Islands, France, Germany, Iceland, Norway, Sweden, United Kingdom, USA.  
Report available as C.M. Doc. 1994/L:10.
69. Benthos Ecology Working Group  
C.Res. 1993/2:55)  
Chairman: Dr P. Kingston  
Held in Yerseke, Netherlands, 2-6 May 1994  
Countries represented: Canada, Denmark, Faroe Islands, Germany, Ireland, Netherlands, Poland, Spain, United Kingdom, USA.  
Report available as C.M. Doc. 1994/L:4.
70. Workshop on Modelling the Population Dynamics of Harmful Algal Blooms  
C.Res. 1993/2:49)  
Chairman: Dr P. Tett and Dr W. Fennel  
Held in Vigo, Spain, 4-7 May 1994.  
Countries represented: Canada, Finland, France, Germany, Norway, Portugal, Spain, Sweden, United Kingdom, USA.  
Report available as C.M. Doc 1994/C:5. Report available as C.M. Doc. 1994/C:5.

71. Joint Session of the ICES/IOC Working Group on Harmful Algal Bloom Dynamics and the Working Group on Shelf Seas Oceanography  
C.Res. 1993/2:16/2:47)  
Co-Chairmen: Dr H. Dahlin and Ms B. Reguera  
Held in Vigo, Spain, 9-10 May 1994.  
Countries represented: Canada, Denmark, Finland, France, Germany, Iceland, Norway, Netherlands, Portugal, Spain, Sweden, United Kingdom, USA,  
IOC/Observers: Argentina, Chile, Cuba, Mexico, South Africa  
Report available as C.M. Doc. 1994/L:11.
  
72. ICES/IOC Working Group on Harmful Algal Bloom Dynamics  
C.Res. 1993/2:47)  
Chairman: Ms B. Reguera  
Held in Vigo, Spain, 9-12 May 1994.  
Countries represented: Canada, Denmark, Finland, France, Germany, Iceland, Norway, Portugal, Spain, Sweden, United Kingdom, USA.  
Observers: Argentina, Chile, Cuba, Mexico, South Africa.  
Report available as C.M. Doc. 1994/L:5.
  
73. Laboratory Workshop on *Calanus*  
C.Res. 1993/2:52)  
Co-Chairmen: Prof. U. Båmsted and Mr H.-R. Skjoldal  
Held in Espesrend, Norway, 15-30 April 1994.  
Report available as C.M. Doc. 1994/L:9.
  
74. Working Group on Recruitment Processes  
C.Res. 1993/2:54)  
Chairman: Dr M. Heath  
Held in Lysekil, Sweden, 14-17 June 1994.  
Countries represented: Canada, Denmark, Germany, Norway, Poland, Sweden, United Kingdom, USA.  
Report available as C.M. Doc. 1994/L:12
  
75. Workshop on Intercomparison of *In situ* Growth Rate Measurements  
C.Res. 1993/2:48)  
Chairman: Ms M.A. Sampayo  
Held in Ria de Aveiro, Portugal, 25-29 July 1994.  
Countries represented: Netherlands, Norway, Portugal, Spain, Sweden, United Kingdom, USA.  
Report available as C.M. Doc. 1994/L:13.
  
76. Study Group on Seabird/Fish Interactions  
C.Res. 1993/2:57)  
Chairman: Prof. G. Hunt  
Held in Aberdeen, Scotland, 5-7 September 1994.  
Countries represented: Belgium, Canada, Denmark, Germany, Norway, United Kingdom, USA.  
Report available as C.M. Doc. 1994/L:34.

#### **Anadromous and Catadromous Fish Committee**

77. Workshop on Salmon Spawning Stock Targets in the Northeast Atlantic  
C.Res. 1993/2:64)  
Chairman: Mr E.C.E. Potter  
Held in Bushmills, Northern Ireland, UK, 7-9 December 1993.  
Countries represented: Canada, Finland, France, Ireland, Norway, Sweden, United Kingdom.  
Report available as C.M. Doc. 1994/M:6.

78. Study Group on Interactions of Wild, Ranched (Enhanced), and Reared Salmon  
C.Res. 1993/2:62)  
Chairman: Mr A. Youngson  
Held in Reykjavik, Iceland, 5-6 April 1994.  
Countries represented: Canada, Denmark, Iceland, Norway, Sweden, United Kingdom, USA.  
Report available as C.M. Doc. 1994/M:3.
79. Study Group on Stock Identification Protocols for Finfish and Shellfish  
C.Res. 1993/2:63)  
Chairman: Dr K. Friedland  
Held in Copenhagen, 15-18 August 1994.  
Countries represented: Ireland, Spain, Sweden, USA.  
Report available as C.M. Doc. 1994/M:5.
80. Study Group on Anadromous Trout  
C.Res. 1993/2:63)  
Chairman: Dr B. Jonsson  
Held in Trondheim, Norway, 29-31 August 1994.  
Countries represented: Denmark, Finland, France, Iceland, Ireland, Norway, Sweden, United Kingdom.  
Report available as C.M. Doc. 1994/M:4.
81. Joint ICES/EIFAC Working Group on Eel  
C.Res. 1993/2:60)  
Chairman: Dr C. Moriarty  
To be held in Oviedo, Spain, 26 September - 2 October 1994.  
Countries represented: Denmark, Ireland, Estonia, France, Germany, Netherlands, Portugal, Spain, Sweden, United Kingdom.  
Report available as C.M. Doc. 1995/M:1.

#### **Marine Mammals Committee**

82. Study Group on Seals and Small Cetaceans in European Seas  
C.Res. 1993/2:65)  
Chairman: Dr J. Harwood  
Held in Cambridge, England, 28 February - 4 March 1994.  
Countries represented: Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Ireland, Netherlands, Norway, Spain, Sweden, United Kingdom.  
Report available as C.M. Doc. 1994/N:2.

# INCOME AND EXPENDITURE ACCOUNTS FOR 1/11/1992 - 31/10/1993

## INCOME

	DKK	DKK
<b>1. National Contributions</b>		
Belgium . . . . .	497,200.00	
Canada . . . . .	745,800.00	
Denmark . . . . .	745,800.00	
Finland . . . . .	372,900.00	
France . . . . .	994,400.00	
Germany . . . . .	994,400.00	
Iceland . . . . .	745,800.00	
Ireland . . . . .	497,200.00	
Netherlands . . . . .	745,800.00	
Norway . . . . .	994,400.00	
Poland . . . . .	745,800.00	
Portugal . . . . .	497,200.00	
Russia . . . . .	994,400.00	
Spain . . . . .	745,800.00	
Sweden . . . . .	745,800.00	
United Kingdom . . . . .	994,400.00	
USA . . . . .	745,800.00	12,802,900.00
<b>2. Interest</b>		
General Funds . . . . .	747,509.55	
Capital Reserve Fund . . . . .	134,240.64	
Computer Loan . . . . .	0.00	
Computer Equipment Fund . . . . .	50,699.67	
- Bank Charges . . . . .	-2,206.09	
<b>Sub-total</b> . . . . .	<b>930,243.77</b>	
Carried to Capital Reserve Fund . . . . .	-134,240.64	
Carried to Computer Equipment Expenditure . . . . .	0.00	
Carried to Computer Equipment Fund . . . . .	-50,699.67	745,303.46
<b>3. Publications</b>		
Sale of Publications . . . . .	137,801.02	
An Annotated Bibliography on the Pinnipedia . . . . .	6,850.00	
<b>Sub-total</b> . . . . .	<b>144,651.02</b>	
- Carried to Balance Sheet . . . . .	-6,850.00	137,801.02
<b>4. Contribution from NEAFC</b> . . . . .		532,000.00
<b>5. Contribution from IBSFC</b> . . . . .		195,000.00
To carry forward . . . . .		14,413,004.48

	DKK	DKK
<b>INCOME brought forward</b> . . . . .		14,413,004.48
<b>6. Contribution from Oslo and Paris Commissions</b> . . . . .		657,835.19
<b>7. Contribution from Helsinki Commission</b> . . . . .		220,000.00
<b>8. Contribution from NASCO</b> . . . . .		274,500.00
<b>9. Contribution from EC Commission</b> . . . . .		1,299,081.20
<b>10. Contribution from Faroe Islands and Greenland</b> . . . . .		244,000.00
<b>11. Other Contributions - Observers</b> . . . . .		5,000.00
<b>12. Transferred from Capital Reserve Fund</b> . . . . .		75,000.00
<b>13. Miscellaneous Income</b>		
Royalties on "Study of the Sea" . . . . .	8,406.19	
EDMED Project . . . . .	0.00	
ICES Ties . . . . .	1,620.00	
ICES T-shirts and Sweatshirts . . . . .	13,920.00	
ICES Keyfobs . . . . .	350.00	
ICES/NAFO Maps . . . . .	990.00	
ICES Paper Blocks . . . . .	450.00	
ICES Mugs . . . . .	1,395.00	
<b>Sub-total</b> . . . . .	<b>27,131.19</b>	
- Carried to Balance Sheet . . . . .	-18,725.00	8,406.19
<b>14. North Sea Task Force</b>		
Balance as of 1 November 1992 . . . . .	134,876.45	
Close of account 31 December 1992 . . . . .	-134,876.45	0
Contribution 1993 . . . . .	306,000.47	306,000.47
- Travels . . . . .	-144,022.54	
- Salary . . . . .	-152,099.91	
- General Office Overheads 1992/1993 . . . . .	-46,855.00	-342,977.45
<b>Sub-total</b> . . . . .	<b>-36,976.98</b>	
- Carried to Balance Sheet . . . . .	36,976.98	0.00
<b>15. NODC</b>		
Contribution . . . . .	155,119.67	
- Salary . . . . .	-117,785.32	
<b>Sub-total</b> . . . . .	<b>37,334.35</b>	
- Carried to Balance Sheet . . . . .	-37,334.35	0.00
<b>GRAND TOTAL</b> . . . . .		<b>17,196,827.06</b>

## EXPENDITURE

	DKK	DKK
<b>1. Incidentals for President and Chairmen . . . . .</b>		54,400.00
<b>2. Salaries</b>		
(a) Professional Category Posts . . . . .	6,247,960.00	
(b) General Service Category Posts . . . . .	5,856,614.00	
(c) Provisions for Increase in Salaries . . . . .	48,500.00	
(d) Periodic Assistance . . . . .	297,056.00	
(e) Personnel Services . . . . .	894,671.00	
<b>Sub-Total . . . . .</b>	<b>13,344,801.00</b>	
- Staff Assessment . . . . .	-3,174,897.57	10,169,903.43
<b>3. Office Expenses</b>		
(a) Electricity, Plumbing & Heating . . . . .	249,219.26	
(b) Watchman . . . . .	178,739.79	
(c) Office Cleaning . . . . .	446,054.52	
(d) Stationery . . . . .	424,618.13	
(e) Postage, Telephone, etc. . . . .	661,681.79	
(f) Office Equipment . . . . .	67,682.73	
(g) Insurance . . . . .	51,512.97	
(h) Office Maintenance . . . . .	180,000.00	
(i) Miscellaneous Expenses . . . . .	58,247.70	
T-shirts and Sweatshirts . . . . .	49,380.00	
ICES/NAFO Maps . . . . .	61,310.16	
ICES Paper Blocks . . . . .	15,751.75	
<b>Sub-total . . . . .</b>	<b>184,689.61</b>	
- Carried to Balance sheet . . . . .	-126,441.91	58,247.70
(j) Library . . . . .	12,187.27	
<b>Sub-total . . . . .</b>	<b>2,329,944.16</b>	
- Overhead cost NSTF . . . . .	-120,116.10	
<b>Sub-total . . . . .</b>	<b>2,209,828.06</b>	
- Refund of VAT . . . . .	-433,640.90	1,776,187.16
<b>4. ADP Expenses</b>		
(a) Running Costs (Computer and WordPerfect) . . . . .	951,032.52	
(b) Replacement Items . . . . .	266,781.60	
(c) Instalment, Computer System Loan . . . . .	500,000.00	
- Removal of old Computer System . . . . .	-3,237.50	
- Payment for Data Handling . . . . .	-3,300.00	-62.50
<b>Sub-total . . . . .</b>	<b>1,717,751.62</b>	
- Refund of VAT . . . . .	-261,752.22	1,455,999.40
<b>To carry forward . . . . .</b>		<b>13,456,489.99</b>

	DKK	DKK
<b>EXPENDITURE</b> brought forward . . . . .		13,456,489.99
<b>5. Expenses for C.M.1993, Dublin</b>		
(a) General Expenses . . . . .	92,708.88	
(b) Travels . . . . .	351,053.31	443,762.19
<b>6. Travels, Meetings, etc.</b>		
(a) Bureau . . . . .	150,050.12	
(b) President and General Secretary . . . . .	129,942.36	
(c) ACFM . . . . .	829,999.80	
(d) ACME . . . . .	481,262.98	
(e) Other Secretariat Travels and Meetings . . . . .	74,505.59	
(f) Symposia . . . . .	44,473.86	
(g) Programme Planning Group . . . . .	108,647.24	
(h) Dialogue Meeting . . . . .	13,472.10	1,832,354.05
<b>7. Publications</b>		
(a) ICES Marine Science Symposia . . . . .	175,000.00	
(b) ICES Annual Report . . . . .	21,545.00	
(c) ICES Cooperative Research Reports . . . . .	218,000.00	
(d) Oceanographic Data Lists . . . . .	0.00	
(e) ICES Fisheries Statistics . . . . .	0.00	
(f) Leaflets for Plankton and Diseases . . . . .	3,573.25	
(g) TIMES . . . . .	0.00	
(h) Newsletter . . . . .	35,963.00	454,081.25
<b>8. Pensions</b>		
(a) Voted Pensions . . . . .	16,000.00	
(b) ICES Pension Scheme . . . . .	651,758.89	
(c) Danish State Pension (ATP) . . . . .	43,372.80	711,131.69
<b>TOTAL</b> . . . . .		<b>16,897,819.17</b>
<b>9. Excess of Income over Expenditure 1992/1993</b> (will be carried to Computer Equipment Fund in 1993/1994) . . . . .		299,007.89
<b>GRAND TOTAL</b> . . . . .		<b>17,196,827.06</b>

# BALANCE SHEET ON 31 OCTOBER 1993


## LIABILITIES

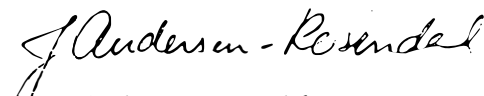
	DKK	DKK
<b>Capital Reserve Fund</b>		
as of 1 November 1992 . . . . .	1,317,068.03	
Interest . . . . .	134,240.64	
Transferred from Accounts 1992/1993 . . . . .	-75,000.00	1,376,308.67
<b>Computer Equipment Fund</b>		
as of 1 November 1992 . . . . .	460,632.33	
Interest . . . . .	50,699.67	511,332.00
<b>Pension Funds</b>		
as of 1 November 1992 . . . . .	407,854.83	
Contributions . . . . .	425,686.18	
- Capital paid . . . . .	-571,440.52	262,100.49
<b>UNIBANK Computer Loan</b>		
as of 1 November 1992 . . . . .	1,011,436.20	
- Instalment . . . . .	-500,000.00	
Interest paid . . . . .	136,168.76	647,604.96
Contributions prepaid for 1993/1994 . . . . .		11,639,525.00
Danish State Pension (ATP) . . . . .		5,248.80
Intercalibration Exercises . . . . .		12,665.77
Hydrocarbon Measurement Exercises . . . . .		20,566.97
Intercalibration Exercise on PCBs . . . . .		45,000.00
North Sea Task Force (NSTF) . . . . .		-36,976.98
NSTF BENTHOS . . . . .		10,906.79
Provision for Increase in Salaries . . . . .		48,500.00
Interest (following 1993/1994) . . . . .		380,695.68
Funds . . . . .		37,378.91
Publications . . . . .		380,417.72
Creditors . . . . .		42,301.68
<b>TOTAL . . . . .</b>		<b>15,383,576.46</b>
Excess of Income over Expenditure 1992/1993 (will be credited to Computer Equipment Fund in 1993/1994) . . . . .		299,007.89
<b>GRAND TOTAL . . . . .</b>		<b>15,682,584.35</b>

# ASSETS

	DKK	DKK
Cash in hand . . . . .	17,431.50	
UNIBANK / Cheque Account . . . . .	1,790,504.88	
UNIBANK / 842-44-15562 . . . . .	497,200.02	
UNIBANK / Bonus Account . . . . .	9,448,395.19	
Giro Account . . . . .	4,249.47	
UNIBANK / Capital Reserve Fund . . . . .	1,271,697.05	
UNIBANK / Computer Fund . . . . .	511,332.00	13,540,810.11
UNIBANK / Pension Funds . . . . .		9,605.47
Computer Equipment . . . . .	1,011,436.20	
- Written off . . . . .	-363,831.24	647,604.96
<b>Bonds</b>		
Capital Reserve Fund:		
10% Kreditforeningen Danmark, alm. 43-2004 . . . . .		104,539.90
Pension Funds . . . . .		252,493.02
Prepaid Postage . . . . .		17,500.00
<b>Stock of:</b>		
Ties . . . . .	9,776.59	
- Sale . . . . .	-1,620.00	8,156.59
T-shirts and Sweatshirts . . . . .	66,236.84	
- Sale . . . . .	-13,920.00	52,316.84
Keyfobs . . . . .	9,337.85	
- Sale . . . . .	-350.00	8,987.85
Mugs . . . . .	9,643.50	
- Sale . . . . .	-1,395.00	8,248.50
An Annotated Bibliography on the Pinnipedia and an Annotated Bibliography on Seals, Sea Lions, and Walrus	54,736.35	
- Sale . . . . .	-6,850.00	47,886.35
ICES/NAFO Maps . . . . .	61,310.16	
- Sale . . . . .	-990.00	60,320.16
To carry forward . . . . .		14,758,469.75

	DKK	DKK
<b>ASSETS brought forward</b> . . . . .		14,758,469.75
ICES Paper Block . . . . .	15,751.75	
- Sale . . . . .	-450.00	15,301.75
<b>Debtors</b>		
Unpaid Contributions . . . . .	532,000.00	
Publications . . . . .	31,084.51	
NODC . . . . .	-37,334.35	525,750.16
<b>Suspense Account</b>		
ACFM Meeting November 1993 . . . . .	211,202.36	
Vat due Ministry of Foreign Affairs . . . . .	171,860.33	383,062.69
<b>TOTAL</b> . . . . .		<b>15,682,584.35</b>

  
 Emory D. Andersen  
 General Secretary

  
 Jytte Andersen-Rosendal  
 Administrative Secretary

The above Balance Sheet has been audited by Rigsrevisionen. Rule 20 (vii) of the Council's Rules of Procedure has been observed.

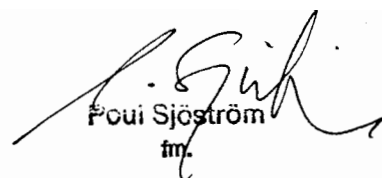
For the Auditor General of Denmark

20 MAJ 1994



HENRIK OTBO

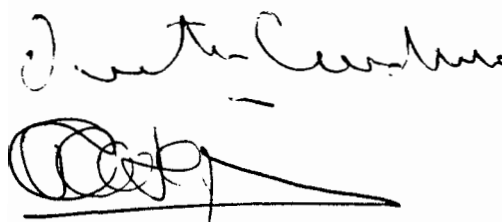
RIGSREVISIONEN  
ST. KONGENSGADE 45-47  
1264 KØBENHAVN K



Poul Sjöström  
fm.

We approve the foregoing Accounts and Balance Sheet.

Mus 17 de Nulm.  
Sigenan Alon



J. van der Cappel

# BUDGET FINANCIAL YEAR 1994/1995

## INCOME

	Approved Budget 1993-1994	Approved Forecast Budget 1994-1995	Budget 1994-1995
	DKK	DKK	DKK
<b>1. National Contributions</b>			
Belgium . . . . .	524,600	536,000	536,000
Canada . . . . .	786,900	804,000	804,000
Denmark . . . . .	786,900	804,000	804,000
Finland . . . . .	393,450	402,000	402,000
France . . . . .	1,049,200	1,072,000	1,072,000
Germany . . . . .	1,049,200	1,072,000	1,072,000
Iceland . . . . .	786,900	804,000	804,000
Ireland . . . . .	524,600	536,000	536,000
Netherlands . . . . .	786,900	804,000	804,000
Norway . . . . .	1,049,200	1,072,000	1,072,000
Poland . . . . .	786,900	804,000	804,000
Portugal . . . . .	524,600	536,000	536,000
Russia . . . . .	1,049,200	938,000	938,000
Spain . . . . .	786,900	804,000	804,000
Sweden . . . . .	786,900	804,000	804,000
United Kingdom . . . . .	1,049,200	1,072,000	1,072,000
USA . . . . .	786,900	804,000	804,000
Unspecified source of income . . . . .		134,000	134,000
<b>Total . . . . .</b>	<b>13,508,450</b>	<b>13,802,000</b>	<b>13,802,000</b>
<b>2. Interest . . . . .</b>	<b>660,000</b>	<b>500,000</b>	<b>500,000</b>
<b>3. Sale of Publications . . . . .</b>	<b>150,000</b>	<b>150,000</b>	<b>150,000</b>
<b>4. Contribution from NEAFC . . . . .</b>	<b>561,300</b>	<b>573,500</b>	<b>573,500</b>
<b>5. Contribution from IBSFC . . . . .</b>	<b>205,700</b>	<b>210,200</b>	<b>210,200</b>
<b>6. Contribution from Oslo and Paris Commissions . . . . .</b>	<b>720,100</b>	<b>735,800</b>	<b>735,800</b>
<b>7. Contribution from Helsinki Commission . . . . .</b>	<b>232,100</b>	<b>237,200</b>	<b>237,200</b>
<b>8. Contribution from NASCO . . . . .</b>	<b>274,500</b>	<b>249,500</b>	<b>249,500</b>
<b>9. Contribution from European Commission . . . . .</b>	<b>1,375,700</b>	<b>1,416,000</b>	<b>1,416,000</b>
<b>10. Contributions Faroe Islands and Greenland . . . . .</b>	<b>257,300</b>	<b>262,900</b>	<b>262,900</b>
<b>11. Miscellaneous Income . . . . .</b>	<b>5,000</b>	<b>5,000</b>	<b>21,000</b>
<b>12. Transferred from Capital Reserve Fund . . . . .</b>	<b>75,000</b>	<b>0</b>	<b>0</b>
<b>13. Special Income from Latvia . . . . .</b>	<b>50,000</b>	<b>150,000</b>	<b>150,000</b>
<b>GRAND TOTAL . . . . .</b>	<b>18,075,150</b>	<b>18,292,100</b>	<b>18,308,100</b>

	Approved Budget 1993-1994	Approved Forecast Budget 1994-1995	Budget 1994-1995
	DKK	DKK	DKK
<b>EXPENDITURE</b>			
<b>1. Incidentals for President and Chairmen</b>	<b>55,800</b>	<b>55,800</b>	<b>55,800</b>
<b>2. Salaries</b>			
a) Professional Category Posts . . . . .	6,566,000	6,742,000	6,523,695
b) General Service Category Posts . . . . .	6,201,400	6,363,000	6,658,030
c) Increase in Salaries . . . . .	85,000	88,000	0
d) Periodic Assistance . . . . .	150,000	150,000	150,000
e) Personnel Services . . . . .	982,600	1,040,000	1,441,889
f) Education and Training . . . . .		0	30,000
<b>Sub-Total . . . . .</b>	<b>13,985,000</b>	<b>14,383,000</b>	<b>14,803,614</b>
- Staff Assessment . . . . .	3,363,500	3,480,000	3,428,770
<b>Total . . . . .</b>	<b>10,621,500</b>	<b>10,903,000</b>	<b>11,374,844</b>
<b>3. Office Expenses</b>			
a) Electricity and Heating . . . . .	240,000	280,000	258,000
b) Watchman . . . . .	145,000	190,000	153,000
c) Office Cleaning . . . . .	305,000	490,000	115,000
d) Stationary . . . . .	380,000	441,000	440,000
e) Postage, Telephone, etc. . . . .	487,000	599,000	533,000
f) Office Equipment . . . . .	50,000	53,000	55,000
g) Insurance . . . . .	55,800	59,000	66,000
h) Office Maintenance . . . . .	150,000	185,000	151,000
i) Miscellaneous . . . . .	60,000	85,000	68,000
j) Library . . . . .	6,050	6,800	6,800
k) Foyer/Reception/Public Relations . . . . .		0	100,000
l) Accounts and Auditing . . . . .	0	0	25,000
- refund of VAT . . . . .	0	-330,000	0
<b>Total . . . . .</b>	<b>1,878,850</b>	<b>2,058,800</b>	<b>1,970,800</b>
<b>4. EDP Expenses</b>			
a) Running Costs (Computer and Word Processing) . . . . .	876,400	1,135,000	915,000
b) Replacement Items . . . . .	65,600	120,000	96,000
c) Instalment, Computer System Loan . . . . .	500,000	300,000	250,000
- refund of VAT . . . . .	0	244,000	0
<b>Total . . . . .</b>	<b>1,442,000</b>	<b>1,311,000</b>	<b>1,261,000</b>

	Approved Budget 1993-1994	Approved Forecast Budget 1994-1995	Budget 1994-1995
	DKK	DKK	DKK
<b>5. Expenses for C.M.1995, Copenhagen</b>			
a) General Expenses . . . . .	125,000	350,000	350,000
b) Travel . . . . .	465,000	110,000	110,000
<b>Total . . . . .</b>	<b>590,000</b>	<b>460,000</b>	<b>460,000</b>
<b>6. Travel, Meetings, etc.</b>			
a) Bureau . . . . .	76,000	76,000	76,000
b) President and General Secretary . . . . .	70,000	80,000	80,000
c) ACFM . . . . .	800,000	830,000	830,000
d) ACME . . . . .	465,000	495,000	495,000
e) Other Secretariat Travel and Meetings . . . . .	135,000	150,000	150,000
f) Symposia . . . . .	30,000	43,000	43,000
g) Programme Planning Group . . . . .	50,000	70,000	70,000
h) Dialogue Meeting . . . . .	0	50,000	50,000
i) Intercalibration Exercises . . . . .	58,000	60,000	68,000
<b>Total . . . . .</b>	<b>1,684,000</b>	<b>1,854,000</b>	<b>1,854,000</b>
<b>7. Publications</b>			
a) ICES Marine Science Symposia . . . . .	550,000	350,000	350,000
b) ICES Annual Report . . . . .	31,000	35,000	35,000
c) ICES Cooperative Research Reports . . . . .	218,000	230,000	238,000
d) Oceanographic Data Lists/Inventories . . . . .	10,000	10,000	10,000
e) ICES Fisheries Statistics . . . . .	58,000	60,000	60,000
f) Leaflets for Plankton and Diseases . . . . .	41,500	41,500	41,500
g) TIMES . . . . .	52,000	52,000	52,000
h) Newsletter . . . . .	32,500	33,000	33,000
<b>Total . . . . .</b>	<b>993,000</b>	<b>811,500</b>	<b>811,500</b>
<b>8. Pensions</b>			
a) Voted Pensions . . . . .	12,000	12,000	12,000
b) ICES Pension Scheme . . . . .	758,000	786,000	468,156
c) Danish State Pension (ATP) . . . . .	40,000	40,000	40,000
<b>Total . . . . .</b>	<b>810,000</b>	<b>838,000</b>	<b>520,156</b>
<b>GRAND TOTAL . . . . .</b>	<b>18,075,150</b>	<b>18,292,100</b>	<b>18,308,100</b>



## **INTERNATIONAL ORGANISATIONS HAVING OBSERVER STATUS AND CO-OPERATIVE RELATIONS WITH ICES**

1. Arctic Monitoring and Assessment Programme (AMAP)
2. Atlantic Salmon Trust
3. Arctic Ocean Science Board (AOSB)
4. Baltic Marine Environment Protection Commission (HELCOM)
5. Comision Tecnica Mixta del Frente Maritimo
6. Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)
7. Commission Internationale pour l'Exploration Scientifique de la Mer Méditerranée (CIESM)
8. Commonwealth Scientific and Industrial Research Organization (CSIRO) (Australia)
9. Danish Institute for Fisheries Economics Research
10. European Commission  
Directorate-General for Fisheries  
Directorate-General for Science, Research and Development  
Directorate-General for Environment, Consumer Protection and Nuclear Safety  
European Environment Agency
11. European Committee on Ocean and Polar Sciences (ECOPS)
12. European Inland Fisheries Advisory Commission (EIFAC)
13. European Aquaculture Society
14. European Association of Fisheries Economists
15. European Association for Marine Science and Technology
16. Fisheries Society of the British Isles
17. Institute for Fisheries Research and Development (INIDEP) (Argentina)
18. International Association for Biological Oceanography (IABO)
19. International Atomic Energy Agency (IAEA)
20. International Baltic Sea Fishery Commission (IBSFC)
21. International Center for Living Aquatic Resource Management (ICLARM)
22. International Commission for the Conservation of Atlantic Tunas (ICCAT)
23. International Council of Scientific Unions (ICSU)
24. International Institute of Fisheries Economics & Trade (IIFET)
25. International Maritime Organization (IMO)
26. International Pacific Halibut Commission (IPHC)

27. International Union for the Conservation of Nature and Natural Resources (IUCN)
28. International Whaling Commission (IWC)
29. London Convention on Dumping
30. Ministry of Agriculture and Fisheries, Fisheries, New Zealand
31. Nordic Council of Ministers
32. North Atlantic Marine Mammal Commission (NAMMCO)
33. North Atlantic Salmon Conservation Organization (NASCO)
34. North-East Atlantic Fisheries Commission (NEAFC)
35. North Pacific Anadromous Fish Commission (NPAFC)
36. North Pacific Marine Science Organization (PICES)
37. Northwest Atlantic Fisheries Organization (NAFO)
38. Organization for Economic Cooperation and Development (OECD)
39. Oslo and Paris Commissions (OSPARCOM)
40. Sea Fisheries Research Institute (South Africa)
41. Scientific Committee on Oceanic Research (SCOR)
42. Statistical Office of the European Communities (EUROSTAT)
43. United Nations Educational, Scientific and Cultural Organization (UNESCO)  
Intergovernmental Oceanographic Commission (IOC)
44. United Nations Environment Programme (UNEP)
45. United Nations Food and Agriculture Organization (FAO)  
Department of Fisheries
46. World Wide Fund for Nature (WWF)

## ACRONYMS APPEARING IN ICES ANNUAL REPORT 1994

ACFM	Advisory Committee on Fishery Management
ACFR	Advisory Committee on Fisheries Research (EC)
ACME	Advisory Committee on the Marine Environment
ACMP	Advisory Committee on Marine Pollution (disbanded)
ADCP	Acoustic Doppler Current Profiler
ADP	Automatic Data Processing
AIR	Agriculture and Fisheries (EC)
AMAP	Arctic Monitoring and Assessment Programme
ANACAT	Anadromous and Catadromous Fish Committee
AOSB	Arctic Ocean Sciences Board
ASCOBANS	Agreement on Small Cetaceans in the Baltic and North Seas
ASFA	Aquatic Science and Fisheries Abstracts
ASMO	Environmental Assessment and Monitoring Committee (OSPARCOM)
AZTI-SIO	Instituto de Investigacion y Tecnologia para la Oceanografia, Pesca y Alimentacion (Spain)
BBC	British Broadcasting Corporation
BE	Biological Effects
BIOMAR	Marine coastal zone management in the North Eastern Atlantic
BMB	Baltic Marine Biologists
BMP	Baltic Monitoring Programme
BOC	Biological Oceanography Committee
BODC	British Oceanographic Data Centre
BTS	Beam Trawl Surveys
BWR	Bootstrap with replacement
CB	Chlorinated Biphenyl
CBO	Conference of Baltic Oceanographers
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CCC	Cod and Climate Change
CD-ROM	Compact Disc: Read-Only-Memory
CFP	Common Fisheries Policy
CIESM	Commission Internationale pour l'Exploration Scientifique de la Mer Méditerranée
COMBINE	Cooperative Monitoring in the Baltic Marine Environment (HELCOM)
CPR	Continuous Plankton Recorder
CPUE	Catch Per Unit Effort
CSIRO	Commonwealth Scientific and Industrial Research Organization (Australia)
CRM	Certified Reference Material
CTD	Conductivity Temperature Depth
CWP	Coordinating Working Party on Atlantic Fishery Statistics
CZMP	Coastal Zone Management Programme
DDT	Dichlorodiphenyltrichloroethane
ΣDDT	Total DDTs
DFO	Department of Fisheries and Oceans, Canada
DG	Directorate-General
DKK	Danish Kroner
DHA	Docosahexaenoic Acid
DNA	Deoxyribonucleic Acid
DOS	Disk Operating System
EC	European Commission
ECOPS	European Committee on Ocean and Polar Sciences
EEA	European Environment Agency
EIFAC	European Inland Fisheries Advisory Commission
EA	Enterprise allocation

EPA	Eicosapentaenoic Acid
EROD	Ethoxyresorufin-O-deethylase
EUROSTAT	Statistical Office of the European Communities
EU	European Union
FAO	Food and Agriculture Organization (UN)
FAST	Fisheries Acoustics Science and Technology (Working Group)
FCC	Fish Capture Committee
FISHBASE	Global biological data base on fish, crustaceans, and molluscs
FTFB	Fishing Technology and Fish Behaviour (Working Group)
FRCC	Canadian Fisheries Resource Conservation Council
GBP	British pound (i.e. £ sterling)
GESAMP	Group of Experts on the Scientific Aspects of Marine Pollution
GETADE	Group of Experts on the Technical Aspects of Data Exchange
GLOBEC	Global Ocean Ecosystem Dynamics Programme (co-sponsored by IOC, SCOR, ICES & PICES)
GMO	Genetically Modified Organism
GODAR	Global Oceanographic Data Archaeology and Rescue (IOC)
GOOS	Global Ocean Observing System
HAB	Harmful Algal Blooms
HABD	Harmful Algal Bloom Dynamics
HCB	Hexachlorobenzene
HCH	Hexachlorocyclohexane
ΣHCH	Total HCHs
HELCOM	Helsinki Commission (Baltic Marine Environment Protection Commission)
HP	Hewlett Packard
HYC	Hydrography Committee
IABO	International Association for Biological Oceanography
IAEA	International Atomic Energy Agency
IBSFC	International Baltic Sea Fishery Commission
IBTS	International Bottom Trawl Survey
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICLARM	International Center for Living Aquatic Resource Management
ICSU	International Council of Scientific Unions
IFAP	ICES Fisheries Assessment Package
IFREMER	Institut Français de Recherche pour l'Exploration de la Mer (France)
I-GLOBEC	International Global Ocean Ecosystem Dynamics Research
IGBP	International Geosphere Biosphere Programme
IIFET	International Institute of Fisheries Economists and Trade
IMO	International Maritime Organization (UN)
INIDEP	Instituto Nacional de Investigacion y Desarrollo Pesquero (Argentina)
IOC	Intergovernmental Oceanographic Commission
IODE	International Oceanographic Data and Information Exchange (IOC)
IPHC	International Pacific Halibut Commission
IPIMAR	Instituto Português de Investigação Marítima (Portugal)
ISER	Institute of Social and Economic Research (Memorial University, Newfoundland, Canada)
ITQ	Individual transferable quota
IUCN	International Union for the Conservation of Nature and Natural Resources
IWC	International Whaling Commission
JAMP	Joint Assessment and Monitoring Programme (OSPARCOM)
JGOFS	Joint Global Ocean Flux Study (IGBP)
JMAP	Joint Monitoring and Assessment Programme
KPMG	KPMB C. Jespersen, State Authorized Public Accountants

LHPR	Longhurst-Hardy Plankton Recorder
LOICZ	Land Ocean Interactions in the Coastal Zone (IGBP)
LOIS	Land Ocean Interaction Study (UK)
LPUE	Landings Per Unit Effort
MAFF	Ministry of Agriculture, Fisheries, and Food (UK)
MAST	Marine Science and Technology (EC)
MBAL	Minimum Biologically Acceptable Level
MCWG	Marine Chemistry Working Group
MEDPOL	Monitoring and Research Programme of the Mediterranean Action Plan
MEQC	Marine Environmental Quality Committee
MMC	Marine Mammals Committee
MOCNESS	Multiple Opening Closing Net Sampling System
MOD	Meeting Organization and Documentation Group of ICES Secretariat
MSVPA	Multispecies Virtual Population Analysis
MULTSPEC	Norwegian Multispecies Model
NAFO	Northwest Atlantic Fisheries Organization
NAMMCO	North Atlantic Marine Mammal Commission
NASCO	North Atlantic Salmon Conservation Organization
NEAFC	North-East Atlantic Fisheries Commission
NGO	Non-Governmental Organization
NMFS	National Marine Fisheries Service (USA)
NOAA	National Oceanic and Atmospheric Administration (USA)
NODS	Norwegiani Oceanographic Data Centre
NPAFC	North Pacific Anadromous Fish Commission
NSA	National Shellfisheries Association
NSF	National Science Foundation (USA)
NSTF	North Sea Task Force (disbanded)
OC	Organochlorine
ODC	Oceanographic Data Centre
OECD	Organization for Economic Cooperation and Development
ONR	Office of Naval Research (USA)
OR	Oregon (USA)
ORSTOM	Office de la Recherche Scientifique et Technique Outre-Mer (France)
OSPARCOM	Oslo and Paris Commissions
PAH	Polyaromatic hydrocarbon
PC	Personal Computer
PCB	Polychlorinated biphenyl
ΣPCB	Total PCBs
PICES	North Pacific Marine Science Organization
PINRO	Polar Research Institute of Marine Fisheries and Oceanography (Russia)
QA	Quality Assurance
QUASIMEME	Quality Assurance Information for Marine Environmental Monitoring in Europe
QSR	Quality Status Report
SAS	Statistica Analysis System
SCANS	Integrated Survey of Small Cetacean Abundance in the North Sea
SCOR	Scientific Committee on Oceanic Research
SCRAP	Scientific Requirements and Policy Groups of ICES Secretariat
SELMITRA	Improved species and size selectivity of mid-water trawls
SG	Study Group
SKAGEX	Skagerrak Experiment (1990)
SMHI	Swedish Meteorological and Hydrological Institute
SOAFD	Scottish Office Agriculture and Fisheries Department
SPM	suspended particulate matter
STATLANT	Statistical Programme for Atlantic Fisheries

STCF	Scientific and Technical Committee for Fisheries (EC)
TAC	Total Allowable Catch
TASC	TransAtlantic Studies of <i>Calanus finmarchicus</i>
TIMES	<i>ICES Techniques in Marine Environmental Sciences</i>
UK	United Kingdom
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNCLOS	United Nations Convention on the Law of the Sea
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific, and Cultural Organization
USA	United States of America
USD	United States Dollar
VAT	Value Added Tax
VPA	Virtual Population Analysis
WAS	World Aquaculture Society
WDC-A	World Data Centre-A
WG	Working Group
WGBEC	Working Group on Biological Effects of Contaminants
WGEAMS	Working Group on Environmental Assessment and Monitoring Strategies
WGEIM	Working Group on the Environmental Interactions of Mariculture
WGHABD	Working Group on Harmful Algal Bloom Dynamics
WGITMO	Working Group on Introductions and Transfers of Marine Organisms
WGPDMO	Working Group on Pathology and Diseases of Marine Organisms
WGSSO	Working Group on Shelf Seas Oceanography
WHO	World Health Organization (UN)
WOCE	World Ocean Circulation Experiment
WV	West Virginia (USA)
WWF	World Wide Fund for Nature

## **PART II**

### **COMPOSITION OF THE COUNCIL IN 1994/1995**



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**WORKING GROUP ON THE ASSESSMENT OF DEMERSAL AND PELAGIC STOCKS IN THE  
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