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80th Statutory Meeting

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PART I

PROCEEDINGS OF 80TH STATUTORY MEETING

ROSTOCK-WARNEMÜNDE, GERMANY, 24 SEPTEMBER - 2 OCTOBER 1992

AGENDA FOR 80TH STATUTORY MEETING

Rostock-Warnemünde, 24 September - 2 October 1992

GENERAL ASSEMBLY

1. Address of Welcome by Dr W. Kittel, Deputy Minister (Fisheries), German Ministry of Food, Agriculture and Forestry
2. President's Address
3. Conveners' Reports on Symposia on "Measurement of Primary Production from the Molecular to the Global Scale" and "Fish Behaviour in Relation to Fishing Operations"
4. Observers' Reports from Meetings of Cooperating Organizations
5. General Secretary's Announcements
6. Open Lecture by Dr K.H. Mann on "Impact of Physical Oceanography in Understanding Marine Ecosystems"

DELEGATES MEETING

1. Preliminary Report on Administration
2. Council Membership
3. Observership of Non-Governmental Organizations
4. Relations with Other International Organizations
5. North Sea Task Force Progress Report
6. Ninth Dialogue Meeting
7. Enhancing the Interdisciplinary Role of ICES
8. Contributions to ICES Budgets
9. Report of Finance Committee
10. Appointment of One Member of Finance Committee
11. Audited Accounts for Financial Year 1990/1991
12. Estimated Accounts for Financial Year 1991/1992
13. Budget for Financial Year 1992/1993
14. Forecast Budget for Financial Year 1993/1994
15. Report of Publications Committee
16. Appointment of One Member of Publications Committee
17. Report and Recommendations of Consultative Committee
18. ACFM Matters
19. ACMP Matters
20. 81st (1993) and 82nd (1994) Statutory Meetings
21. Any Other Business

GENERAL ASSEMBLY

Hotel Neptun, Rostock-Warnemünde
Thursday, 24 September 1992

The President, Mr David de G. Griffith, opened the General Assembly of the 80th Statutory Meeting at 09.00 hrs:

"Herr Staatssekretär, sehr geehrte Damen und Herren. Ich heisse Sie herzlich, zu der achtzigsten Jahrestagung des Internationalen Rates für Meeresforschung willkommen."

Im Namen der Teilnehmer, möchte ich der Deutschen Regierung und den Menschen von Rostock, recht herzlich danken für die Einladung, diesen wunderschönen Ort Warnemünde an den Ufern der Ostsee zu besuchen.

Mr Deputy Minister, Ladies and Gentlemen.

Firstly, let me welcome you to the 80th Statutory Meeting of the International Council for the Exploration of the Sea. Secondly, on behalf of ICES and our guests, I would like to thank the Government of Germany and the people of Rostock for the opportunity to come to this beautiful location of Warnemünde on the shores of the Baltic Sea. Many of us, even those from far-away places, are familiar with the distinctive features of the Baltic itself through ICES meetings in Copenhagen and elsewhere, but it is something special to be here, to meet old colleagues and make new friends, and to experience at first hand the culture and history of this part of the Baltic region.

It is my honour, Mr Deputy Minister, to invite you to address the ICES General Assembly."

State Secretary Walter Kittel, Deputy Minister, German Federal Ministry of Food, Agriculture and Forestry, gave the following address:

"Ladies and Gentlemen.

It is a pleasure for me to be with you in Rostock-Warnemünde today to welcome you on the occasion of the 80th Statutory Meeting of the International Council for the Exploration of the Sea (ICES). For both national and international fisheries policies, the work of ICES is of major importance.

The invitation to come to Rostock was extended to ICES by the former German Democratic Republic; after the unification of the two German states, it was a matter of course for the Federal Republic of Germany to abide by that invitation.

Rostock has a long tradition of marine and fisheries research. This tradition today is continued by the university, the Institute for Baltic Research, and the Institute of Baltic Sea Fisheries as a part of the Federal Research Centre for Fisheries of the Federal Ministry of Agriculture.

The riots this city experienced recently have shocked and outraged us. It is not enough to make the offenders account for their actions. Fortunately, these events are no indication of Germany's leaving the path of democracy and compliance with human rights. The many messages of dismay and sympathy are an impressive testimony to that.

ICES is an institution of world-wide reputation. This year ICES can celebrate its 90th anniversary. May I offer my sincerest congratulations!

The fact that the Statutory Meeting ICES is starting today is only its 80th is due to the two fatal World Wars which prevented marine scientists from coming together. But in the period of the Cold War after World War II, it was possible for scientists from the East and the West to resume and maintain close cooperation in ICES and to thus contribute to bridging the gulf between these blocs, at least in their fields of work.

Germany was among the founding members of ICES and has actively participated in its work from the very start. The Deutsche Wissenschaftliche Kommission für Meeresforschung (German Scientific Commission for Marine Research) also has its 90th anniversary today. It is the German liaison institution for ICES.

ICES activities are of paramount importance for the scientific communities, but even more so for fishermen, politicians, and the administration. Without ICES recommendations, there would be no reasonable management of fishery resources. As the state secretary responsible for the Federal Government's fishery policy, I fully appreciate the work done by ICES. It contributes to conserving fish stocks which are the natural basis for any fishing activity. Between scientists and fishermen there is both trust and tension. While scientists urge caution, fishermen want higher catches. The Dialogue Meetings are a useful forum for improving mutual understanding. Germany is very much interested in the conservation and sustainable use of fishery resources. This is why Germany has always fully supported ICES recommendations as a basis for political decisions on the establishment of TACs and quotas and has opposed

any harvesting levels which could endanger the conservation and recovery of stocks.

The reputation of ICES is due to the fact that scientists can do their work and submit their expert opinion in complete independence from political or administrative instruction. This independence must be maintained as it is only in this way that results can be expected which meet the realities of life and do not spring from short-term wishful thinking. ICES recommendations must be adopted by governments even if they are "hard to swallow" in some cases.

I think that, in the long term, the only way to conserve the living resources of the marine environment is to substantially improve our knowledge about marine ecosystems. In doing so, it is not enough to study the development and the behaviour of individual fish species in an isolated way, but we must do research into the interdependence of different marine organisms as well as the interrelation between them and their environment in a global strategy.

I have noted with satisfaction that ICES has already embarked upon this course so that it does not only study the situation of stocks, but, to an increasing degree, also does research on marine ecology, including the causes and effects of marine pollution. I consider this to be indispensable and should like to encourage ICES to continue along these lines. After all, fishing activities are particularly dependent on clean waters.

On the other hand, it is important that fishermen themselves do not place any burden on the environment. What I have in mind in this context is, above all, fishing for industrial purposes, which can constitute a considerable threat to the ecosystem. I am extremely grateful to ICES for having dealt with this subject too through studies like the one on the ecological impact of sprat fishing. Furthermore, I think that ICES is required to take up the accusation that has been time and again raised in public discussion: that sandeel catches would deprive other fish species, but also sea birds, of their feed.

May I conclude with expressing my hope that ICES can be expected to give recommendations on future developments on the basis of which our fisheries policy decisions can be made.

I wish the 1992 Statutory Meeting good luck and every success.

May I, on behalf of Federal Minister Kiechle, present you with a plate to hang on the wall of the ICES office in Copenhagen to remind you of the days you spent in Germany."

The President thanked Mr Kittel for the plate and for his kind words. He then continued:

"It is my pleasure to introduce to you a former - and very distinguished - President of ICES: Prof. Gotthilf Hempel. Prof. Hempel will be known to most of you as, firstly, the former Director of the Institut für Meereskunde at the University of Kiel, later the founder and Director of the Alfred Wegener Institute for Polar Research, and now Director of the Centre for Tropical Marine Ecology in Bremen, and founding Director of the Institut für Ostseeforschung here in Warnemünde."

Prof. Hempel spoke as follows:

"If anyone would have told me four years ago I would address the 1992 ICES Meeting in Warnemünde as one of the local hosts, I would have considered him a lunatic. Meanwhile, ICES lost one member, by two merging into one, and will gain new members soon. Europe has changed more dramatically than ever in the 90 years of ICES history.

In a few words, I will tell you about the changes which have taken place in the marine scenario of Rostock and Warnemünde. Since the late 1950s, two institutes were engaged in marine studies; the Institute for High Sea Fisheries was responsible for advising and assisting the fishing fleet and the fish processing industry. It was advising the GDR Government in national and international affairs concerning fish and fisheries. Dr Rechlin and others were official links to ICES.

The Institute for Marine Research in Warnemünde belonged to the GDR Academy of Sciences. It was the main marine science institution of the GDR. Its prime emphasis was on physical oceanography and on pollution monitoring under the Helsinki Convention. Dr Brosin and Dr Nehring were the Institute's most frequent representatives for ICES.

When GDR acceded to West Germany, it was obvious that the structure of science and research had to be changed. With the cessation of most of its distant water fisheries and with the rationalization of the administrative and logistic infrastructure, the staff of the Fisheries Institute had to be reduced. There was also less need for outside advice to the processing industry. The Ministry of Agriculture transferred a fairly large number of scientists and technicians into an Institute of Baltic Sea Fisheries. Its focus will be on the dynamics of the fish stocks in the Baltic and on the factors controlling their recruitment.

The Institute of Marine Research, as all other GDR Academy institutions, was evaluated by a group of western and eastern German scientists. They recommended to create a new Institute of Baltic Sea Research

in Warnemünde with about 130 scientific and technical staff. The Science Council recommended to lay the main emphasis on studies of the Baltic ecosystem. Areas of particular interest are the fronts between the coastal waters and the open sea and the present and past fluxes from land and from the euphotic zone to the sea bed. The combined effects of eutrophication and of overfishing will be studied, as we see pollution, fishing, and input of nutrients interacting with the natural fluctuations in the various compartments of the Baltic Sea system. A three-dimensional model of circulation in the Baltic Sea is to be developed. The former departments on engineering and on physical oceanography were reduced, while biological oceanography, marine chemistry, and marine geology were strengthened. The Institute became attached to, but not incorporated into, the Rostock University which keeps part of its marine biology.

When visiting the new institutes, you will meet old friends from the two former institutes, but you will also see faces which are new to you - some of them belong to those people who were not allowed to travel abroad under the GDR regime and others - particularly in the Warnemünde institute, there are recent acquisitions from other places in eastern and western Germany. My own role is only an interim one until the definite Director has been appointed for the Institute of Baltic Sea Research.

The conversions had to be done almost overnight. You should not expect too much in terms of perfect administration and logistics from a nine-month-old institute.

Rostock, with Warnemünde, will, in the future, be the most important place in Germany for Baltic Sea research - applied and basic - but by no means the only one. The various institutes in Kiel, at the University of Greifswald, with its newly established Ecology Institute on the island of Hiddensee, and other German institutes will operate and hopefully cooperate in the Baltic Sea and its western entrance.

In August, our 'Alexander von Humboldt' visited most of the main marine and fisheries institutes in Gdynia, Sopot, Kaliningrad, Klaipeda, Riga, Tallinn, and St. Petersburg. We saw them in different stages of transition from the old to new structures. Many scientists showed their eager wish for cooperation, but we had to realize that most projects can only be carried out if we develop a strong solidarity. With the help of the EC, we plan a number of workshops to identify fields where such projects would be very profitable.

For half a century, scientific cooperation in the Baltic was hampered by political constraints. Scientists working in Rostock gratefully remember the efforts of their colleagues in Scandinavia and elsewhere to make the Iron Curtain somewhat permeable. The positive role of

ICES, SCOR, and the Conferences of Baltic Marine Biologists and Baltic Oceanographers will not be forgotten. I sincerely hope that a new phase of cooperation in a free North European Mediterranean Sea will start and that the institutes in Rostock will play a prominent role in it."

The **President** continued:

"It is now my sad duty to inform you of the deaths of five of our colleagues during the past year.

Prof. Dr Andres von Brandt (Germany) died on 8 September 1991 at age 83. He was the former Director of the Institute of Fisheries Technology of the Federal Research Board in Hamburg, and from 1950-1956 was a member of the Fish Capture Committee. For many years, Prof. von Brandt attended various Working Group meetings and Statutory Meetings as a German expert, and also contributed many scientific papers. He will be remembered also for his FAO monographs on Fishing Gear of the World.

Prof. Börje Kullenberg (Sweden) died on 2 December 1991. He began attending ICES meetings in 1939 and was a Swedish Delegate from 1949-1974. During much of this period, he was a member of the Hydrography Committee and the Sub-Committee on Coordination of Hydrographic Investigations in the Baltic, which he chaired from 1962-1964. He worked with the Swedish Hydrographical Biological Commission from 1930-1948 and from 1949 until his retirement in 1972, he worked at the Oceanographic Institute of the University of Göteborg, serving as Director from 1957 onwards. He was both a skilled educator as well as an eminent physical oceanographer. He is particularly famous for having developed the piston core sampler. Among his survivors is his son, Prof. Gunnar Kullenberg, formerly very active in ICES and now Secretary of IOC.

K.P. Andersen (Denmark) died on 13 April 1992, aged 66. Trained as a mathematician, he began work at the Danish Institute for Fisheries and Marine Research in Charlottenlund in May 1952. Had he lived a few weeks longer, Jydefar, as he was affectionately known, would have celebrated his 40th anniversary there. He participated as an instructor in the assessment courses taught at Lowestoft in the 1960s by Ray Beverton and Sidney Holt. Jydefar participated in the Bløden herring tagging programme (1957-1958) and the first young fish surveys in establishing statistical analyses of results. The principal emphasis in all his work was statistical treatment of data. He will probably be remembered most for his work with Erik Ursin in the 1970s in developing the comprehensive ecosystem model of the North Sea.

Dr David Scott (Canada) died in the spring of 1992 after a long struggle with cancer. He had been a key

member of the former Working Group on Marine Pollution Baseline and Monitoring Studies in the North Atlantic which was responsible for the early developmental work on the key ICES monitoring programme on temporal trends in contaminants in fish and shellfish. David had been a major contributor to this work.

Peter Wood (United Kingdom) died in August at the age of 65. His early work at the Fisheries Laboratory in Burnham-on-Crouch led to the development of the ultra-violet light method of purifying shellfish, and he was closely involved with the study of the microbiological and algal toxin aspects of mollusc pollution from 1955 onwards. Peter was always a staunch supporter of ICES and was active in providing scientific support to industry and management. He retired in 1987 having contributed much valuable work to the Second Ministerial Conference on the Protection of the North Sea. To a great extent, his work lives on through the activities of the North Sea Task Force, which was a product of that meeting.

I extend to the families of these, our former colleagues, our sympathy and support. Will you please join me in standing for a few moments in their memory.

This year, 1992, is the 90th anniversary of ICES. Since our formulation in 1902, the organization has seen many political and scientific changes and developments in the North Atlantic area - some beneficial and progressive, others traumatic and turbulent. ICES has always managed to respond positively and constructively to historical developments, and to survive the turbulent and destructive upheavals which we have seen in Europe over nine decades.

This decade of the 1990s promises to be a decade of great change. Let us hope that the changes will be peaceful ones for ICES and for the men and women in marine science who constitute ICES. For our part, we have already started to make long-term plans for the future. We have established a Bureau Working Group to examine possible developments over the next 10-20 years and to draft a policy to take ICES into the next century. The Group will report to the mid-term meeting of the Bureau in 1993, and I hope that we will be able to circulate a preliminary working paper to Delegates at next year's Statutory Meeting in Dublin.

In a changing world, it is vital that ICES be in a position to meet the challenge of those changes and to evolve successfully as it has in the past. Already the positive consequences of recent changes are in evidence. The best example is the application of Latvia to accede to the ICES Convention - in effect, to re-apply for the membership status which she had in the period between the two World Wars. We anticipate that the ratification of Latvia's application will be complete by the spring of

1993; seven countries have ratified so far, thirteen are required to do so before Latvia can again become a full member. In the meantime, we welcome our Latvian colleagues to this meeting as observers.

Returning to the theme of the challenge of change, one of our more immediate tasks is to address the subject of increasing the interdisciplinary role of ICES. This vital topic will be discussed in several papers which will be tabled at the Delegates meeting and at other sessions.

I referred earlier to the individual scientists who constitute the organization known as ICES. Perhaps one of the unique features of ICES is the fact that its structure incorporates the operational field scientists, the technologists and analysts, as well as the management level of applied marine science. We achieve our goals and maintain our status as the premier international marine research organization with a minimum of procedural bureaucracy; our completion of 90 years is testimony to that. But I would like to reinforce the primary role of the younger scientists here who conduct active sea-going research with all the rewards, and hardship, which that brings. In closing, I want to acknowledge their vital and continuing contribution by reading, as a salute, a most evocative passage written by one of the great marine scientists of an earlier age - Alister Hardy - writing in the late 1950s:

'It is a life full of interest and sometimes excitement - but in rough weather it is not always an easy one. Apparatus, especially when of metal, becomes very difficult to handle with cold wet fingers in the biting wind of a winter's night, as the ship rolls and pitches in the darkness. What an aggravation an accident can be; the sudden lurch of the ship as the samples are being carried along the deck may cause one to be lost and then the whole process must be gone through again, for a gap in the lay-out of the observations may spoil the value of the whole set. How bitter, too, may be the disappointment of having to give up work before the end of a cruise, because a storm makes it impossible to carry on; perhaps the vital bit of a story in tracing the movement of young fish from the spawning ground is lost until another opportunity will occur next year. Those scientists who always work in the shelter of a University or Institute laboratory should remember the difficulties of research at sea, when they may be inclined to be critical of some contributions from the marine ecologist. Why didn't he do this or that? -- what an opportunity he surely missed there? The answer often is, that what seems such an obvious thing to have done was simply impossible at the time under the conditions prevailing. There are times, too, when the motion of the ship, although not producing actual sickness, may curiously curtail the initiative and vision of those who seem most brilliant ashore; an insidious mental lethargy appears to creep over some

and stifle the fires of enthusiasm which burnt so brightly when the seas were calm. "

The **President** introduced Prof. Warren Wooster, Professor of Marine Affairs and Fisheries at the University of Washington, former President of ICES, former President of SCOR, former Secretary of IOC, and the first Chairman of PICES - Pacific ICES - the North Pacific Marine Science Organization, and invited him to speak briefly about PICES. Prof. Wooster presented the following remarks:

"On this 90th anniversary of ICES, I want to extend my congratulations and make a few remarks about an ICES descendent, PICES.

The Convention of the North Pacific Marine Science Organization (PICES) came into force on 24 March 1992. Canada, China, Japan, and the United States are contracting parties. USSR (now Russia) was party to the negotiations and is expected to accede. The Convention is now open to other parties.

The Organization is concerned with marine scientific research in the North Pacific and adjacent seas, especially north of 30°N. Its purposes are:

- '(a) to promote and coordinate marine scientific research in order to advance scientific knowledge of the area concerned and of its living resources, including but not necessarily limited to research with respect to the ocean environment and its interactions with land and atmosphere, its role in and response to global weather and climate change, its flora, fauna, and ecosystems, its uses and resources, and impacts upon it from human activities, and*
- (b) to promote the collection and exchange of information and data related to marine scientific research in the area concerned.'*

These purposes are, as you can see, similar to those of ICES, but are explicitly broader, to emphasize the interdisciplinary nature of the scientific questions and to encourage participation of the variety of scientists and marine science agencies needed for their solution.

A Secretariat is being established at the Institute of Ocean Sciences, Sidney, BC. Prof. Warren S. Wooster (USA) was elected PICES Chairman at an organizational meeting in March 1992. Activities of the Organization in the next few years will be the focus of discussion during its First Annual Meeting in Victoria, British Columbia from 12-17 October 1992. The scientific program will be developed under the guidance of a Science Board and provisional scientific committees on Fishery Science, Biological Oceanography, Physical Oceanogra-

phy and Climate, and Marine Environmental Quality. If this sounds like a streamlined ICES to you, it is not by chance.

PICES has no authority to regulate activities of its members. On the other hand, its scientific competence relates to marine living resources, environmental quality, the effects of climate change, and other matters of concern to management bodies. Thus PICES may be able to mobilize and assess scientific information needed by such bodies. PICES is expected also to develop regional components of agreed global research programs, such as WOCE, JGOFS, and GLOBEC, as well as regional research programs of mutual interest. "

The **President** called on Dr Katherine Richardson to report on the Symposium on "Measurement of Primary Production from the Molecular to the Global Scale". Dr **Richardson** reported as follows:

*"This ICES-organized Symposium was held from 21-24 April 1992 at La Rochelle (France) and was convened by T. Platt (Canada). The local organizer was S. Maestrini (France) and a Steering Committee comprised of W. Li (Canada), P.J. Le.B. Williams (UK), E. Sakshaug (Norway), and K. Richardson (Denmark) assisted in the planning and execution of the meeting. The Symposium was highly successful and attended by more than 160 scientists from 32 different countries. All ICES Member Countries with the exception of Portugal were represented. A summary of the scientific contributions made at the meeting can be found in the Report of the Working Group on Phytoplankton and the Management of their Effects (Doc. C.M.1992/Poll.4) and the presented papers will, after peer review, be published in a volume of the **ICES Marine Science Symposia** series. Direct financial support for the meeting was received from IOC, IFREMER, and the Bedford Institute of Oceanography (Canada)."*

The **President** called on Prof. Kjell Olsen to report on the Symposium on "Fish Behaviour in Relation to Fishing Operations". Prof. Olsen reported as follows:

"No major international conference covering this multidisciplinary field had been arranged since the FAO/ICES-sponsored Conference on Fish Behaviour in Relation to Fishing Techniques and Tactics, held in Bergen in 1967. The present three-day Symposium, held 11-13 June 1992, also in Bergen, reviewed recent research findings in fish behaviour and their significance for fisheries management and commercial exploitation; instrumentation and methods of observation; as well as new advances in fish capture technology and other relevant developments.

In six consecutive sessions, 58 review and experience papers were presented with the main themes:

- 1) *Fish behaviour relevant to fish capture processes,*
- 2) *Techniques of observations,*
- 3) *Application of fish behaviour knowledge for development of more selective fishing gears and for improving assessments and fisheries management.*

About half the contributions were mainly relevant to Theme 1, addressing perceptual abilities, behaviour patterns, physical capabilities including vulnerability to encounters with fishing gear, and attempts to synthesize and predict behaviour by mathematical modelling.

Contributions specifically aimed at Theme 2 (Techniques of observation) were few, but many papers contained valuable new information and documented the great developments which have taken place in recent years with regard to improving methods and instrumentation for observing and monitoring fish behaviour and fishing gear performance. This progress has greatly enhanced the potential for obtaining the detailed knowledge of fish behaviour and reaction needed for developing fishing technology which can meet the future requirements of responsible fishing with regard to selectivity, by-catch reduction, and survival of non-target organisms.

One third of the contributions were directly relevant to Theme 3 (Application of fish behaviour knowledge for developing better fishing gear and methods and for improving assessments and fisheries management). These demonstrated that while such knowledge to some extent is being applied, the scope for utilizing fish behaviour knowledge and insight, both in development of fishing technology and in fisheries management, is much greater than presently realized. Thus, while until now management problems regarding by-catch of undersized fish and/or unwanted organisms are most often attempted to be solved by prohibition of certain methods of fishing, closed areas, etc. The same objectives might well be achieved by relevant basic fish behaviour studies and subsequent gear developments.

The proceedings of the Symposium are being published as a volume of the ICES Marine Science Symposia series with Dr Clem Wardle of the Marine Laboratory, Aberdeen as Scientific Editor. The editorial work has been greatly enhanced through liberal financial contributions from the Scottish Office, Agriculture and Fisheries Department, and the Fisheries Research Council of Norway. The proceedings will, therefore, be ready for printing by the end of this year."

The President drew brief attention to Doc. C.M.1992/Gen:2 which contained reports of Council participation at meetings of cooperating and/or other international

organizations. He then called on the **General Secretary** who reviewed the arrangements for the Statutory Meeting and made a number of announcements.

The **President** then introduced the Open Lecture on "Impact of Physical Oceanography in Understanding Marine Ecosystems" by Dr Ken H. Mann:

"Kenneth Mann was born in England in 1923 and received a BSc from the University of London, a PhD from the University of Reading, and later a DSc from the University of London. He taught from 1949-1967 in the Zoology Department of the University of Reading. During that period, he studied the productivity of the fish and invertebrates of a freshwater section of the River Thames.

In 1967, he accepted the position of Senior Biologist at the Bedford Institute of Oceanography, Dartmouth, NS, Canada, and made a study of the relationship between kelp, sea urchins, and lobsters in the near-shore marine environment.

In 1972, he was appointed Professor and Chairman of Biology at Dalhousie University, Halifax, NS. In 1980, he returned to the Bedford Institute of Oceanography as Director of the Marine Ecology Laboratory. Dr Mann is now semi-retired, with a part-time appointment as Senior Scientist. He has published almost 200 journal papers and several books and is a fellow of the Royal Society of Canada."

Dr Mann presented a very interesting, comprehensive, and educational lecture, an abstract of which is as follows:

"Physical oceanographic processes affect marine ecosystems at all scales from microscopic to global. In this brief review, examples are taken from several scales and are used to suggest mechanisms for the influence of physical oceanography on fish production. It is concluded that much of the year-to-year variation in fish stocks is driven by physical processes in the ocean and atmosphere and that a better understanding of these interactions would enable managers to anticipate trends in fisheries yields.

Viscosity limits the diffusion of nutrients into phytoplankton cells, but movement of the cells relative to the water offsets some of this limitation. Diatoms, which are more dense than water, achieve movement by sinking. They, therefore, require strong vertical turbulence to maintain their position in the water column, and are characteristic of upwelling conditions. Flagellates achieve movement by swimming. They are, therefore, less dependent on turbulence and are characteristic of calm, stratified water.

There are two fairly distinct food chains in the plankton, one based on diatoms and the other based on flagellates. Diatoms are consumed by mesozooplankton or by benthos (if they sink), and these organisms form the food of most commercially important fish stocks. Flagellates are consumed by microzooplankton and enter a complex food web that is inefficient in supporting fish production.

There is a pattern of events in the water column that favours diatom production and hence fish production. It consists of a period of upwelling followed by a period of stratification. It was first described in connection with the spring bloom in temperate waters, but it is also found, for example, in estuaries, coastal upwelling systems, and tidal fronts.

The most important force causing upwelling is wind. Variations in wind strength from year to year provide plausible explanations for variations in fish productivity. Stratification is the result of either solar heating or freshwater input. Many changes in fish stocks can be seen to result from changing river runoff or influx of a layer of warm water.

In recent years, evidence has been accumulating for synchronous changes in widely separated stocks. Sardines in the California and Peruvian upwelling systems have varied synchronously with the Far Eastern stocks. Three species of salmon in the North Pacific have varied synchronously over the last 60-70 years. Periods of El Niño, when Peruvian sardine catches were low, corresponded to periods of good catches of jack mackerel off Tasmania. In many cases, the mechanisms of such correlations are poorly understood. Yet, it seems almost certain that global patterns of atmosphere-ocean interaction are in some way responsible.

Stocks have varied synchronously in spite of widely different management patterns, and it looks as if physical factors, operating through marine food webs, are often the dominant forces for change in the fish stocks."

The **President** thanked Dr Mann for his excellent lecture and adjourned the General Assembly at 11.00 hrs.

DOCUMENTS

Gen:1	Observers' reports from cooperating organizations
Gen:2	ICES activities in 1991/1992
Gen:3	Election of standing scientific Committee Chairmen at the 80 th Statutory Meeting
Gen:4	Advance release of Tables 1-6 of <i>ICES Fisheries Statistics</i> , Vol. 76, 1991
Gen:5	ICES Committees and their subsidiary Groups

CLOSING OF THE SCIENTIFIC SESSIONS

Hotel Neptun, Rostock-Warnemünde
Tuesday, 29 September 1992

The **President** opened the Closing of the Scientific Sessions at 12.35 hrs and commented briefly on several important matters. He first drew attention to a major change in the **structure of the environmental side** of the Council. Delegates had approved a change in the structure and role of ACMP which was summarized in Doc. C.M.1992/Del:16. Effective 1 November 1992, ACMP would become the Advisory Committee on the Marine Environment (ACME), its principal membership would be changed from co-opted experts to nationally nominated representatives, with the Chairmen of five Subject/Area Committees remaining as *ex officio* members. In addition, individual experts would be invited to participate on ACME as the need might arise. Delegates had been requested to nominate their national members by 1 November, and the President would appoint an interim Chairman from among the nominated members and at its first meeting in June 1993, ACME would elect a new Chairman to assume office on 1 November 1993 following Council approval.

He next mentioned the Council's **interdisciplinary role** in marine scientific research and referred to three important papers that had been presented at the Joint ACFM/ACMP Theme Session (T) on "Interdisciplinary Advances" (Docs. C.M.1992/G:75, G:11, and J:11). He strongly recommended that these papers, which he viewed as mapping the way forward in this area, be given further careful study. He urged everyone to participate fully in the necessary forthcoming and open debates on these needed changes in the approach towards conducting marine research.

He expressed thanks to **Dr Graham Topping** for having served as Chairman of ACMP for the past two years and who would be stepping down from that office as of 1 November because of the restructuring of the Committee. He noted that Dr Topping had been placed in a difficult and awkward position during the past year during the intense discussions and debates which had led up to the decision to restructure ACMP, but had faced the situation very professionally. He commended Dr Topping not only for his work and efforts as Chairman, but also for his active participation in and valuable and constructive contributions to the full and open debate process which could not have gone forward successfully and objectively without his assistance and cooperation.

The audience expressed its appreciation to Dr Topping with rousing applause.

The **President** then paid tribute to **Dr Richard J.R. Grainger**, the Secretariat's Fishery Secretary, who would be leaving on 30 November to assume a high-level post with FAO in Rome. He noted, from personal experience, that Dr Grainger's departure 3½ years earlier from the Irish Fisheries Research Centre had been a heavy loss, and that his imminent departure would also have a big impact on the Secretariat where his numerous abilities, friendly personality, and extremely industrious nature had played a very important part in the progress achieved by ICES during his tenure. He warmly wished Dr Grainger all the best in his new position.

Lastly, he indicated that the Council had been very fortunate in appointing **Dr Roger S. Bailey** as Dr Grainger's successor. Dr Bailey had been heavily involved in ICES fisheries matters, including ACFM and the assessment Working Groups, for many years and would bring considerable knowledge and experience to the position.

The **President** called on the Chairman of the Consultative Committee to announce the winners of three prizes to be awarded.

The **Chairman of the Consultative Committee** announced the following prize winners:

- a) **Best Paper Presentation Award** to **Dr Peter J.H. Reijnders** (Netherlands) for Doc. N:7 "Recolonization of the Dutch Wadden Sea by the grey seal, *Halichoerus grypus*";
- b) **Best Poster Presentation Award** to Mr Lorenzo Motos (Spain) and Mr Andrés Uriarte (Spain) for Doc. H:23 "Biomass assessment of the Bay of Biscay anchovy, *Engraulis encrasicolus* L., using the DEPM in 1991";
- c) **Young Scientist Award** to Dr Axel Temming (Germany).

The **General Secretary** made a number of closing announcements. He reported the results of the elections for Chairmen of the following Committees: **Mr Ronald Fonteyne** (Belgium), Fish Capture; **Mr Stig Carlberg** (Sweden), Marine Environmental Quality; **Mr Eero Aro** (Finland), Demersal Fish; **Mr Bengt Sjöstrand** (Sweden), Baltic Fish; and **Dr Mike Reeve** (USA), Biological Oceanography. He extended the Council's thanks and appreciation to the outgoing Chairmen. He announced that the Secretariat's three Professional Officers had been given new titles by the Bureau: Fish-

ery Secretary (formerly Statistician), Oceanography Secretary (formerly Hydrographer), and Environment Secretary (formerly Environment Officer). He expressed his personal thanks and appreciation, and that of the rest of the Secretariat, to Dr Grainger, the outgoing Fishery Secretary. He noted that the Delegates had approved an application for observer status by the World Wide Fund for Nature, but had not accepted an application from Greenpeace International. On behalf of the Secretariat, he thanked everyone whose efforts had led to a very successful meeting, particularly those who had assisted the Secretariat staff with the handling of documents. He expressed warm appreciation to Prof. Post, Prof. Mein

cke, Dr Rechlin, Dr Fennell, Mr Vaske, and all others from Germany who had assisted in arranging for the very excellent meeting facilities. He wished everyone a safe journey home and a productive year and hoped to see everyone at the 1993 Statutory Meeting in Dublin.

The **President** also thanked the German hosts for the excellent facilities and arrangements for the meeting and for their warm and generous hospitality, all of which had made the 1992 Statutory Meeting very memorable and successful. He also looked forward to welcoming everyone to the 1993 Meeting in Dublin. He adjourned the meeting at 13.00 hrs.

REPORT OF DELEGATES MEETING

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

Thursday 24 September	11.30 - 13.05 hrs
Monday 28 September	14.30 - 18.30 hrs
Thursday 1 October	14.30 - 19.10 hrs
Friday 2 October	09.15 - 09.25 hrs

All Member Countries were represented at all sessions, together with the Chairman of the Consultative Committee, General Secretary, Environment Secretary, and an observer (Mr Maris Vitinsh) from Latvia. Other participants were the Fishery Secretary and Oceanography Secretary at the third and fourth sessions.

The **President** opened the first session by welcoming all participants, particularly the new Delegates whom he introduced individually. He then briefly reviewed the Agenda and indicated the order in which he intended to consider the various items.

The **President** reminded Delegates of his announcement during his address at the General Assembly that Latvia had applied for re-admission to the Council and that the necessary ratification process for Latvia's application was in progress. He proposed that Mr Vitinsh, the Delegate-designate from Latvia attending the Statutory Meeting in an observer capacity, be allowed to attend the Delegates meeting as an observer. This proposal was supported warmly by the Delegates of Sweden and Poland and endorsed unanimously.

Mr Vitinsh was asked to join the Delegates meeting where he was welcomed by the **President** who voiced the Council's happiness that Latvia had re-applied for membership and hoped that the ratification process would be completed as soon as possible. The **Observer from Latvia** made the following statement:

"Thank you Mr President. I would like only to thank you, and I want to say that, although Latvia's membership in ICES was interrupted for a long period, participation by our scientists in investigations of ICES in the Baltic Sea were not interrupted. Our scientists were actively taking part in all research occurring in the Baltic Sea. We hope that in the future Latvia will restore its membership in ICES and it will fulfil all obligations in this organization."

Agenda Item 1 PRELIMINARY REPORT ON ADMINISTRATION

The **General Secretary** briefly reviewed Doc. C.M. 1992/Del:2 and drew particular attention to the follow-

ing items: a) Member Countries which had not paid their national contributions for Financial Year 1992/1993 or for 1991/1992; b) changes in national Delegates and ACFM membership; c) cooperation with other international organizations; d) meetings held during the year; e) the 90th anniversary celebration which had been held at ICES Headquarters on 21 August; f) cooperation between ICES, the Danish Institute for Fisheries and Marine Research, and Denmark's International Study Program (DiS), initiated by Mr Edgar Thomasson, the Secretariat's Librarian/Information Officer, which had led to the establishment of a Marine Environment Studies curriculum at DiS for English-speaking students from the USA, Canada, and Australia which would begin in the autumn of 1993 and would involve the use of the Secretariat's library, Council publications, and field trips to Member Country research institutions in the Baltic and North Sea areas; g) secretariat matters; and h) publication activities.

The **President** thanked the General Secretary for a very complete and informative report, and congratulated the Secretariat for having completed another year of hard work.

Agenda Item 2 COUNCIL MEMBERSHIP

The **General Secretary** reported that the only change in official membership of the Council in the past year had been that the Russian Federation had, in a diplomatic note to the Danish Ministry of Foreign Affairs dated 15 January 1992 (which was circulated to ICES Member Country Governments), announced that it would continue the membership of the former USSR and preserve all the rights and fulfil all the commitments of the USSR in ICES, including the financial obligations.

He also noted, as the President had announced, that Latvia had submitted an application on 29 May 1992 for Council membership, and that the application had been circulated by the Danish Ministry of Foreign Affairs to Member Country Governments for ratification. By mid-September, only seven of the Council's 17 Member Countries had responded (all affirmatively), but three-fourths of the Countries would have to ratify the application before Latvia would be able to deposit the necessary instrument of accession to the Danish Government.

The **General Secretary** explained that he had had discussions during the past year with various representatives from Estonia, Latvia, and Lithuania regarding Council membership. A membership application was expected soon from Estonia, but perhaps at a later time from Lithuania.

The **President** informed the Delegates that the Bureau, at its meeting on Wednesday 23 September, had authorized the General Secretary to visit Estonia, Latvia, and Lithuania in the winter/spring of 1993 to explain the work of ICES, discuss financial arrangements and other aspects of Council membership, and facilitate the entry of these countries into the Council's work programme.

The **Delegate of Spain** reported that his country would be ratifying Latvia's application before the end of 1992.

Agenda Item 3 OBSERVERSHIP OF NON-GOVERNMENTAL ORGANIZATIONS

The **President** reminded Delegates that applications for observer status had been submitted by the World Wide Fund for Nature (WWF) (Doc. C.M.1992/Del:8) and Greenpeace International (Doc. C.M.1992/Del:9). He drew attention to the *Guidelines and Criteria Governing the Observership of Non-Governmental International Organizations at Meetings of the International Council for the Exploration of the Sea* which had been formulated by the Bureau and agreed by the Council at the 1991 Statutory Meeting, and pointed out that the criteria in Section 2 of the *Guidelines* had been the basis on which the Bureau had conducted a preliminary examination of the two applications at its June mid-term meeting. Observer status for these two organizations would be decided by a vote by Delegates, and a two-thirds majority in favour would be needed to approve each application. If granted, observer status would take effect at the 1993 Statutory Meeting.

The **President** pointed out that the Bureau, when it reviewed the WWF application, had been satisfied that all four criteria for granting observer status were met. There being no discussion on the application, the **Delegate of Canada** made a motion that observer status be granted to WWF. The motion was seconded by the **Delegate of Poland**. On the basis of a roll call vote in which 16 were in favour and one against, the motion was carried and WWF was granted observer status.

The **President** reported that, after evaluating the Greenpeace application, the Bureau concluded that criteria c) and d) had been met, but that neither criteria a) ("*the organization either has an official agreement on cooperation, has established working relations with the Council, or has as a significant activity the conduct, funding, or management of marine research*") nor b) ("*the organization supports the work of the Council and promotes the dissemination of the Council's objectives, research results, and scientific advice*") had been satisfactorily met. In answer to a question by the **Delegate of Iceland** as to whether the Bureau was recommending that the Greenpeace application be rejected, the **Presi-**

dent replied that if the decision were in the hands of the Bureau, the application would be rejected.

The **Delegate of the Netherlands** indicated that his country considered Greenpeace to be a very important international organization which was interested in scientific work and had strong support and many members. Although he recognized that Greenpeace was not a scientific organization in the true sense, it was working with and interpreting the results of scientific research conducted by others and was doing a limited amount of scientific work. Therefore, he moved that Greenpeace be granted observer status.

In reply to a question by the **Delegate of Sweden**, who seconded the motion to grant observer status to Greenpeace, the **President** offered additional details concerning why the Bureau felt that Greenpeace had not fulfilled criteria a) and b). With respect to criterion a), the application had not contained any evidence that Greenpeace conducted, funded, or managed marine research, and Bureau members were aware of statements made by Greenpeace that the funding of marine research was the responsibility of national governments and not organizations such as Greenpeace. Relative to criterion b), the application similarly had given no evidence of concrete support for the Council or its work or projects, although Greenpeace certainly had made reference to the work of ICES stock assessment Working Groups, but had not, in its supporting documentation, given any scientific evaluation of any ICES material. The context in which some of the Council's research results had been disseminated by Greenpeace did not appear to be supportive of the work of the Council.

The **Delegate of Norway** pointed out that whereas there were examples of useful scientific investigations conducted by Greenpeace, there were also examples of attempts to discredit or sabotage scientific investigations (e.g., those on minke whale biology). He did not see how ICES could accept an organization which exhibited such behaviour.

The **Delegate of Iceland** indicated his support for the conclusions of the Bureau and the statement of the **Delegate of Norway**. Iceland had, for several years, found it extremely difficult to accept either WWF or Greenpeace because the organizations had contested scientific knowledge, sabotaged the distribution of such knowledge, contrived their own "knowledge" which was considered to be untrue, and boycotted all commerce dealing with Icelandic products. Consequently, Iceland would vote against granting observer status to Greenpeace.

The **Delegate of Denmark** reminded Delegates that the Council had engaged in previous lengthy discussions on this subject and in order to have a basis for resolving such questions had decided to establish some guidelines,

which had been agreed at the 1991 Statutory Meeting. On the basis of those guidelines, the Bureau evaluated the Greenpeace application and its conclusions were clearly stated by the President. He wondered whether Delegates intended to discuss in further detail the application or vote on the question.

The **President** replied that he did not intend to have a detailed discussion, but wanted to be fair to Delegates who had raised valid points of clarification. He also replied to an earlier question by the **Delegate of Sweden** who had asked for clarification of "management" in criterion a). He viewed management to be that for which an organization such as NASCO was responsible, and also the process by which those in charge of the work of research institutions oversee their programmes, and he could see no way in which Greenpeace could be considered as a manager either of marine research or marine resources. Consequently, the Bureau had felt that Greenpeace did not fulfil criterion a).

The **Delegate of the United Kingdom** agreed that discussion should not be reopened on matters previously decided, but he wanted reassurance that the Bureau's conclusions were well founded and that both the WWF and Greenpeace applications had been dealt with equitably. He felt that if the Greenpeace application were rejected, the organization should be entitled to know the basis for the Council's decision. He had welcomed the President's clarification of the Bureau's evaluation, but agreed that the Bureau's judgement had been somewhat subjective with respect to criterion b). He was unsure whether an organization such as Greenpeace could, prior to having gained experience as an observer, be expected to be sufficiently familiar with the Council's work, objectives, results, and advice to explicitly articulate them in an application.

The **President** reaffirmed his intent that any application would receive full, open, and fair consideration, but reminded Delegates that Section 2 of the *Guidelines* specified that the Council must be satisfied that all four of the criteria are fulfilled. If even a single criterion was not fulfilled, the application would not satisfy the Council's conditions. He felt that the Greenpeace application had received fair treatment and that Greenpeace had full access to all the Council's reports and publications, in which the Council's objectives, research results, and scientific advice was clearly stated.

The **Delegate of Germany** stated that he found it difficult to see that the Greenpeace application fully satisfied all the criteria and, therefore, he could not support the application.

The **Delegate of the United Kingdom** noted one very significant difference between the WWF and Greenpeace letters of application: the former stated categori-

cally and unreservedly that it supported the work of the Council, whereas the latter did not.

The **Delegate of Poland** indicated that he was unprepared to accept any changes in the agreed criteria, which he considered to be very clear and a sufficient basis for decision.

There being no further discussion, the **President** called for a roll call vote, the results of which were three in favour of accepting the Greenpeace application and 14 against. He declared the Greenpeace application not accepted.

Agenda Item 4 RELATIONS WITH OTHER INTERNATIONAL ORGANIZATIONS

HELCOM

The **General Secretary** briefly reviewed Doc. C.M. 1992/Del:11 which contained a Memorandum of Understanding between HELCOM and ICES. The Memorandum would formalize the working relationship between the two organizations and would, for the first time, define the annual financial contribution by HELCOM in exchange for the scientific advice which it received from ICES. He explained that a draft Memorandum (nearly identical to the one in question) had been prepared by the Secretariat in consultation with the President for a meeting of high-level HELCOM and ICES officials in February 1990. At that meeting, the HELCOM officials promised to consider the proposed Memorandum. In late 1991, the General Secretary was informed that HELCOM was prepared to approve the Memorandum following some relatively minor change in the wording of one clause. At the 13th Meeting of HELCOM in February 1992, the Memorandum was approved and signed by the Executive Secretary on behalf of the Commission. It now remained for the Council to approve and for the President to sign the Memorandum. He pointed out that the Bureau, when earlier considering the Memorandum, had expressed concern that the Memorandum would give observer status to HELCOM at meetings of the Council's Working Group on the Baltic Marine Environment, which appeared to be in contravention to the terms of the Agreement on Cooperation between the CEC and ICES. When it became evident that there would be no problems regarding the use of confidential data or other sensitive issues relative to the preparation of scientific advice on the part of the Working Group, the Bureau accepted all the terms of the Memorandum and recommended that it be approved by the Council.

There being no objections, the Memorandum (contained in Annex 1) was approved.

IOC and SCOR

The **General Secretary** summarized Doc. C.M.1992/Del:14 which reviewed and contained descriptive material about several new initiatives by IOC and SCOR that were closely related to important ICES activities. He noted that the document was rather bulky and was intended primarily for information. The programmes to which he drew attention included Harmful Algal Blooms, Global Ocean Ecosystems Dynamics Research (GLOBEC), Global Investigation of Pollution in the Marine Environment (GIPME), and Global Ocean Observing System (GOOS). In each case, he made reference to the specific interest or involvement of ICES.

The **Delegate of the United States** noted that the relationships between ICES and IOC and SCOR had been considerably strengthened in the last few years, which he viewed as healthy and should be continued. He also noted that there would be a recommendation coming before Delegates which would specifically address the question of Council participation in the international GLOBEC programme.

The **Delegate of Sweden** also viewed the contact with IOC and SCOR as very important and felt that ICES had much to offer in this regard. He pointed out that the Harmful Algal Bloom programme was global in nature and that ICES needed to involve itself more on the global scale.

NAMMCO

When the Council's relationship with the new North Atlantic Marine Mammal Commission (NAMMCO) was first raised at the second session of the Delegates meeting, the **General Secretary** explained that Doc. C.M. 1992/Del:10 contained various items of correspondence from the former North Atlantic Committee for Cooperation on Research on Marine Mammals (NAC) and from its successor NAMMCO. The new Commission had been established in April 1992 by the Governments of Iceland, Norway, Greenland, and the Faroe Islands and had entered into force on 7 July 1992. At the Inaugural Meeting in early September, NAMMCO had confirmed its desire to have a working relationship with and to request advice from ICES. The Addendum to Del:10 contained the list of requests for advice relating to marine mammals originally submitted by the NAC in 1990 which was familiar to Delegates because it had led to the establishment of the Study Group on Pilot Whales. The principal question now was whether the Council wished to accept NAMMCO's invitation to establish working relations and, if so, what the terms of that relationship would be. If a working relationship were agreed, one of the next steps would be to discuss the financial arrangements, as existed in the case of all other such relationships with regulatory commissions.

The **Delegate of Spain** pointed out that the Addendum to Del:10 indicated that NAMMCO wanted to have Working Group reports submitted directly to its Scientific Committee without undergoing ACFM review. He wondered if such a procedure would be acceptable under Council policy, but if that were done, it would have to be made clear that the reports would not be official Council advice. The **Delegate of Canada** supported the Spanish Delegate's view and felt that only ICES could decide how it wished to provide its advice. The **President** noted that the Bureau had the same opinion, but that additional information relative to this issue had been received recently from the NAMMCO Chairman on which the General Secretary could report.

The **General Secretary** reported that NAMMCO had requested and been granted (by the Bureau) observer status for its Chairman (Mr Kjartan Hoydal) at the Statutory Meeting in order to give him the opportunity to discuss this very matter. Since he had been unable to attend, he had telephoned the General Secretary to explain the reasoning behind NAMMCO's request to bypass ACFM. Recognizing that the management of marine mammals, particularly cetaceans, was a highly and politically sensitive issue, NAMMCO wanted to keep ICES as far away as possible from the management issues. It viewed ICES as the appropriate body to handle the scientific assessment of pilot whales (to be done by a Working or Study Group), but that the report of such a Group could be provided directly to the NAMMCO Scientific Committee where the management advice would be prepared, thus eliminating the need for ACFM to be subjected to potential political pressures if it were to prepare the advice. However, NAMMCO wished to be flexible and would not object to having the Working/Study Group report reviewed and the management advice prepared by ACFM.

The **Delegate of the United States** felt that, whether or not advice was provided to NAMMCO by ACFM, conducting assessments of cetacean stocks would create an extremely political situation, and consequently the decision to be taken by the Council was very important and could affect the future of ICES. His country opposed a formal relationship between ICES and NAMMCO for this purpose because it recognized the International Whaling Commission (IWC) as the competent organization for research and management of cetaceans. He had high regard for the non-political and professional manner in which ICES scientific work was conducted and would not wish to see that disrupted because of the highly politicized cetacean work, particularly if it involved providing management advice. The Council would be exposed to increasingly stronger political pressure from NGOs. He also felt that involvement in the cetacean work would dissipate a tremendous amount of time and energy that would be better invested in advancing much needed interdisciplinary programmes.

The **Delegate of Iceland** responded by stating that, in spite of the political nature of marine mammals as a subject, ICES could not shirk from giving scientific advice and should not discriminate between different marine science questions. He indicated that NAMMCO's intention in modifying its earlier request for advice on pilot whales was to try to assist ICES in developing a workable pathway for addressing the question posed by NAMMCO. If ACFM were to provide the advice requested, it would need additional expertise; the new NAMMCO proposal would have the scientific work done by ICES, but eliminate the need for ACFM to be restructured.

The **Delegate of the United Kingdom** asked for clarification on what role NAMMCO intended for ICES, since NAMMCO had a Scientific Committee and the expertise on pilot whales within the ICES Member Countries resided largely within those who were also NAMMCO Member Countries. The **Delegate of Iceland** indicated that the intent was for an ICES Working Group to do a general assessment of the status of stock and possibly explore the effects of different exploitation schemes. Concerning the question of not filtering the assessment through ACFM, he pointed out that a precedent had already been established for that during the Icelandic cod war in the mid-1970s when an ICES Working Group did the assessment, but no advice was given by the Liaison Committee (ACFM predecessor).

The **Delegates of the Netherlands and Poland** were both unclear about the proposed relationship and indicated their support for the concerns expressed by the Delegate of the United States.

The **Delegate of the United Kingdom** contrasted the assessment done during the cod war of the mid-1970s, which had been requested by a Member Country, with the request for an assessment by an international organization (NAMMCO), the international legal recognition of which he was unsure. He had no problem, however, with the scientific capability of ICES regarding marine mammals and with ICES being recognized as the regional scientific authority in this regard.

The **President** raised the question whether the Council had any difficulty in having a general assessment of any marine mammal stock conducted by an ICES Working Group. The **Delegate of Iceland** expressed surprise at the views of some Delegates, which he considered political and not objective, and at the President's question because ICES was already doing assessments of seal and harbour porpoise stocks. Concerning the point raised by the Delegate of the United Kingdom, he reminded Delegates that any one of NAMMCO Member Countries could make the request in question as an ICES Member Country.

The **President** identified the following points on which he felt there was general agreement: a) ICES was already assessing some marine mammal stocks and could make general assessments of other such stocks based on the best scientific information available; b) Working Group reports were available to the general public after passing through the ICES "machinery" (i.e., reviewed by the parent Committee); and c) the status of an assessment Working Group report was enhanced by the ACFM review process. On this basis, he asked whether it would be satisfactory for a report to pass through ACFM with a "quality control stamp" and without the "management advice stamp".

The **Delegate of the United States**, referring to the President's first point, felt that assessing pilot whales was potentially redundant with the activities of another competent organization (IWC) and its Sub-Committee on Small Cetaceans. It would be inadvisable for ICES to venture into such activities without consulting or cooperating with the IWC. The **Delegate of Iceland** noted that it was not unusual for the work of ICES to overlap with that of organizations (e.g., IOC and SCOR). He pointed out that the Council had willingly incorporated marine mammals into ecosystem/multispecies studies and he wondered how this could be done without assessing their abundance. The **Delegate of Canada** saw no reason why ICES should not respond to requests for information on the population status of marine mammals in the same way as with other components of the ecosystem, and he could support the request by NAMMCO for assessment information. The **Delegate of the United States** confirmed his support for research and assessments on seals and cetaceans that would be needed for ecosystem studies, but cautioned on duplicating the work of others (i.e., the IWC). The **Delegate of the United Kingdom** agreed with the statement by the Delegate of Canada about the role of ICES in multispecies research (which would include marine mammals), and he also supported the position expressed by the Delegate of the United States that ICES should not duplicate the work of another international organization which was the competent global authority for the management of cetaceans by providing information on catch forecasts or other management advice. The **Delegate of Iceland** explained that within the IWC there was total disagreement on whether the IWC should manage small cetaceans. He also pointed out that, although the IWC Scientific Committee's Sub-Committee on Small Cetaceans dealt with the biology of small cetaceans, it had not conducted any assessments. He felt there was a strong need for a responsible organization to handle such assessments. He also referred to the earlier statement by the Delegate of the United Kingdom about the legal status of NAMMCO and pointed out that regional organizations like NAMMCO and the Bonn Convention had received a strong endorsement from the recent UNCED Conference in Rio de Janeiro that they

should deal with the management, conservation, and research of both large and small cetaceans. The **Delegate of the United Kingdom** argued, however, that the UNCED Conference also recognized the responsibility of the IWC for the conservation and management of whale stocks and the regulation of whaling, and did not specifically mention NAMMCO, whereas it had mentioned other regional organizations such as ICCAT and the Bonn Convention for which there was no conflict of authority with the IWC.

The **Delegate of Norway** stated his support for the views expressed by the Delegates of Iceland and Canada, and he also added that NAMMCO was a legitimate intergovernmental organization established by four governments and had a right to ask ICES for advice. The **Delegate of Denmark** also supported the Canadian view and considered that one of the functions of ICES was to provide advice to international organizations that requested such advice. He also raised the question of whether there was any precedent or procedure within the Council for recognizing organizations such as NAMMCO. The **Delegate of Ireland** endorsed the Canadian position, felt that the Council had to deal with the issue even though it was controversial, and suggested that, as in the case of handling requests for observer status by NGOs, the Council might need to develop criteria for establishing working relations with organizations such as NAMMCO.

In reply to a question by the **Delegate of France**, the **President** pointed out that NAMMCO had not yet proposed an official Memorandum of Understanding, although the request to ICES was certainly official. He asked whether it would be acceptable if the requested advice were channelled to the individual countries as members of ICES rather than directly to NAMMCO. The **Delegate of Iceland** did not consider this to be an appropriate way forward.

The **Delegate of the United Kingdom** asked if any other countries could be eligible to join NAMMCO. The **Delegate of Iceland** pointed out that NAMMCO was a North Atlantic organization and accordingly membership was restricted to countries in that area. Acceptance of other countries into membership would require the unanimous consent of the existing Member Countries of NAMMCO and a willingness to accept the principles outlined in the NAMMCO Convention on the sustainable use of marine mammal resources. He noted that Canada and Russia had been invited to join. The **Delegate of the United Kingdom** considered it strange that membership was restricted to only countries that agreed totally with the Commission's principles of management, even though they might otherwise be genuinely interested in the management of cetaceans. The **President**, however, reminded the **Delegate of the United**

Kingdom that such rules of membership generally applied to all international organizations, even ICES.

The **President** noted that there were two bodies of opinion, based on the Delegates who had spoken, one in favour and one opposed to responding to the request from NAMMCO. There was a majority in favour, but he wished to defer further discussion until after there had been an opportunity for private discussions with those Delegates who were in opposition in order to reach a consensus view on the way forward. The **Chairman of the Consultative Committee** informed Delegates that several Subject/Area and the two Advisory Committees were consulting on the scientific issues associated with the NAMMCO request and that a recommendation would be considered by the Consultative Committee and would be available at the third session of the Delegates meeting.

At the third session, the **President** explained in detail Doc. C.M.1992/Del:18 which he had drafted following consultation with the principal participants in the discussion during the second session. The document contained the primary text of letters to be sent by the General Secretary to NAMMCO and the IWC explaining the Council's response to the NAMMCO request. Before reading the full text to Delegates, he drew attention to the four main elements reflected in the document:

- a) the Council's activity in response to the NAMMCO request would be limited to small cetaceans;
- b) the activity would be viewed as a component of the Council's general programme of marine studies, with particular reference to multispecies interactions;
- c) the results of the work would contain no reference to any management advice such as catch options or forecasts;
- d) the report of the Study Group established to do the work would be subjected to a "quality control" peer review by the Marine Mammals Committee and ACFM.

The **President** pointed out that, in discussing Doc. Del:18, they would also be discussing (and hopefully agreeing on) the terms of reference of the Study Group and would not return to this matter when considering the various recommendations from the Consultative Committee.

The **Delegate of Iceland** commended the **President** for his guidance and wisdom in preparing the document and indicated that he could accept it. The **Delegate of Norway** also could accept the document and viewed the emphasis on multispecies interactions as being very proper.

The **Delegate of the United States** also complimented the President, as well as the Chairman of the Consultative Committee, for their efforts in achieving agreement among the various parties on this matter, and then carefully explained the position of his country on this issue. All elements in the North Atlantic ecosystem, including cetaceans, should be included in the Council's work programme, but ICES should not become involved in jurisdictional disputes between organizations regarding management authority. When conducting its programmes, ICES should always coordinate and cooperate with other organizations doing similar work. There would be an unavoidable element of controversy associated with the Council's work on cetaceans, and it should be conducted in such a way so as to avoid any perception of competition with any other body or exclusion of any individual scientists who might wish to participate. He also viewed the letter to the IWC as very important to avoid the potential for duplicated efforts and to indicate a willingness to cooperate. He wanted it made clear that the absence of any management advice meant no catch options or forecasts.

The **Delegate of the United Kingdom** and others endorsed the USA point of view concerning management advice, and the **Delegates of Poland, the United Kingdom, and the Netherlands** then all indicated their willingness to accept the approach described in Doc. Del:18.

The **President** declared that agreement had been achieved and he thanked those who had been complimentary of his efforts, but he viewed himself only as a facilitator and felt that the flexibility and constructive attitude of all Delegates had been the most important factor in reaching agreement.

Agenda Item 5 NORTH SEA TASK FORCE PROGRESS REPORT

The **Environment Secretary** briefly summarized Doc. C.M.1992/Del:13 which reported on the work of the North Sea Task Force. She drew attention to a) the data handling activities of the Secretariat, as data centre for the Task Forces' Monitoring Master Plan, and the assessment activities of the Secretariat and several ICES Working/Study Groups all of which had required considerable extra effort by several staff members; b) reports prepared by the Study Group on Ecosystem Effects of Fishing Activities, the Benthos Ecology Working Group, and the Study Group on Seals and Small Cetaceans in European Seas, portions of which were reviewed by both ACMP and ACFM and will be input to the Task Force's Quality Status Report (QSR); c) status of the drafting of chapters for the QSR which will be reviewed at the March 1993 meeting of the Task Force and at the June 1993 meeting of ACME (for which an extra day will need to be added); and d) coordination of

research in the North Sea. Lastly, she expressed thanks and gratitude to the staff of the Secretariat's Pollution Department, particularly Dr Simon Wilson (who had resigned his post in July) who had put in many extra hours in evenings and on weekends to almost single-handedly ensure that the Secretariat's commitments on data handling for the Task Force were met.

The **President** thanked the Environment Secretary for her report and expressed the Council's thanks and appreciation to the Secretariat staff, particularly Dr Wilson, for their hard work and dedication. The **Delegate of Poland** also expressed his thanks and appreciation for the report and for the Secretariat's hard work.

The **Delegate of Canada** asked what effect any change in the current membership of ACMP would have on the QSR review process. The **President** noted that the question of the membership of ACMP would be considered under Agenda Item 7, that there were proposals on this matter contained in Doc. C.M.1992/Del:12 which obviously carried implications for ongoing work, but that the number of people on ACMP presently involved in the preparation of the QSR was minimal. The **Environment Secretary** confirmed that only about two ACMP members had been involved so far, but she advised that if a change were to be made now in the membership of ACMP to take effect sometime within the next year, it should be implemented as soon as possible (e.g., 1 November 1992) because of the imminent review process for the QSR in which ACMP members would need to become involved rather quickly.

Agenda Item 6 NINTH DIALOGUE MEETING

The **General Secretary** reported that the Ninth Dialogue Meeting would be held from 7-8 June 1993 in Edinburgh in conjunction with the NASCO Annual Meeting and with the co-sponsorship of NASCO and IBSFC. The current working title was "Atlantic Salmon: Management and Fishery Environments, Today and Tomorrow". The same successful procedure would be followed as in the previous three Dialogue Meetings of having selected speakers who would prepare papers for advance distribution to announced participants. There would be two review papers, two scientific papers, three managerial papers, and six or seven user papers. The relatively large number of papers (13-14) stemmed from the salmon fisheries and their associated management problems in the North Atlantic and Baltic Sea being complicated and with many interest groups, but the time devoted to each speaker would be held to a minimum so as to leave as much time as possible available for discussion and dialogue. A first planning meeting of speakers would be held on 5 November at ICES Headquarters, with a second such meeting to be held in about mid-March. An announcement would be prepared and distributed sometime after the first planning meet-

ing. Financial support would be provided by both NASCO and IBSFC.

The **Delegate of Canada** viewed this Dialogue Meeting as very important because of its trans-Atlantic nature, and acknowledged the need for many speakers because of the many groups interested in salmon. The **President** noted that this Dialogue Meeting represented a departure from the previous ones by focusing on a topic which did not relate to the typical North Sea commercial fisheries, and was an excellent opportunity to demonstrate in a constructive and practical way that ICES was not exclusively a European-based organization, which was an important policy issue for the Council.

The **Delegate of Denmark**, while noting the value of a trans-Atlantic Dialogue Meeting and a relatively large number of speakers, cautioned that the main objective of Dialogue Meetings (i.e., the creation of dialogue) should not be forgotten in the planning for this and future Dialogue Meetings. The **Delegate of Sweden** supported the Ninth Dialogue Meeting as being very important and considered it a good opportunity to contrast the different management approaches on salmon in the North Atlantic and Baltic.

Agenda Item 7 ENHANCING THE INTERDISCIPLINARY ROLE OF ICES

The **President** introduced Doc. C.M.1992/Del:16 which was a summary of the Bureau's proposals on the future structure and role of ACMP. The document contained a two-stage recommendation, Stage I being a restructuring of ACMP along the lines of ACFM with three categories of members (national nominees appointed by the Council, *ex officio* membership by Chairmen of selected Subject/Area Committees, and invited experts as necessary), and Stage II to be a discussion of the major tasks, goals, and issues to be handled by ACMP, the Working Groups to report to it, and the name of the new ACMP. Stage II was to be initiated at the June 1993 ACMP meeting, followed by review by the Bureau and further review and consideration by the Consultative Committee and Delegates at the 1993 Statutory Meeting. The main point of the document was to suggest the restructuring of ACMP effective 1 November 1992. The document also contained a proposed new wording for Rule 26^A of the Council's Rules of Procedure which defined the membership and purpose of ACMP. However, Rule 16 of the Rules of Procedure stipulated that no proposal involving changes in the Rules of Procedure could be considered at a meeting of the Council unless either a two-month notice had been given to Contracting Parties and Delegates or Delegates present consented unanimously to consider the matter. Since a two-month notice had not been given, the latter would be necessary before Doc. Del:16 could be considered.

Following a motion made by the **Delegate of Poland** and seconded by the **Delegate of Germany**, it was agreed by unanimous vote to consider the proposed change to Rule 26^A.

Before opening Doc. Del:16 for discussion, the **President** noted that, as a result of having spoken privately to most Delegates during the previous several days, there appeared to be broad agreement on the proposals in the document and on the two-stage approach. He also reported that the Consultative Committee, when it had, two days prior, discussed the position paper (Doc. C.M.1992/Del:12) on this question which had been drafted by the Chairman of the Consultative Committee, had unanimously agreed to the recommended restructuring of ACMP. The summary of the Consultative Committee's deliberations on this matter was presented in Doc. C.M.1992/Del:17.

The **Delegate of the Netherlands** viewed the proposed changes as a very important step for ICES and was concerned that the envisaged time schedule for stage II of the recommendation might delay matters. He proposed that the 1993 mid-term meeting of the Bureau should be held after the next ACMP to enable it to review and prepare for Council consideration the suggestions of the new ACMP relative to its remit, goals, and issues to be handled. The **President** indicated that his intent was to have the entire matter concluded at the 1993 Statutory Meeting, although it might be delayed until 1994 if unforeseen issues arose, and that the possibility was being explored of delaying the 1993 mid-term meeting of the Bureau until after the ACMP meeting.

The **Delegate of the United States** also supported the proposals in Del:16 and considered them to be very important, but expressed concern that retaining the name "ACMP" might could result in limited thinking and discussion by the participants at the 1993 ACMP meeting and be detrimental to the expansion of the scope of the new Committee beyond the pollution sphere into broader interdisciplinary issues. The **President** stated that he felt the various documents presented at the meeting had sufficiently identified the need for the new Committee to address broader environmental issues than pollution and that Delegates would ensure that appropriate and properly briefed national members would participate in the new ACMP. The **Delegate of the Netherlands** pointed out that the new convention which would replace the Oslo and Paris Conventions was for the protection of the marine environment in the North-East Atlantic with the prevention and elimination of pollution of that environment as a secondary purpose, and that this emphasis on the environment would have to be borne in mind when discussing the scope of the new ACMP.

The **Delegate of Iceland** felt that the name of the new Committee was important both in the context of its future tasks and in the selection of its members. If the name were changed to the "Advisory Committee on the Marine Environment" (with a corresponding change in focus), Delegates would need to take into account the fact that national representation might have to be different from that for ACMP. The **President** indicated that the present circumstances were analogous to a "chicken and egg" situation in that it was impossible to know the composition of the new Committee until national nominations were received, but he re-emphasized that the flexibility of inviting particular experts onto the Committee, as ACFM had frequently done, would overcome any shortcomings in the range of expertise among national nominees. In this context, the **Delegate of the United Kingdom**, noting that the new Committee would be able to call upon expertise in response to tasks to be addressed, wondered whether a new Chairman should be selected before or after the work of the new Committee had been fully explored and defined (i.e., in June 1993). The **President** expressed his desire to defer discussion on the chairmanship of the new Committee until later, but the **Delegate of Sweden**, agreeing that many new people would probably be appointed to the new Committee, considered it important to have some people who were familiar with the old Committee involved in the new Committee's first meeting, including the present Chairman who should be retained for one more year to ensure continuity. The **President** agreed that continuity, the completion of obligations to the regulatory commissions, and the initiation of new tasks were all essential, but he reminded Delegates that continuity could be achieved through the invitation of particular experts and that a number of current members of ACMP undoubtedly would and should appear as national nominees.

The **Delegate of Iceland** suggested that the first paragraph of the proposed new Rule 26^A should be modified to read: "The Advisory Committee on the Marine Environment shall be responsible, on behalf of the Council, for providing scientific information and advice on the marine environment including pollution and its effects on living resources ...". The **Delegate of the Netherlands** supported the Icelandic suggestion, but also urged the time schedule associated with the proposed changes to ACMP to be accelerated. The **Delegates of Norway, Sweden, and the United States** also endorsed the Icelandic suggestion.

The **Delegate of the United Kingdom**, observing that the matter was moving rapidly towards a vote, announced that he would vote against the proposed change in ACMP and wished to explain his reasons. He felt that the substance of the problem had not been addressed; there seemed to be more concern with changing the membership structure of the Committee rather than ad-

ressing how best to do the work. He was not opposed to the proposed changes simply because the current Chairman was from the UK; that job could easily be transferred to someone else. His main concern was that ICES needed to conduct its work in the most effective and beneficial manner possible to ensure that its scientific advice was of the highest quality. He was not aware that any of the commissions or countries had ever complained about the quality of the advice they had received, but was worried that the proposed structural change in ACMP might have implications on the future quality of advice. He expressed the opinion that ACFM, which many people felt worked well with national representation, was not very effective in addressing technical issues because, in practice, most of the Committee's work was done by only a few people. He summarized his views by stating that the current membership structure of ACMP resulted in the greatest efficiency and expertise and the highest quality of advice, that the current problems facing ACMP could be solved within the existing structure, and that the proposed change to national representation would not of itself address the underlying problems. In conclusion, he noted that the existing draft of the proposed new Rule 26^A did not explicitly make reference to ACME coopting additional experts as necessary, and he asked for clarification on this question.

The **President** thanked the Delegate of the United Kingdom for raising several important questions and expressed his gratitude for the manner in which it had been done. He confirmed that the co-opting of experts by ACMP was implicit in the wording of the new Rule, as it was in Rule 26 for ACFM. The option for ACFM to co-op experts was viewed as Council policy by virtue of having been entered into the record of a Delegates meeting a number of years earlier. The same policy would now be understood to apply for the new ACME. He stressed that the proposed structural change in ACMP did not imply any change in the Council's resolve to continue to provide the best possible scientific advice to commissions and governments, but hoped that the proposed changes (in addition to membership) would help to improve the advisory process.

The **Delegate of the Netherlands** restated his plea to have the process described in Stage II of Doc. Del:16 accelerated by having the 1993 mid-term Bureau meeting follow the June 1993 ACME meeting so as to consider and possibly act on the recommendations from ACME. The **President** felt that there was a consensus for completing the ACMP reorganization process (as described in Stage II) at the 1993 Statutory Meeting. It was agreed that the various meetings in June 1993 would be scheduled in the proper sequence so as to meet that objective.

Several suggestions were made to improve the wording of the first paragraph of the proposed new Rule 26^A, and the following text was finally agreed:

"The Advisory Committee on the Marine Environment shall be responsible, on behalf of the Council, for providing scientific information and advice on the marine environment, including marine pollution, and its effects on living resources and their exploitation to Member Governments and intergovernmental bodies which may request such advice."

The Committee shall consist of a Chairman nominated by the Committee from among Delegates and experts and appointed by the Council, and the Chairmen of such other Committees as the Council decides, and of one scientist nominated by each delegation who so wish, 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."

The **Delegate of Ireland** moved that the agreed proposed wording of Rule 26^A be adopted, and the **Delegate of Iceland** seconded the motion. Following a roll call vote in which there were 16 in favour and one against, the **President** declared by motion carried by more than the necessary two-thirds majority.

The **President** then reopened discussion on the question of the chairmanship of the new ACME.

The **Delegate of Sweden**, supported by the **Delegate of Spain**, proposed that the existing Chairman should remain in place for the next year during the discussions on the remit, goals, and issues to be handled by the new ACME. The **Delegate of Iceland** considered it advisable for the new ACME to begin with a new Chairman, even though he viewed the current Chairman as very competent. He thought that the new Committee might find it difficult to meet in June 1993 and decide on its future work. Instead, it might be advisable for an *ad hoc* group to meet this winter to develop the necessary plans and terms of reference for ACME which could be approved by the Bureau in time for the June ACME meeting. The **Delegate of Germany** reminded Delegates that they had just taken an important decision involving change and such change needed to include a new Chairman. ACME should ultimately select a new Chairman, but since its work was ongoing, there needed to be a Chairman in place to run the Committee. Therefore, he proposed that an interim Chairman be appointed by the President or Council. The **Delegate of the United States** supported the proposal of the Delegate of Germany and emphasized the need for the Committee's work to proceed efficiently until June 1993 when the new ACME could elect its own Chairman. The **Dele-**

gate of the United Kingdom felt that having an interim Chairman would be a more difficult way to proceed than to retain the existing Chairman. He proposed that the existing Chairman should serve until June 1993 in order to complete ongoing work, particularly the preparation and review of the Quality Status Report for the North Sea Task Force. After the June ACME meeting, when a new Chairman would be elected, the existing Chairman should be co-opted to the Committee if he did not become the nationally nominated member from the UK. The **Delegate of Ireland** felt that the radical change reflected in the decision to create a new ACME, coupled with the need to signal to all Delegates the importance of nominating appropriate experts to the Committee, was ample basis for selecting a new Chairman. The Council's Rules of Procedure provided for the appointment of an interim Chairman, which she supported. The **Delegates of Belgium and the Netherlands** also indicated their support for the appointment of an interim Chairman.

The **President** noted that a consensus was emerging for the selection of a new Chairman. Since the new ACME would go into effect as of 1 November 1992 and the work had to continue, it was imperative to have someone in charge of the Committee. It was also evident that there was a need and desire for continuity in the chairmanship. The new ACME would go through an elective process in June 1993 to select a new Chairman who would be ratified by Delegates at the 1993 Statutory Meeting. He explained, however, that Rule 34 of the Rules of Procedure authorized the President, after consultation with the Chairman of the Consultative Committee, to appoint an interim Chairman from among the members of ACME. It would be necessary, therefore, for Delegates to nominate their national representatives to ACME before the President could appoint one of them as interim Chairman. He urged Delegates to make their nominations as soon as possible before 1 November. He also envisaged that the continuity issue for the chairmanship could be resolved either by the existing Chairman of ACMP (if he were not appointed interim Chairman of ACME) being invited to the June 1993 meeting as a co-opted expert or by being the nationally nominated member from the UK.

The **Delegate of the United States** was satisfied with the procedure described by the President for appointing an interim Chairman. The **Delegate of Poland** also concurred with this approach, but wanted to make it clear that the work of the current ACMP Chairman had been appreciated and that the changes which had been decided were not in any way a reflection of any incompetence or wrongdoing on his part. The **Delegate of Iceland** also endorsed the President's proposal and agreed that the outgoing Chairman should receive the Council's thanks, but he stressed that the premature termination of

chairmanships of ICES Committees and Groups due to reorganization and restructuring was not uncommon.

The **General Secretary** raised the question of nominating an alternate as well as a regular member from each Member Country, as in the case of ACFM. Although Rule 26 (for ACFM) did not specify alternate members, this had been implicitly Council policy and probably should apply as well for ACME. The **President** indicated that the same practice relative to members and alternates should apply to both Advisory Committees. Before closing this Agenda Item, he again emphasized the need for Delegates to submit their nominations for both members and alternates before 1 November so that he could proceed shortly thereafter with the appointment of an interim Chairman.

Agenda Item 8 CONTRIBUTIONS TO ICES BUDGETS

The **Chairman of the Finance Committee** explained that the Committee, at the request of the Bureau, had examined the financial implications of Council membership by the new Baltic Republics and had considered four different options for their national contributions (see Section 6.1 of the Report of Finance Committee) before selecting a single option or principle which was now being recommended to the Council. The Committee felt that it was important that any new Member Country should be seen to be making a contribution which would at least cover the services which they received from the Council. The Committee also felt that any financial arrangement agreed for Latvia should be applicable as well to Estonia and Lithuania if and when these countries applied for membership. The Committee concluded that an ultimate contribution of one share would be suitable to ask of Latvia, but recognizing the difficulty Latvia might have in initially meeting the full cost of one share, was recommending a payment of DKK 50,000 for the first year of membership (prorated to the number of months of membership in the first year), followed by DKK 150,000 in the second year, and a full share in the third and all subsequent years. Some flexibility would obviously be necessary in negotiating an amount for the first year of membership, depending on when in the financial year membership would take effect.

The **President** expressed his thanks to the Committee members for their thoughtful deliberations and helpful recommendation on this matter. The **Observer from Latvia** stated that if his country restored its membership in the Council, it would also restore its commitment to pay a financial contribution. However, the reality of Latvia's fiscal status meant that the lowest possible contributions would be badly needed for the next two or three years. He was not in a position to comment on the financial arrangement recommended by the Finance

Committee, but suggested that discussions between ICES and his government would be necessary.

It was agreed that the Finance Committee's recommendation would serve as the guideline for negotiations with Latvia, as well as with Estonia and Lithuania at the appropriate time.

The **Chairman of the Finance Committee** summarized the Committee's discussion on the Council's policy on financial contributions from commissions receiving services from ICES, another matter referred to the Committee by the Bureau. There had been some uneasiness within the Council as to whether the full costs incurred by the Council or some fraction of those costs based on negotiated amounts should be recovered from the commissions which received the advice or services. In addition, the question had been raised about the desirability of reviewing the present scheme of national contributions to take account of changing circumstances. In the discussion of this matter at the 1991 Delegates meeting, several difficulties were identified in the costing arrangement with the commissions. First of all, there are overlaps in the utilization of advice (i.e., on fisheries) by different commissions and Member Country governments. Secondly, if commissions were charged the full cost of services provided, their contributions would increase to about half of the Council's income which, while it might be desirable in fiscal terms, might not otherwise be acceptable to the Council. If it were decided to renegotiate both the scheme of national contributions and the contributions from commissions on a full-cost recovery basis, it would be necessary to collect the basic information on which to determine costs. The Committee was recommending that the Secretariat should initiate a feasibility study to explore the desirability of eventually establishing a product-oriented budgeting system for the Council. It would take about five years before a budget system of this type could be fully implemented. Information would begin to be collected in the first year; the second year would be devoted to examining the data from the first year, collecting more data, and starting to develop a budget scheme; the scheme would be constructed in the third year; negotiations with commissions (and Member Countries) would take place in the fourth year; and the new budget system might be implemented in the fifth year.

The **President** pointed out that the proposed feasibility study would be enable the Council to evaluate the possibility or advisability of whether or not to move towards a product-oriented budget system, and he emphasized that the collection of the information would not preempt any future decisions on the matter. The Committee's recommendation was accepted by the Council.

The **Delegate of the United States** proposed that consideration should be given to developing a policy for granting observer status to organizations such as CSIRO in Australia and the Sea Fisheries Research Institute in South Africa, including possible financial aspects. Such a policy was now in place for NGOs and would be useful in view of the likelihood of more applications for observer status from research organizations in non-Member Countries or from other countries themselves. The **President** viewed this as a prudent course of action and agreed that this matter would be placed on the agenda for the next Bureau meeting.

Agenda Item 9 REPORT OF FINANCE COMMITTEE

The **Chairman of the Finance Committee** presented the Committee's report. The relevant matters were considered and reported under Agenda Items 8 and 11-14.

Agenda Item 10 APPOINTMENT OF ONE MEMBER OF FINANCE COMMITTEE

The **President** announced that a new member of the Finance Committee had to be appointed to replace Dr David J. Garrod (UK) who would, on 31 October, complete his three-year term on the Committee, the last year of which he had served as Chairman. He thanked Dr Garrod for his fine work in this capacity and noted that this year's meeting of the Committee promised to be demanding. The Bureau wished to propose the appointment of Dr Ingemar Olsson (Sweden) as a member for the next three years and current member Mr Orestes Cendrero (Spain) as the new Chairman. These appointments were unanimously agreed, resulting in the following membership of the Finance Committee for 1992/1993 (last year of appointment in parentheses):

Mr Orestes Cendrero (Spain), Chairman (1994)
Dr Jerzy Kleniewski (Poland) (1993)
Dr Pentti Mälkki (Finland) (1994)
Nr Niels Axel Nielsen (Denmark), obligatory
Dr Ingemar Olsson (Sweden) (1995)

Agenda Item 11 AUDITED ACCOUNTS FOR FINANCIAL YEAR 1990/1991

The **Chairman of the Finance Committee** reported that the Finance Committee had reviewed the Audited Income and Expenditure Accounts for Financial Year 1990/1991 and the Balance Sheet as of 31 October 1991 (Doc. C.M.1992/Del:1), had found them to be fiscally sound, and had signed them on behalf of the Council.

The Audited Accounts were approved by the Council.

Agenda Item 12 ESTIMATED ACCOUNTS FOR FINANCIAL YEAR 1991/1992

The **Chairman of the Finance Committee** drew attention to the Estimated Accounts for the Financial Year 1991/1992 (Doc. C.M.1992/Del:4), which the Committee had considered to be satisfactory, but particularly to the estimated excess of income over expenditure of DKK 685,000. The Committee had considered various options proposed by the General Secretary for the use of that amount, including placing it in the Capital Reserve Fund, reducing national contributions in a future year, and acquiring some capital equipment and investing in office maintenance for ICES Headquarters. The Committee had been reluctant to propose that the entire sum of money should be spent for equipment or office maintenance, regardless how essential they might be. Following careful consideration of all options and mindful of the very high priority attached to the immediate acquisition of two equipment items (a new photocopier and more computer hardware), the Committee agreed to propose for the Council's approval the following disposition of the estimated DKK 685,000: a) DKK 455,000 to be spent immediately for a new photocopier and computer equipment, b) the remaining amount (an estimated DKK 230,000) to be transferred to the Capital Reserve Fund, c) DKK 75,000 to be added to the expenditure item "Office Maintenance" in the Budget for 1992/1993 and in the Forecast Budget for 1993/1994, d) DKK 75,000 to be transferred from the Capital Reserve Fund and added to income in the Budget for 1992/1993 and in the Forecast Budget for 1993/1994. As a result, the Capital Reserve Fund would undergo a net increase of an estimated DKK 80,000 to be used as appropriate in the future.

Following a motion by the **Delegate of the United States**, which was seconded by the **Delegate of Sweden**, the Council accepted the Estimated Accounts and the Committee's recommendation for the disposition of the excess of income over expenditure.

Agenda Item 13 BUDGET FOR FINANCIAL YEAR 1992/1993

The **Chairman of the Finance Committee** reported that the draft Budget for the Financial Year 1992/1993 (Doc. C.M.1992/Del:5) differed very little from the Forecast Budget approved at the 1991 Statutory Meeting. Actual income from the Oslo and Paris Commissions and for the North Sea Task Force would be higher than the amounts indicated, but the additional income would be offset by some unbudgeted higher expenditures on salaries. These changes would not be incorporated into any amendments to the draft Budget, but, as agreed under Agenda Item 13, the draft Budget would be amended to show an increase of DKK 75,000 under expenditures for "Office Maintenance" and an increase

of the same amount under income by a transfer from the Capital Reserve Fund.

The **Delegate of Germany** pointed out that his government could accept increases in ICES budgets, but he wished to stress that such increases should not exceed the inflation rate in Denmark, and that increases in individual expenditure items beyond the inflation rate should be justified. Since his government was particularly concerned about salary increases, he proposed that an addendum should be attached to future draft Budgets and Forecast Budgets which would list the various grade levels (UN designations) in the Secretariat together with the number of staff members employed at each level. Such information would enable his authorities to better evaluate percentage increases in salary items. The **President** considered this to be a reasonable request and felt that such information would be useful for all Delegates. The **General Secretary** explained that increases in the salary items each year include not only cost-of-living increases, but also annual within-grade step increases and the various allowances to which eligible staff members are entitled (which vary from year to year). While there would be no difficulty in implementing the wishes of the Council in future draft budgets, as suggested by the Delegate of Germany, he cautioned that those elements in the salary budget item would not be readily evident from an examination of a list of the number of staff members at the various UN grade levels.

Following a motion by the **Delegate of Poland**, which was seconded by the **Delegate of Iceland**, the draft Budget for 1992/1993, as amended, was unanimously approved by a roll call vote.

Agenda Item 14 FORECAST BUDGET FOR FINANCIAL YEAR 1993/1994

The **Chairman of the Finance Committee** pointed out that the draft Forecast Budget for Financial Year 1993/1994 (Doc. C.M.1992/Del:6) would result in a 5.5% increase in national contributions, compared to a slightly higher percentage increase (6.4%) in the overall Forecast Budget. Contributions from commissions as a whole exhibited a higher percentage increase than national contributions. Since the 5.5% increase was slightly higher than the general rate of inflation in Denmark, the Committee had carefully examined the various items of expenditure, particularly those for salaries, for which there was about a 9% increase. The Committee noted that the 3% cost-of-living increase for all categories of staff was in line with those in most Member Countries, but that a substantial part of the salary item increase was due to the third and final percentage increase in the Council's contribution to the pension scheme which had been agreed in 1990. Costs for postage and telephone, both very essential, would also increase significantly and were largely outside the control of the Secretariat.

As agreed under Agenda Item 13, the draft Forecast Budget would be amended to add DKK 75,000 under expenditures for "Office Maintenance" and to add the same amount under income by a transfer from the Capital Reserve Fund.

The **Delegate of Canada** reported that he would not be able to support the increase in national contributions of 5.5% because of his country's policy of fiscal restraint. The **Delegate of the United States** was pleased that the rate of increase in the draft Forecast Budget was smaller than in recent years, and acknowledged that his country had similar concerns as Canada. He was prepared to support the draft Forecast Budget, but urged the Secretariat to continue to show fiscal restraint in the preparation of future budgets, recognizing the difficulties that most Member Countries were having with their own national budgets. The **Delegate of Poland** shared the views expressed by the Delegate of the United States.

The **Delegate of Sweden** moved that the draft Forecast Budget, as amended, be adopted. The motion was seconded by the **Delegate of Iceland**. A roll call vote resulted in 14 in favour and two against, with one abstention. The amended draft Forecast Budget was, therefore, adopted resulting in the establishment of the following contributions to be paid by Contracting Parties for Financial Year 1993/1994:

Country	No. of shares ¹	Amount DKK
Belgium	2	524,600
Canada	3	786,900
Denmark	3	786,900
Finland	1½	393,450
France	4	1,049,200
Germany	4	1,049,200
Iceland	3	786,900
Ireland	2	524,600
Netherlands	3	786,900
Norway	4	1,049,200
Poland	3	786,900
Portugal	2	524,600
Russia	4	1,049,200
Spain	3	786,900
Sweden	3	786,900
United Kingdom	4	1,049,200
USA	3	786,900
TOTAL	51½	13,508,450

¹One share = DKK 262,300

Agenda Item 15 REPORT OF PUBLICATIONS COMMITTEE

The **Chairman of the Publications Committee** summarized the Committee's report and drew attention to a number of items.

- a) The publication of Volume 73 of the *ICES Fisheries Statistics* for 1988 had been delayed until late 1992 by the lack of data from several countries, and the Committee requested the relevant Delegates to make special efforts to ensure more timely data submissions in the future.
- b) There had been a continuous increase in income in the last three years from the sale of publications, and Academic Press, which had taken over responsibility for the *ICES Journal of Marine Science*, had also publicized other Council publications.
- c) There had been a smooth transition in the editorship of the *Journal*, from Prof. R.J.H. Beverton to Prof. J.H.S. Blaxter, but there was some concern with a decrease in the number of manuscript submissions in the first nine months of 1992 relative to the same period in 1991. This decline, if sustained, would not support four issues per year. The Committee felt that the *Journal* should continue to be viewed as a "house journal" and that the Editor should continue to solicit and publish obituaries of distinguished ICES scientists.
- d) The number of subscriptions to the *Journal* in 1992 was higher than in 1991, but still considerably lower than the original projections. It had been disappointing that out of the 129 free subscriptions that were cancelled when Academic Press took over, only 26 had elected to purchase subscriptions. Many of the approximately 80 free subscriptions were being received by Member Country research institutions, and it was felt that as many as two-thirds of these could and would be willing to pay for their subscriptions. In order to assist Academic Press in making the *Journal* an economically viable publication, Delegates would be requested to indicate which, if any, institutes should continue to receive free subscriptions.
- e) The recent change in the editorship of the Plankton and Diseases/Parasites Leaflets series had resulted in the first publication activity since 1986 and 1987, respectively.
- f) Various problems with the publication of the proceedings of ICES Symposia had prompted some intersessional work by members of the Committee to explore possible solutions. The principal problems were delays in publication time, limited sales and distribution of published volumes, and variable quality of editorship.
- i) The solution to the first two problems would be a firmer editorial policy, including a paid technical editor for each volume. One proposal, which was supported both by the Committee and Academic Press and which would have to be phased in over several years, was for Symposia proceedings to be published as extra issues of the *Journal*. The advantages would be a) the standardization of editorial procedures, supervised by the Editor of the *Journal*, with each proceedings published within about one year of the Symposium, b) guaranteed distribution and sales with every *Journal* subscriber receiving the Symposium issue, with additional copies printed for independent sales, c) an improvement in the quality of Symposia proceedings by being a part of the *Journal*, and d) the *Journal* itself would be helped in reaching the goal of six issues per year. The disadvantages would be a) only one Symposium proceedings published per year, b) a doubling of the subscription price of the *Journal* if two Symposia proceedings were published per year (because of a doubling of the number of pages), and c) the elimination of the *ICES Marine Science Symposia* series with its new cover and title.
- ii) The Committee also proposed a Symposium registration fee of about USD 100 to be used to pay the technical editor and to cover the cost of a complementary copy of the proceedings for each participant.
- iii) There had been serious delays on the part of the editor in processing manuscripts from the June 1990 Symposium on Shellfish Life Histories and Shellfishery Models, coupled with complaints from some authors and members of the Symposium's co-editors. About two-thirds of the authors had not been contacted by the editor in over two years, and the Committee felt that some decisive action was required. Several options were considered including maintaining the *status quo*, cancelling the publication of the proceedings and trying to publish the good papers elsewhere (e.g., the *Journal*), and selecting a new editor. The preferred option was for a new editor.
- g) The Committee generally supported a proposal for publishing the recordings of rare fish species and species outside their normal range in the

Journal, but needed more input before it could evaluate how the material could be published.

- h) An Atlas of North Sea Fishes was scheduled to be published soon in the *ICES Cooperative Research Report* series, and the senior editor had requested support from the Committee for ensuring wider distribution and greater availability for the publication perhaps through a second publishing by a commercial firm. The Committee had only agreed with the need for wide distribution, and did not offer any specific proposals.

The **President** noted that several items had financial implications or required Council action, including the publication of the Atlas of North Sea Fishes and the handling of Symposia proceedings. Regarding the latter, the Council could decide to either make no changes or incorporate the proceedings with the *Journal*. In the case of the Atlas, he was unsure of the cost implications.

The **Chairman of the Publications Committee** felt that the Atlas issue needed to be pursued by the General Secretary in consultation with the Commission of the EC, which had apparently indicated the possibility of either purchasing a significant number of copies of the published Atlas or otherwise providing some financial assistance. In the case of the former situation, ICES could simply print the additional copies and gain the extra income. The **Delegate of the United States** felt that this would be the best solution. Concerning the future of the Symposia proceedings, he supported the idea of merging them with the *Journal* because it would result in more and better material for and broaden the interest in the *Journal*. The **Chairman of the Publications Committee** reiterated that the *Journal* could handle only one Symposium per year, which would be about 250 pages or the equivalent of two issues of the *Journal*. However, with two Symposia per year, as at present, the Council would be faced with having two categories of Symposia volumes (some published as special issues of the *Journal* and some published in the *ICES Marine Science Symposia* series, at least for the next several years, or having only one Symposium per year.

The **President** proposed that the Council should take note of the various suggestions and the Bureau would reconsider the matter at its next meeting. In the meantime, the Secretariat should investigate further the publication of the Atlas of North Sea Fishes and try to obtain the reaction of some of the principal libraries which currently subscribed to both the *Journal* and the *Marine Science Symposia* series to various cost increases in the *Journal* arising from the publication of either one or two Symposia proceedings per year as extra issues.

The **Delegate of the Netherlands** indicated that he would welcome any initiatives by the Secretariat in determining the potential interest of commercial publishers in the Atlas of North Sea Fishes.

The **Delegate of Finland** inquired as to the extent of the Council's editorial control of the *Journal*, to which the **General Secretary** reported that the current contractual relationship with Academic Press gives full editorial control to the Editor (appointed by the Council) through the Publications Committee.

The **Delegate of France** reminded Delegates that significant changes and improvements had been made to the Council's publications in the last two years, and suggested that the Council should wait a few years before making any decisions on the proposals made by the Publications Committee relative to publishing the Symposia proceedings.

The **President** summarized this Agenda Item by noting the desire by all Delegates to bring about needed improvements in all aspects of the Council's publication activities, but that all appropriate factors needed to be evaluated before decisions were taken. Publications were the Council's face to the public and their importance deserved to be recognized. Publications such as the Atlas should reach a wide market. The various matters raised would be considered further at the next Bureau meeting and the several initiatives proposed would be followed up. He thanked Delegates for their useful comments and thanked the Chairman of the Publications Committee for his presentation and for the fine work of the Committee.

Agenda Item 16 APPOINTMENT OF ONE MEMBER OF PUBLICATIONS COMMITTEE

The **President** reported that a new member of the Publications Committee had to be appointed to replace Dr Michael M. Sinclair (Canada) who would, on 31 October, complete his three-year term on the Committee, the last year of which he had served as Chairman. He thanked Dr Sinclair for his service to the Council in this capacity. The Bureau wished to propose the appointment of Dr Michael P. Sissenwine (USA) as a member for the next three years and current member Mr Jóhann Sigurjónsson (Iceland) as the new Chairman. These appointments were unanimously agreed, resulting in the following membership of the Publications Committee for 1992/1993 (last year of appointment in parentheses):

Mr Jóhann Sigurjónsson (Iceland), Chairman (1994)
Mr André Forest (France) (1994)
Prof. Alfred Post (Germany) (1994)
Dr Michael P. Sissenwine (USA) (1995)

Prof. John H.S. Blaxter (Editor, *ICES Journal of Marine Science*)

Prof. Chris C.E. Hopkins (Chairman, Consultative Committee) (1994)

Agenda Item 17 REPORT AND RECOMMENDATIONS OF CONSULTATIVE COMMITTEE

The **Chairman of the Consultative Committee** presented the Committee's report. His comments, the ensuing discussion, and the Council's actions on the various items and recommendations are summarized below.

a) Conduct of the Statutory Meeting

The work of the Committee had been assisted greatly by the Secretariat's preparation of *Guidelines for Committee Chairmen* and *Instructions for Rapporteurs*, for which he expressed appreciation.

The handling of recommendations had improved measurably as many of them had been prepared by Subject/Area Committees much earlier than before because of the efforts by the Secretariat in compiling recommendations from Working/Study Groups into a single document (Doc. C.M.1992/A:6) which was available to all Committee Chairmen. Participation by additional Subject/Area Committee Chairmen in the ACFM consultations had also improved the recommendation process.

The Committee recommended that an extraordinary intersessional meeting of the full Committee should be held for three days in May/June 1993 to address substantive strategic issues such as marine mammals, the role of ACME, restructuring of the Subject/Area Committees, and interdisciplinary work for which there was insufficient time during the Statutory Meeting. This meeting would be in place of the Programme Planning Group meeting. The Chairman and Secretariat staff would prepare a draft "Blue Card" in advance for approval by the Committee so as to minimize the time spent on that item. The Council adopted this recommendation as C.Res.1991/2:3.

In response to a question by the **Delegate of Iceland** about the possible screening of papers prior to their presentation at Statutory Meetings, the **Chairman of the Consultative Committee** indicated that, in fact, there had been some very poor quality papers at this year's Meeting which had posed some problems in several Committees, and some Chairmen had suggested that some type of screening might avoid such problems. The **President** reminded Delegates of a discussion several years earlier in which it was agreed that Member Country institutes needed to implement their own quality control procedures.

b) Election of New Committee Chairmen

Attention was drawn to the five newly elected Chairmen of Subject/Area Committees (see list under Agenda Item 4 of Report of Consultative Committee).

c) Progress Report on the Ninth Dialogue Meeting

Plans for the Ninth Dialogue Meeting to be held in Edinburgh, Scotland, UK from 7-8 June 1993 were progressing well. The topic for the Meeting would be "Atlantic Salmon: Management and Fishery Environments, Today and Tomorrow".

d) Report of Inter-Committee Recruitment Group

The IRG had focused primarily on the need to emphasize and expand the Council's Cod and Climate Change programme and several relative recommendations would be forthcoming.

The **Delegate of Canada** expressed surprise that the IRG had felt that Cod and Climate Change had not received sufficient attention within ICES in recent years, because he felt there had been considerable activity. The **Chairman of the Consultative Committee** explained that both the IRG and members of the old Steering Group on Cod and Climate Change had felt that the Steering Group had not been successful in achieving its objectives, which was why a Working Group with more specific terms of reference was being established (C. Res.1992/2:7).

e) Enhancing the Interdisciplinary Role of ICES

The Committee had acknowledged the significant progress made by the Study Group on Ecosystem Effects of Fishing Activities, and particularly the efforts of its Chairman, Mr H. Gislason (Denmark), and had endorsed most of the Group's recommendations for future work.

The Committee had considered the current Subject/Area Committee structure and concluded that there were some shortcomings. There needed to be further consideration of this matter by the Consultative Committee, but it was felt that a broader perspective could be achieved, at the discretion of Chairmen, within the existing structure.

Although the Committee had devoted considerable time to the structure and composition of ACMP, the matter had already been dealt with by Delegates under Agenda Item 7.

The **Delegate of Finland** considered that, in light of the change of ACMP into ACME, it was also appropriate to make some changes in the Subject/Area Committee structure. He hoped that this would be one of the major topics at the mid-term meeting of the Consultative Committee, and urged each Member Country to discuss the matter internally and for Delegates to correspond on the matter as well. The **President** endorsed this suggestion and encouraged Delegates to follow up on it so that all opinions could be taken account of in the Consultative Committees discussion in June.

f) Scientific Interaction with North Atlantic Marine Mammal Commission

The question of how to respond to the request from NAMMCO for scientific information and advice had been dealt with by the Committee and considered by Delegates under Agenda Item 4.

g) Publication of Recordings of Rare Fish Species

This matter, which had also been considered by the Publications Committee (see Agenda Item 15), was generally supported by the Committee, but further clarification on the definition of "rare" and on reporting protocols was needed.

h) Open Lecture and Mini-Symposium for 1994 Statutory Meeting

The Open Lecture at the 1993 Statutory Meeting would be given by Dr (Ms) J. McDowell Capuzzo (USA) on "Biological Effects of Contaminants". The Committee recommended, and the Council agreed, that Prof. (Ms) J. McGlade (UK) should be invited to present the Open Lecture at the 1994 Statutory Meeting on the subject of "Putting Fishermen into Fishery Models".

At the 1991 Statutory Meeting, the Council had invited Dr S. Hall (UK) to serve as Convener of the Mini-Symposium at the 1993 Statutory Meeting on the "Effect of Fisheries and Other Sources of Physical Disturbance on Benthic Systems". However, efforts by Dr Hall to enlist experts in this field as speakers, most of whom worked on the fringes of or outside the ICES system, had proven unsuccessful for various reasons (primarily lack of financial support for speakers). Attempts by the Committee to obtain alternative topics and Conveners for 1993 had been unsuccessful and, therefore, the Committee recommended that there should not be a Mini-Symposium at the 1993 Statutory Meeting.

For the 1994 Statutory Meeting, the Committee recommended that the Mini-Symposium should be convened by Dr G. Arnold (UK) on the topic "The Influence of Large-Scale Environmental Processes on the Migration,

Distribution, and Abundance of Atlantic Fish Stocks and their Implications for Management".

The Council approved both recommendations and also took note of a possible 1995 Mini-Symposium on "Benefits and Responsibilities on the Introduction or Transfer of Organisms in Mariculture".

The **Delegate of the United States** pointed out that the problems of organism transfer applied to a much broader area of interest than just mariculture. He proposed that the issue should be given major emphasis at the 1995 Statutory Meeting.

i) Theme Sessions for 1993 and 1994 Statutory Meetings

The Committee felt that individual ACFM and ACME Theme Sessions should be discontinued, with only a Joint Session of the two Advisory Committee held at future Statutory Meetings. The Council approved the list of Theme Sessions for 1993 and 1994 as presented under Agenda Item 11 of the Report of Consultative Committee.

j) ICES Symposia

Three Symposia approved previously would be held in 1993 and 1995:

- i) "Mass Rearing of Juvenile Fish"; Convener: Dr I. Huse (Norway); to be held in Bergen, Norway from 21-23 June 1993 (C.Res.1990/2:4);
- ii) "Cod and Climate Change"; Convener: Mr J. Jakobsson (Iceland); to be held in Reykjavik, Iceland from 23-27 August 1993 (C.Res.1990/2:3);
- iii) "Fisheries and Plankton Acoustics"; Convenor: Mr E.J. Simmonds (UK); to be held in Aberdeen, Scotland, UK from 12-16 June 1995 (C. Res.1991/2:1).

The Committee recommended two new Symposia, one for 1994 and one for 1995, both of which were approved by the Council:

- i) "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, England, UK from 15-18 August 1994 (C.Res.1992/2:2);
- ii) "The Changes in the North Sea Ecosystem and their Causes: Århus 1975 Revisited"; Co-Conveners: Prof. N. Daan (Netherlands) and Dr (Ms) K. Richardson (Denmark); to be held in

Århus, Denmark for 4 days in July 1995 (C.Res. 1992/2:1).

The Committee also recommended, and the Council approved, that ICES should cooperate with NAFO in organizing and carrying out a Symposium on "The Role of Marine Mammals in the Ecosystem", with Mr J. Sigurjónsson (Iceland) as the ICES Co-Convener, to be held in Dartmouth, NS, Canada from 6-8 September 1995 (C.Res.1992/3:5).

k) Minutes of ACFM and Relevant Matters

Two items of concern to ACFM had been brought to the attention of the Committee. Participation in 1992 in the new area-based fish stock assessment Working Groups, which had been created by merging a larger number of previous Working Groups, had been reduced from the previous overall level of participation. Delegates were reminded that the quality of the work being done by the new Groups depended on adequate support and participation by the relevant Member Countries. Secondly, the number of PCs in ICES Headquarters for use by Working Group members was presently inadequate when multiple Groups met concurrently, and the Council was asked to be aware of this when considering budgetary matters.

l) Recommendations by Advisory and Subject/Area Committees

The "parentage" of the Working Group on Introductions and Transfers of Marine Organisms had been the subject of debate for the last several years. The scientific aspects of the Group's work were of direct concern to the Mariculture Committee, while the advisory issues were viewed as needing to be filtered through an Advisory Committee. The Consultative Committee felt that the Mariculture Committee should be the principal "parent", but that all advice emanating from the Group should be channelled through ACME.

The number of scheduled meetings of Groups, Workshops, and Committees had increased from 75 in 1992 to 79 in 1993. Some of the increase was due to interdisciplinary developments and also to the fact that some Working Groups that had not met in 1992 were scheduled to meet in 1993. The overall increase in 1993 was not a reason for concern.

Consultative Committee

The **Delegate of Spain** supported the proposed June 1993 mid-term meeting of the Consultative Committee (C.Res.1992/2:3), as well as the meeting of the Steering Group on Fisheries/Environmental Management Objectives and Supporting Research Programmes in the Baltic Sea (C.Res.1992/2:5), but as the future Chairman of the

Finance Committee, he was concerned with the financial implications for the Council. The **General Secretary** explained that the Bureau had considered the financial implications of various options for a mid-term meeting of either the full or a sub-set of the Consultative Committee. He estimated that the meeting in question would cost the Council about DKK 100,000. The **Delegate of the United States** was also concerned about the Council's costs for the two meetings (Consultative Committee and Steering Group), but was more worried about the number of days of meeting participation in the May-June 1993 period that would be required of various Committee Chairmen. He felt it important that these meetings be viewed as extraordinary and not take place every year. The **President** acknowledged that 1993 would be a difficult year in terms of the workload for some people and the cost to the Council, but the highly significant changes and improvements authorized by Delegates at this meeting had to be implemented and followed up. Concerning the increased interdisciplinary emphasis within ICES and the associated demands on people's time, the **Delegate of the Netherlands** noted that the Council had to give serious consideration to whether the present staffing within the Secretariat would be sufficient to cope with all the new developments, in light of the fact that some staff members were already overworked. The **President** acknowledged that he too was concerned with this problem and its solution, to which he attached a sense of urgency; he intended to place the matter on the agenda of the next Bureau meeting, but, in consultation with the General Secretary, try to alleviate some of the problem before then.

The Study Group on Ecosystem Effects of Fishing Activities would be remained a Working Group (C.Res. 1992/2:4) and transferred from the Consultative Committee to the joint parentage of ACFM and ACME. The **Delegate of the Netherlands** welcomed the report of the Study Group, but noted that it contained no management proposals. He pointed out that there would be a Ministerial (environment and agriculture) Conference in Denmark in December 1993 followed by the Fourth International Conference on the Protection of the North Sea (also ministerial-level) in 1995 at both of which there would be discussions on the effects of fisheries on the marine ecosystem. The recommendation called for the Working Group to work by correspondence in 1993 and not to meet until 1994, and he wondered if the Group could meet earlier than 1994 in order to address item e) in its terms of reference (relating to closed areas for fishing), which was of great importance in his country, in time for any recommendations by the Group to be considered at the 1993 Ministerial Conference. The **President, Chairman of the Consultative Committee, and Delegates of Canada, Denmark, the Netherlands, the United Kingdom, and the United States** all commented on this proposal. It was pointed out that the development of a design and planning framework for

establishing areas closed to all fishing in order to monitor the response of benthic communities and the planning of monitoring activities and process studies, as specified in the relevant term of reference, required a cautious approach, a great deal of care, and a considerable amount of time, and to force scientists into a tighter time schedule, given their already heavy workload, would only compromise the outcome. It was agreed that the Working Group would meet as early as possible in 1994, but that otherwise the process, which also included review by ACFM and ACME, could not be accelerated or circumvented. It was also agreed that, based on the information presently in hand, the Council might be in a position to offer a preliminary response on the question of closed areas for the forthcoming Ministerial Conference, if necessary, and that the necessity of doing so should be explored by the Secretariat.

The various recommendations originating from the Consultative Committee, following some wording changes, were adopted by the Council as C.Res.1992/1:1, 2:3 - 2:6. and 2:31.

Fish Capture Committee

The **Delegate of the United Kingdom** considered it very important for the Fish Capture Committee to become more closely involved with ACFM on matters of net selectivity. It was agreed that the Working Group on Fishing Technology and Fish Behaviour (C.Res. 1992/2:9) should be asked to consider the report of the Working Group on Long-Term Management Measures.

The **Delegate of the United Kingdom** pointed out that Mr R. Mitson (UK), who was shown as the Chairman of the new Study Group on Research Vessel Noise Measurement (C.Res.1992/2:12), was retired and could probably not be funded by the UK to participate in the meeting. The **Delegate of Norway**, as outgoing Chairman of the Fish Capture Committee, expressed the hope that the UK would, in fact, be able to fund Mr Mitson's participation in view of his recognized expertise, but if such funding were not possible, other sources might be available.

The recommendations originating from the Fish Capture Committee were adopted by the Council as C.Res.1992/ 2:9 - 2:12.

Hydrography Committee

The **Delegate of the United Kingdom** questioned why three different Groups were looking at algal blooms: Working Group on Shelf Seas Oceanography (C.Res. 1992/2:37), Working Group on Phytoplankton and the Management of their Effects (C.Res.1992/2:33:7), and Study Group on the Dynamics of Algal Blooms (C.Res. 1992/2:52). The **Chairman of the Consultative Com-**

mittee attributed this to the interplay among phytoplankton, hydrography, and several other disciplines, each with slightly different perspectives, and the need to obtain proper multidisciplinary input to the problem. Two of the Groups were scheduled to meet at the same venue and time (in February 1993), with the third Group meeting in April, and the **Delegate of Canada** indicated that his country had difficulty deciding which scientists to send to which meeting. He was aware that attempts had been made several years earlier to merge the various Groups involved in phytoplankton, but he did not understand the problem. The **Delegate of the United States** pointed out that there were two groups, one interested in methods of measuring primary production and the other in toxic blooms, with both seemingly wanting to address both topics without success. He was disappointed that the Consultative Committee had not managed to solve the problem after many years. The **Delegate of Ireland** confirmed the observation of the Delegate of the United States and indicated that when the merger of several Groups, each representing different disciplines, occurred earlier, instead of the necessary two or three scientists attending from a particular country in order to cover the necessary range of expertise, only one was sent and thus little progress was made. The problem seemed to be to get different disciplines represented at the same meeting for a common purpose. The **President** proposed that the three Groups should meet in 1993, as recommended, but that the present three lines of advance could not be justified in the future and that a decision had to be made at the 1993 Statutory Meeting to either amalgamate some or all of them or eliminate one or two.

The recommendations originating from the Hydrography Committee were adopted by the Council as C.Res.1992/ 2:34 - 2:37.

Statistics Committee

The recommendations originating from the Statistics Committee were adopted by the Council as C.Res.1992/ 2:13, 3:2 - 3:3, and 4:1 - 4:2.

Marine Environmental Quality Committee

The recommendations originating from the Marine Environmental Quality Committee were adopted by the Council as C.Res.1992/1:4, 2:38 - 2:43, 3:4, and 4:8 - 4:9.

Mariculture Committee

The Working Group on Environmental Effects of Mariculture would be renamed the Working Group on Environmental Interactions of Mariculture (C.Res.1992/ 2:45). The recommendation was for a meeting in 1994, but since the Group would be working by correspon-

dence in 1993, it was agreed to change the wording to reflect that fact. In addition, it was also decided to eliminate the specific reference to a meeting in 1994, but to use the wording "with a view to meeting in 1994" so as not obligate Delegates to a meeting that far in advance.

The **Delegate of Canada** requested that the Working Group on Pathology and Diseases of Marine Organisms (C.Res.1992/2:47) should be asked to consider the usefulness of the *ICES Identification Leaflets for Diseases and Parasites of Fish and Shellfish* and make recommendations on the continuation of this series and on its content. He also suggested that, to avoid confusion, Groups wishing to work by correspondence in the coming year and meet the following year should simply have this reflected in the report of the parent Committee and not in a Council Resolution.

The recommendations originating from the Mariculture Committee were adopted by the Council as C.Res.1992/1:5 - 1:6, 2:45 - 2:49, and 4:10.

Demersal Fish Committee

The recommendations originating from the Demersal Fish Committee were adopted by the Council as C.Res.1992/2:1, 2:14 - 2:16, and 4:3.

Pelagic Fish Committee

A new Planning Group for Herring Surveys (C.Res.1992/2:17) would replace the former Working Group on Herring Larval Surveys South of 62°N and the Planning Group for Acoustic Surveys in Sub-area IV and Division IIIa.

The recommendations originating from the Pelagic Fish Committee were adopted by the Council as C.Res.1992/2:17 and 2:18.

Baltic Fish Committee

The recommendations originating from the Baltic Fish Committee were adopted by the Council as C.Res.1992/2:19 - 2:21.

Shellfish Committee

The Study Group on Cephalopod Biology would be renamed the Study Group on the Life History and Assessment of Cephalopods (C.Res.1992/2:22) in light of the view that the Group should progress from a descriptive role to one of promoting serious thinking about assessment methods and the collection of fishery data in order to lay the foundation for future discussion about harvesting techniques and management.

The Study Group on Pollution Affecting Shellfish in Aquaculture and Natural Populations would be renamed the Study Group on Impacts Likely to Affect Shellfish in Aquaculture and Natural Populations (C.Res.1992/2:50).

The new Study Group on the Biology, Life History, and Assessment of *Majid* Crabs (C.Res.1992/2:25) would hopefully provide better cooperation between North American and European workers in this discipline.

The recommendations originating from the Shellfish Committee were adopted by the Council as C.Res.1992/2:22 - 2:26 and 2:50.

Biological Oceanography Committee

The wording of the recommendation for the Working Group on Recruitment Processes, which would work by correspondence in 1993 and intended to meet in Lysekil, Sweden from 14-17 June 1994, was changed to read "with a view to meeting in 1994" (C.Res.1992/2:28).

There was a discussion on whether the title of the new Study Group on Methods of Spatial and Temporal Integration (C.Res.1992/2:51) adequately reflected the purpose of the Group. The Group would be doing work in support of fish recruitment and ecosystem research and modelling in general and it was finally agreed that the title had relevance to the scientists who needed to be involved in the Group.

The Study Group on Zooplankton Production (C.Res.1992/2:53) would be submitting its final report to the 1994 Statutory Meeting.

The **Delegate of Canada** noted that some of the tasks of the Benthos Ecology Working Group (C.Res.1992/2:55), scheduled to meet in May 1993, were related to the issue of closed areas to fishing included in the terms of reference for the Working Group on Ecosystem Effects of Fishing Activities, which would work by correspondence in 1993 and meet in early 1994. The **Chairman of the Consultative Committee** pointed out that some of the members of the Benthos Ecology Working Group were also involved in the Ecosystem Effects Group, but that the Benthos Ecology Group was not working directly on the closed area issue, but on related items. The **President** considered it helpful to the concerns raised by the Delegate of the Netherlands for early advice on the closed area issue for an additional item to be added to the terms of reference of the Benthos Ecology Working Group to "if possible, prepare material for use by the Working Group on Ecosystem Effects of Fishing Activities at its next meeting in 1994".

The recommendations originating from the Biological Oceanography Committee were adopted by the Council as C.Res.1992/1:7, 2:2, 2:28 - 2:30, and 2:51 - 2:55.

Anadromous and Catadromous Fish Committee

It was agreed that the Chairman of the new Study Group on Stock Identification Protocols for Finfish and Shellfish Stocks (C.Res.1992/2:27) should be advised to maintain close contact with the Chairman of the Working Group on Genetics.

The recommendations originating from the Anadromous and Catadromous Fish Committee were adopted by the Council as C.Res.1992/1:8 and 2:27.

Marine Mammals Committee

The **Delegate of France** noted that there had been a suggestion made in the Marine Mammals Committee to establish a Study Group to investigate the accidental capture of dolphins during fishing operations, but it had been considered more appropriate to add an item to the terms of reference of the Study Group on Seals and Small Cetaceans in European Seas (C.Res.1992/2:32). However, no mention had been made of this discussion in the report of the Marine Mammals Committee nor had this been reflected in the present draft of the terms of reference for the Study Group. He proposed asking the Group to "study the means of reducing or avoiding the capture of small cetaceans in fishing nets". He thought it would be useful if experts on marine mammals, net technology, and acoustics could work together on this matter. It would be better for this work to be done by this Study Group rather than by one of the Fish Capture Committee's Working Groups because it would be easier to attract net and acoustics experts to the Study Group meeting than to attract marine mammals experts to a Fish Capture Working Group meeting. The **Delegates of the Netherlands, Finland, and Norway** supported the proposal of the French Delegate, and it was agreed to add to the recommendation that fish capture specialists were invited to participate in the Study Group meeting.

The recommendations originating from the Marine Mammals Committee were adopted by the Council as C.Res.1992/2:32, 2:56, 3:5, and 4:11.

ACFM

It was agreed to ask ACFM, at its May 1993 meeting, to consider its remit, goals, and issues to be handled, and report to the June 1993 meeting of the Consultative Committee (C.Res.1992/2:8). This would be in parallel with the same request to ACME (C.Res.1992/2:33).

The **President** appealed to Delegates to give greater support (i.e., send more scientists) to the new area-based assessment Working Groups, such as the Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak (C.Res.1992/2:8:14), the Working Group on the Assessment of Northern Shelf Demersal Stocks (C.Res.1992/2:8:15), and the Working Group on the Assessment of Southern Shelf Demersal Stocks (C.Res.1992/2:8:16), since considerable thought and care had gone into the establishment of these Groups and the participation in the 1992 meetings of these Groups had been very disappointing (i.e., overall decrease in the number of scientists).

The Industrial Fisheries Working Group would be renamed the Working Group on the Assessment of Norway Pout and Sandeel (C.Res.1992/2:8:17) and the responsibility for sprat, the third species previously handled by the Industrial Fisheries Working Group, would be transferred to the Herring Assessment Working Group for the Area South of 62°N (C.Res.1992/2:8:7). The new Working Group would probably function for only one year and then its work would be integrated with that of the Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak (C.Res.1992/2:8:14).

The membership of the new Planning Group for the Development of Multispecies, Multifleet Assessment Tools (C.Res.1992/2:8:20) was clarified; it would be open to any interested scientists, but there was also a need to have representation from the membership of the Multispecies Assessment Working Group, the Working Group on Long-Term Management Measures, and the area-based assessment Working Groups.

The recommendation for the Working Group on Long-Term Management Measures (C.Res.1992/2:8:22) was amended to ask it to make its report available to the Working Group on Fishing Technology and Fish Behaviour.

The **President** reminded Delegates that by agreeing to all the various recommendations for meetings of Working and Study Groups, they were accepting the privilege and responsibility of nominating appropriate participants, and that they could and should review such participation from year to year in response to changing terms of reference.

The recommendations originating from ACFM were adopted by the Council as C.Res.1992/2:8 and 2:8:1 - 2:8:22.

ACMP

The **Delegate of the United States** considered it ridiculous for the Working Group on Phytoplankton and the

Management of their Effects (C.Res.1992/2:33:7) to be asked to "collate national reports on harmful bloom events" when there was a Study Group on the Dynamics of Algal Blooms (C.Res.1992/2:52). The collating of records and discussions on blooms should take place in the same meeting. He again urged that steps be taken to rectify this untidy situation.

The intervention by the Delegate of the United States resulted in a lengthy discussion on a number of items in the terms of reference for the Working Group which were unclear or appeared to be more appropriate for the Study Group on the Dynamics of Algal Blooms. The **Environment Secretary** provided some background information and explanation to the various items. The **President** considered it vital for the Chairmen of the two Groups to have close cooperation and to ensure an exchange of data and information of relevance to the tasks of the two Groups. He also raised the question of dissolving the Working Group. The **Delegate of Canada** recalled that there were three separate Groups about five years ago, which were all involved in phytoplankton, which had been merged to form the existing Working Group. This Working Group comprised the core group of scientists interested in phytoplankton, many of which had devoted many years to developing a data base on algal blooms, and now the Study Group on the Dynamics of Algal Blooms and the Working Group on Shelf Seas Oceanography were initiating a parallel activity which complicated participation. He suggested that perhaps the Study Group should be dissolved or made a Sub-Group of the Working Group. The **Environment Secretary** felt that any merger of the Working Group and Study Group would be inappropriate because they were dealing with the same issue, but on different scales, and a merger would damage the efforts of both Groups. The **Delegate of Ireland**, who had chaired one of the earlier Working Groups which had been merged to form the existing Working Group on Phytoplankton and the Management of their Effects, explained the background to some of the current problems and noted that the present name of the Working Group did not correspond to its terms of reference. She agreed that the Group's present tasks were important, but the expertise of the present membership of the Group did not correspond to those tasks. She also concluded that the present arrangement was untenable and had to be corrected, but she could not recommend a specific solution. The **Delegate of Canada** proposed that the present situation, although unsatisfactory, could not be changed this year. The **President** concluded the discussion by confirming that the matter, which would require careful attention by the Consultative Committee, would have to be resolved at next year's Statutory Meeting.

The recommendations originating from ACMP were adopted by the Council as C.Res.1992/1:2 - 1:3, 2:33, 2:33:1 - 2:33:7, 2:44, and 4:4 - 4:7.

Inter-Committee Recruitment Group

The recommendations originating from the Inter-Committee Recruitment Group, all which pertained to the Council's Cod and Climate Change programme, were adopted by the Council as C.Res.1992/2:7 and 3:1.

Agenda Item 18 ACFM MATTERS

There were no issues raised concerning ACFM that were not covered under other Agenda Items.

Agenda Item 19 ACMP MATTERS

There were no issues raised concerning ACMP that were not covered under other Agenda Items.

Agenda Item 20 81ST (1993) AND 82ND (1994) STATUTORY MEETINGS

The **President** briefly noted that all arrangements were in place for holding the 1993 Statutory Meeting in Dublin from 23 September - 1 October.

The **Acting Delegate of Portugal** indicated at the third session of the Delegates meeting that his country was very interested in hosting the 1994 Statutory Meeting in Lisbon, but that he had been unable yet to receive official written confirmation of this from a responsible official of his government. The **President** welcomed Portugal's interest, but preferred to defer a decision until the final session of the meeting when hopefully a formal written invitation would be in hand.

At the fourth session, the **Acting Delegate of Portugal** reported that he had not yet received an official written invitation, but hoped that the matter could be resolved within the next several days. The **President** acknowledged the awkwardness of the situation, but in light of the need to have a written invitation in hand before making an important decision such as this, he proposed that a decision not be taken then, but that he and the General Secretary should consult further with the Portuguese authorities during the next several weeks, and that contingency plans be made for possibly holding the 1994 Statutory Meeting in Copenhagen. As soon as the situation had been resolved, Delegates would be informed accordingly. The Council approved this proposal.

Even though the venue had not been decided, it was agreed that the 1994 Statutory Meeting would be held from 22-30 September.

Agenda Item 21 ANY OTHER BUSINESS

a) Observer Status for the South African Sea Fisheries Research Institute

The **President** explained that two South African scientists (Dr L.V. Shannon and Prof. D.S. Butterworth) had attended the Statutory Meeting as guests of the Council to explore the possibility of obtaining observer status for their organization similar to that given to the Australian Commonwealth Scientific and Industrial Research Organization (CSIRO) at the 1991 Statutory Meeting. The Bureau had discussed this matter at its mid-term meeting and had not, at that time, identified any potential political sensitivities on the part of Member Countries. He noted that the two scientists had spoken informally with many Delegates about observer status for their institute, and he was of the understanding that there was no opposition. Therefore, he proposed that the Council grant observer status to the Sea Fisheries Research Institute in South Africa.

The **Delegate of Canada** reported that this matter had not yet been discussed in his country and that maybe it was better to indicate that there was generally a very favourable attitude towards the request, but that one or two Delegates needed to consult their governments. The **Delegate of France** noted that a South African scientist had attended the Workshop on the Analysis of Trawl Survey Data held in Woods Hole in June 1992. The **General Secretary** pointed out that Council policy permitted scientists from non-Member Countries to attend such meetings with the consent of the Chairman and the General Secretary. The **President** indicated that, although a unanimous decision was not required on the request, he preferred not to force the matter through against the wishes of any delegation, and would be prepared to decide the matter at the June 1993 mid-term Bureau meeting. The **Delegate of Norway** felt it appropriate to defer a decision since he was unsure of the official position of his government on this matter. The **Delegates of Spain, Portugal, Iceland, the Netherlands, Sweden, Denmark, and Belgium** all indicated their support for the South African request. The **Delegate of Poland** supported the request, but emphasized the need to inform the South African scientists that the decision to be taken in June 1993 would most likely be affirmative and that they could start making plans for their future participation. The **Delegate of the United States** also supported the request, but reiterated his pre-

vious statement that the Council needed to give careful consideration to the development of specific protocols and policies regarding observer status for organizations such as the Sea Fisheries Research Institute.

The **President** concluded discussion on this matter by indicating that a strong positive signal would be given to the South African scientists, and that the final decision would be taken by the Bureau at its next meeting, which would give sufficient time for Delegates still lacking a mandate on this question to consult with their governments and respond to the General Secretary.

b) Other Matters

The **General Secretary** announced that the dates of the next Bureau meeting would be 21-22 June 1993. He reminded Delegates to respond in a timely manner to his request for updated national membership lists for Committees and all the various Groups because delays in their responses would delay preparation of the *ICES Annual Report*. He would specify a deadline of about mid-December when he wrote to Delegates within the next several weeks.

c) Closing

The **President** thanked the German hosts for an incredibly successful meeting and noted that many people had expressed their compliments to him about the splendid location and the splendid organization of the meeting. He felt that all participants would go home filled with good memories of the Rostock vicinity and highly impressed with German organizational skills. He paid tribute to Prof. Post, Prof. Meincke, Dr Rechlin, Mr Vaske, and their many colleagues who had helped the Secretariat in many ways.

The **Delegate of Poland**, on behalf of the other Delegates, thanked the President for the excellent manner in which he had conducted a rather difficult meeting. He particularly thanked the Secretariat for all their splendid and extremely hard work, as usual, which was always done behind the scenes.

The **President** thanked the Delegate of Poland for his kind remarks, the Secretariat for its work, and the Bureau members and other Delegates for their support. After wishing everyone a safe journey home, he adjourned the meeting.

DOCUMENTS

Del:1

Audited Income and Expenditure Accounts for the Financial Year 1990/1991 with Balance Sheet at 31 October 1991

Del:2

Progress report on administration

Del:3		Report on Activities, 1992
Del:4		Estimated Accounts for the Financial Year 1991/1992
Del:5		Draft Budget for the Financial Year 1992/1993
Del:6		Draft Forecast Budget for Financial Year 1993/1994
Del:7		Elections and appointments by the Council at the 80th Statutory Meeting
Del:8		Request for observer status from World Wide Fund for Nature
Del:9		Request for observer status from Greenpeace International
Del:10 + Addendum		Relations with the new North Atlantic Marine Mammal Commission
Del:11		Memorandum of Understanding between HELCOM and ICES
Del:12	C.C.E. Hopkins	The future of ACMP: its role and composition
Del:13	Environment Officer	North Sea Task Force progress report
Del:14		Cooperation with IOC and SCOR
Del:15	Environment Officer	Enhancing the interdisciplinary role of ICES: a complementary document to C.M.1991/Del:11
Del:16		Future of ACMP - Bureau recommendations
Del:17		Extract from the draft report of the 1992 meeting of the Consultative Committee
Del:18		Agenda Item 4

ANNEX 1

MEMORANDUM OF UNDERSTANDING BETWEEN THE BALTIC MARINE ENVIRONMENT PROTECTION COMMISSION AND THE INTERNATIONAL COUNCIL FOR THE EXPLORATION OF THE SEA

Recognizing that the Baltic Marine Environment Protection Commission, hereinafter called "the Commission", as defined by the Convention on the Protection of the Marine Environment of the Baltic Sea Area, is responsible for preventing and abating pollution and for protecting and enhancing the marine environment of the Baltic Sea Area, and, in the implementation of its duties, should seek, when appropriate, the services of competent regional and other international organizations to collaborate in scientific and technological research and other relevant activities pertinent to the objectives of the Convention; and

Recognizing that the International Council for the Exploration of the Sea, hereinafter called "the Council", (1) exists to (a) promote and encourage research and investigations for the study of the sea particularly related to the living resources thereof, (b) draw up programmes required for this purpose and to organize, in agreement with its Contracting Parties, such research and investigations as may appear necessary, and (c) publish or otherwise disseminate the results of this work; and (2) seeks to establish and maintain working arrangements with other international organizations which have related objectives and cooperate, as far as possible with such organizations, particularly in supplying requested scientific information;

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

1. The Commission shall have the right to ask the Council for scientific advice and information relative to matters pertinent to the Commission's objectives, which the Council shall, to the extent possible, provide. The Commission and the Council shall yearly agree on the scientific advice and information covered by this paragraph.
2. The Commission shall be invited to attend, in an observer capacity, all Statutory Meetings of the Council and meetings of the Council's Working Group on the Baltic Marine Environment.
3. The Council shall be invited to attend, in an observer capacity, all meetings of the Commission, its standing Committees and their subsidiary Working Groups.
4. In connection with its provision of advice and information to the Commission, the Council shall provide the Commission with reports of its Advisory Committee on Marine Pollution and other relevant reports prepared or published by the Council. The Commission shall in turn provide the Council with copies of documents and reports associated with its annual meeting and with all relevant scientific reports associated with its standing Committees and their subsidiary Working Groups.
5. The Council shall, to the extent possible, provide other services to the Commission relative to matters pertinent to the Commission's objectives, in addition to the scientific advice and information, if so requested by the Commission.
6. The Parties shall consult regularly on ways in which cooperation between them can be further improved and extended.
7. The Commission will make a payment of DKK 220,000 to the Council in 1992/1993 as compensation for the receipt of requested scientific advice and information, as specified in Paragraph 1 above, and annual payments subsequently. The subsequent annual payments shall be indexed as follows:

Total contribution by Member Countries of the Council to its
annual budget for the Financial Year in question

Total contribution by Member Countries of the Council to its
annual budget for the Financial Year 1992/1993

The annual payment shall exclude the costs of providing other services as may be requested by the Commission, as specified in Paragraph 5 above. Payment for other services shall be determined if and when such requests are made by the Commission and will be based on the appropriate expenses incurred by the Council in providing such services.

8. The terms of this Understanding may be revised by the two Parties if both Parties so agree. If they fail to agree on new terms, the Understanding shall continue on the basis of the existing terms until new terms have been agreed. Either Party may withdraw from the Understanding at any time subject to giving one year's notice.
9. This Understanding shall enter into force upon signature and shall remain in force unless either Party withdraws pursuant to Paragraph 8 above.

President
International Council for the
Exploration of the Sea

Executive Secretary
Baltic Marine Environment
Protection Commission

Date:

Date:

REPORT OF FINANCE COMMITTEE

Chairman: Dr D.J. Garrod

The Committee met on Friday 25 September from 09.10 - 13.05 hrs and on Saturday 26 September from 10.00 - 11.45 hrs. All members were present except Dr J.L. Kleniewski. The First Vice-President, representing the Bureau, the General Secretary, Ms Schrader, and Ms Lützhöft also attended the meeting.

Agenda Item 1 APPROVAL OF AGENDA

The draft Agenda was adopted as presented following a brief comment by the General Secretary on the three items referred to the Committee by the Bureau contained in Agenda Item 6.

Agenda Item 2 AUDITED ACCOUNTS FOR FINANCIAL YEAR 1990/1991

The General Secretary reviewed Doc. C.M.1992/Del:1 containing the Audited Accounts and Balance Sheet for 1990/1991. He drew attention to the amounts in the Capital Reserve Fund (DKK 1,082,432) and the Computer Equipment Fund (DKK 425,443) as of 1 November 1991 and pointed out where the amounts under various income and expenditure items had differed from those presented in last year's Estimated Accounts (Doc. C.M.1991/Del:4). It was noted that the excess of income over expenditure in 1990/1991 (DKK 425,443), which had been about DKK 370,000 higher than indicated in last year's Estimated Accounts, had all been transferred into the Computer Equipment Fund. A comment in the Audited Accounts by the Auditor was explained, and it was also pointed out that the actual contribution received from one Member Country was slightly less than the budgeted amount because of bank charges being assessed to ICES in the transfer of funds from that Member Country.

The Audited Accounts and Balance Sheet were approved and signed by the Committee members.

Agenda Item 3 ESTIMATED ACCOUNTS FOR FINANCIAL YEAR 1991/1992

The General Secretary summarized Doc. C.M.1992/Del:4 and drew particular attention to an estimated excess of income over expenditure of about DKK 685,000. The amounts estimated to be in the Capital Reserve and Computer Equipment Funds as of 31 October 1992 were DKK 1,134,614 and DKK 452,500, respectively. Total income was DKK 1,115,300 higher than budgeted primarily because of a) the contribution from the Commission of the European Communities (CEC) being DKK 786,000 higher than budgeted, b)

interest income being DKK 221,000 higher than budgeted, and c) sale of publications being DKK 100,000 higher than budgeted. Total expenditures were estimated to be about DKK 430,000 higher than budgeted. Salaries would be exceeded by about DKK 411,000 because of a new Professional post, assistance for computer programming, the upgrading of two General Service posts, and a higher cost-of-living increase than expected for General Service posts. Office expenses (especially for postage, telephone, and stationery) would be about DKK 207,000 higher and travel and meeting costs about DKK 16,000 higher than budgeted, whereas publication costs and ADP expenses would be about DKK 182,000 and DKK 113,000 lower, respectively, than budgeted.

The General Secretary reviewed a number of possible options for the use of the excess of income over expenditure. He considered the Capital Reserve Fund (DKK 1,134,614) to be at an adequate level in light of a Finance Committee recommendation in 1990 that the Fund should be at least at DKK 750,000 and that it would continue to grow each year through the accrual of interest. Similarly, he viewed the Computer Equipment Fund to be at a satisfactory level at the present time. Therefore, he proposed that the entire excess of income over expenditure be used for the following purchases (in order of priority): a) new photocopier (DKK 355,000), b) computer equipment (DKK 100,000), c) new chairs for the Secretariat lunch room and new furniture for the Bureau room (DKK 75,000), d) new floor covering in nine offices and several corridors and new curtains in some rooms (DKK 120,000), and e) repainting of rooms (DKK 35,000). He emphasized that the purchase of a new photocopier and the computer equipment was particularly critical to the operation of the Secretariat, and that he had been advocating the acquisition of replacement furniture items and floor covering and painting, all long overdue, for the past several years. Excess of income over expenditure had in the past been used occasionally to cover the cost of "emergency" items such as were now needed and for which funds were not available in the regular budget, and the present situation represented a unique opportunity to acquire some badly-needed items.

Various suggestions were considered relative to whether some or all of the excess of income over expenditure should be used as requested by the General Secretary or whether some or all of the amount should be placed in the Capital Reserve Fund or used to reduce national contributions. One suggestion was to modify the draft Budget by a) showing some or all of the proposed purchases as expenditure items and b) transferring an equi-

valent amount from the Capital Reserve Fund to income to cover the cost of these expenditures. The excess of income over expenditure from 1991/1992, when finally determined, would then be used to replenish the Capital Reserve Fund. It was explained that draft Budgets had traditionally not been changed in this manner for such uses of excess of income over expenditure, but that the expenditures had simply been authorized by the Council and then properly documented in the Income and Expenditure Accounts for the financial year in question.

The Committee recognized the emergency nature of several of the requested items and was broadly sympathetic with the General Secretary's proposal to authorize their immediate acquisition, but felt that the other items (i.e., furniture and floor covering replacements, repainting) should preferably be handled in annual Budgets under "Office Maintenance" as part of a long-term priority list of investments which should be made. It was pointed out that since interest rates in Denmark (about 10%) were presently much higher than the inflation rate (2-3%), it would be prudent to place some of the excess of income over expenditure into the Capital Reserve Fund to draw interest and defer the purchase of the requested furniture and floor covering and painting over the 1992/1993 and 1993/1994 Financial Years.

The Committee approved the Estimated Accounts and recommended their acceptance by the Council. The Committee also agreed to recommend the following use for the excess of income over expenditure for approval by the Council: a) the immediate expenditure of an estimated DKK 455,000 for the purchase of a new photocopy machine and necessary computer equipment; b) increase the expenditure item of "Office Maintenance" under "Office Expenses" in both the draft Budget for 1992/1993 and the draft Forecast Budget for 1993/1994 by DKK 75,000 in each year; c) transfer DKK 75,000 from the Capital Reserve Fund to income in both the draft Budget for 1992/1993 and the draft Forecast Budget for 1993/1994; and d) transfer all of the excess of income over expenditure in 1991/1992 remaining following the purchase of the photocopier and computer equipment (estimated to be about DKK 230,000) into the Capital Reserve Fund to offset the transfers referred to in c) above and possibly be used in the future to assist in reducing increases in national contributions.

Agenda Item 4 BUDGET FOR FINANCIAL YEAR 1992/1993

The General Secretary reviewed Doc. C.M.1992/Del:5 containing the draft Budget for 1992/1993. He emphasized that all income items were the same as in last year's approved Forecast Budget and that several expenditure items were modified by the transfer of amounts from one to another. It was pointed out that the contribution agreed at the September 1992 Joint Meeting of

the Oslo and Paris Commissions (OSPARCOM) would be DKK 185,000 higher than the budgeted amount (DKK 455,000). In addition, the contribution agreed by OSPARCOM for the Special Budget for the North Sea Task Force was about DKK 57,000 higher (including about DKK 37,000 for technical editing of the Quality Status Report) than the amount shown (DKK 386,000). It was explained that this additional income would offset some unbudgeted salary increases (i.e., the upgrading of several Secretariat posts approved by the Bureau and expected overtime and periodic assistance costs associated with data handling).

The Committee approved the draft Budget, as amended according to the recommendation given under Agenda Item 3, and recommended its adoption by the Council.

Agenda Item 5 FORECAST BUDGET FOR FI- NANCIAL YEAR 1993/1994

The General Secretary presented Doc. C.M.1992/Del:6 containing the draft Forecast Budget for 1993/1994. He stressed that attempts had been made to hold increases in expenditures to a minimum to avoid a large percentage increase in national contributions similar to that in the previous two years. Concerning income, he pointed out that the OSPARCOM contribution would likely be higher than the indicated DKK 481,000 in light of the recently agreed OSPARCOM contribution of DKK 640,000 for 1992/1993, but that the exact amount was uncertain. National contributions comprised 76% of the total income, contributions from commissions and the Faroe Islands and Greenland Home Governments 20%, and interest and sale of publications 4%. Concerning expenditures, the salaries category had been increased by 9.1%, office expenses increased by 5.9%, travel and meeting expenses decreased by 9.4%, and publication expenses increased by 9%. The overall Forecast Budget of DKK 17,780,850 (as amended according to the recommendation described under Agenda Item 3) represented a 6.4% increase from 1992/1993, with each share in the scheme of national contributions increasing by 5.5%.

Questions were raised concerning why salaries had increased by 9.1% when the overall budget had only increased by 6.4%. The General Secretary explained that the cost-of-living increase for Professional posts had been reduced from 5% in the preceding three years to only 3%, and would now be consistent with the increase for the General Service posts. In addition to the cost-of-living increase, there were also normal within-grade step increases, home leave (every second year) and education allowance increases, and an increase in the Council's contribution to the Secretariat's pension scheme from 14% to 15.8% of staff members' pensionable salaries. This pension increase would be the third and final incremental increase agreed by the Council in 1990 to

bring pension contributions up to the percentage level paid by UN organizations, and it represented nearly 3% of the 9.6% increase in the combined salaries and pensions items and 1.5% of the overall 6% budget increase.

In light of the decision of the Council to admit the World Wide Fund for Nature as an observer to Statutory Meetings beginning in 1993 and the possibility that other non-governmental organizations might in the future be granted observer status, which would result in a conference fee of DKK 5,000 per organization, it was suggested that an item for miscellaneous income for this and other small income sources might be added to future budgets.

The Committee approved the draft Forecast Budget, as amended according to the recommendation described under Agenda Item 3, and recommended its adoption by the Council.

Agenda Item 6 MATTERS REFERRED TO COMMITTEE BY BUREAU OR COUNCIL

6.1 Financial Contributions from New Baltic Republics

The General Secretary reviewed the status of the application for Council membership submitted by Latvia in late May. He also reported that he and the President had discussed Latvia's eventual national contribution with Mr M. Vitinsh, the Delegate-designate of Latvia. Various possibilities had been explored and Mr Vitinsh, who had no specific instructions from his government concerning a level of contribution which Latvia might be prepared to accept, indicated that he would convey the Council's proposals back to his government. The General Secretary also drew attention to his understanding of the financial arrangements for Latvia, Estonia, and Lithuania in HELCOM and IBSFC and suggested that these might serve as models for ICES.

The Committee discussed the national contributions from the new Baltic Republics and noted that, according to Article 14 of the Convention, the unanimous consent of all Member Countries would be required when deciding such financial arrangements. In attempting to develop a principle on which to base a contribution from Latvia, it was agreed that any such principle adopted now could be applicable to Estonia and Lithuania in the event of their applications for Council membership.

The Committee agreed that it would be beneficial if any new Member Country would be seen as bearing its own national contribution rather than being supported financially by the Council. It also agreed that a reasonable contribution would be one share in the present scheme.

A variety of possible options were considered, including the following:

- a) one share (DKK 262,300 in 1993/1994) to be assumed in the first and all subsequent years;
- b) no contribution in the first year, but one share to be assumed in all subsequent years;
- c) no contribution in the first year, but a stepwise increase to one share in the third and all subsequent years;
- d) a contribution of DKK 50,000 in the first one or two years which would cover the costs of ACFM/ACMP participation and any other Council expenses associated with membership, with a stepwise increase to one share in the third and all subsequent years.

After considering these options, the Committee agreed to recommend to the Council the following principle: payment of DKK 50,000 for the first year of membership, with the payment for any partial first year to be prorated to the number of months of membership, payment of DKK 150,000 for the second year of membership, and payment of one share in the Council's scheme of contributions for the third and all subsequent years of membership.

6.2 Council Policy on Contributions from Com- missions Receiving Services from ICES

The General Secretary reviewed the contributions from the various commissions expressed as percentages of the estimated costs incurred by the Council in providing the scientific advice and services requested. These were about 22% in the case of NEAFC, about 35% for the CEC and IBSFC, about 60% for HELCOM and OSPARCOM, and about 100% for NASCO. He also explained how the estimated costs had been determined (see Doc. C.M.1991/Del:13). He reminded the Committee that views expressed by the Council last year had ranged from maintaining the *status quo* to full recovery of costs. Attention was drawn to the views that had been expressed by some commissions (e.g., OSPARCOM) that their contracting parties were also Member Countries of ICES and that all funding should preferably be handled by the ICES Member Countries.

It was pointed out that national contributions would decrease considerably if full costs were recovered from all the commissions, given the present work programme. The channelling of all funding to ICES through one national source would be very difficult since ICES was generally funded by fisheries ministries and some of the commissions (e.g., OSPARCOM and HELCOM) were funded by environment ministries.

The Committee agreed that if the *status quo* arrangement based on negotiated contributions from the commissions were not maintained and if increased contributions were to be sought from the commissions in order to achieve greater or full recovery of costs, a project- or product-oriented budgeting system would have to be employed by ICES in order to properly determine and assign costs. The General Secretary noted that the assignment of costs would be difficult because the same advice or services were sometimes provided to more than one commission and also to Member Countries.

The Committee agreed that this type of budgeting approach was being adopted by more and more countries and that it would be prudent for ICES to have examined the pros and cons of such an approach. The General Secretary felt that before a decision were taken to embark on the implementation of such a system, the Council needed to decide a specific policy on contributions. It was recognized that the development of a satisfactory budgetary scheme based on the costing of projects or products might take as long as five years, and that the present budgeting system would have to remain in place until a proper feasibility study could be completed and its results evaluated.

The Committee was reminded that the Bureau had established a Working Group on Strategic Planning for

Scientific Cooperation and Advice whose terms of reference included consideration of the balance between the research and advisory components of the Council, and that any serious efforts towards either taking on additional advisory services or achieving greater recovery of existing costs should be developed in parallel with the activities of the Bureau's Working Group.

It was agreed that the Secretariat would establish a system to document and estimate its costs in preparing the various products and services which it provides to commissions and Member Countries. It would be necessary to collect the basic cost data for at least one or two years as part of a feasibility study.

6.3 Council Scheme of National Contributions

There were no proposals in hand for changing the present scheme of national contributions and, therefore, the Committee did not consider any possible changes. It was noted, however, that any renegotiation of the present scheme would be expected to take several years.

Agenda Item 7 ANY OTHER BUSINESS

There being no other business, the Chairman thanked the Committee members for their attention and adjourned the meeting at 11.45 hrs on Saturday 26 September.

DOCUMENTS

Fi:1	Agenda for the Finance Committee.
Del:1	Audited income and expenditure accounts for Financial Year 1990/1991 with balance sheet at 31 October 1991.
Del:4	Estimated accounts for the Financial Year 1991/1992.
Del:5	Draft forecast budget for the Financial Year 1992/1993.
Del:6	Draft forecast budget for Financial Year 1993/1994.

REPORT OF PUBLICATIONS COMMITTEE

Chairman: Dr M.M. Sinclair

The Committee met on Monday 28 September beginning at 09.15 hrs. All members were present, together with the General Secretary, Mr S.J. Smith, Assistant Editor of the *ICES Journal*, Dr A. Richford of Academic Press, and Mrs J. Rosenmeier. The President and Mr J. Møller Christensen, representing the Bureau, and Mr D. N. MacLennan were also present during part of the meeting.

Agenda Item 1 APPROVAL OF AGENDA

The draft Agenda was accepted. The Chairman announced that Agenda Item 11 would include a brief discussion of the *Atlas of North Sea Fishes* and that in the actual conduct of the meeting, Agenda Item 8, owing to its complexity and other ramifications, would be the first to be discussed.

Agenda Item 2 REVIEW OF PUBLICATION ACTIVITIES IN 1991/1992

The General Secretary presented Doc. C.M.1992/Pub:2, noting that the only publication requiring special comment was *ICES Fisheries Statistics* (formerly entitled *Bulletin Statistique des Pêches Maritimes*). Volume 73, containing statistics for 1988, would not be issued until late 1992. Production of this series was a continuing problem owing to the late submission of data by a few countries, leading to an excessive time-lag in publication. Although various methods had been tried to speed up the submissions, none had led to fully satisfactory results. The Committee agreed to request the Delegates to make a coordinated effort to take action to solve the problem.

Agenda Item 3 SALE OF ICES PUBLICATIONS DURING THE LAST THREE YEARS

Doc. C.M.1992/Pub:3 was presented by the General Secretary, who referred the Committee to the figures in Doc. C.M.1992/Pub:2 which showed a continuing increase in income from publications in recent years. From 1988/1989 to 1989/1990, the increase was 24%, and from 1989/1990 to 1990/1991, 14%. Preliminary figures indicated a further increase of about 10% for 1991/1992. Although it was recognized that not all ICES publications could be best-sellers, it was clear that there still remained a market to be tapped. In this connection, Academic Press had assisted the Council by including advertising for various ICES publications with its mailings for the *ICES Journal*. It was too early to measure the results, but the responses looked promising.

Agenda Item 4 ICES JOURNAL OF MARINE SCIENCE

Item 4.1 Editors' Report

Professor J.H.S. Blaxter, who succeeded Professor R.J.H. Beverton as Editor on 1 November 1991, presented Doc. C.M.1992/Pub:5. He prefaced his remarks by acknowledging the very great help provided by Professor Beverton, who had set a standard difficult to follow. The Committee's attention was drawn to the drop in the number of papers submitted during the period from January to September 1992 compared with the same period in 1991, respectively 42 and 56. While a certain rise and fall in submissions was inevitable, it was pointed out that the current rate was not sufficient to sustain quarterly publication if the papers were to retain their present high level. The current rejection rate of 13% was also lower than that of earlier periods, although it was noted that submissions to the *ICES Journal* were likely to undergo a greater "pre-sorting" than was usual, so that relatively little wholly unsuitable material would be received. Professor Blaxter also raised the issue, which might be discussed at a later date, of the extent to which the Council wished the *Journal* to be considered a "house journal". A brief discussion followed on whether or not it would be desirable to continue to print the obituaries of scientists linked to ICES and if so, what criteria were relevant. The Committee considered it best to continue to print them, while recognizing that decisions would always have a subjective aspect. It was suggested that the Editor play an active role in soliciting material to make sure that it was reasonably up to date.

Note was taken of the ranking of the *Journal* in an average position, with a great many other marine science publications, in an index of citation frequency, and similarly that it was one of only five journals credited with a half-life of more than ten years, which would indicate its value as a publisher of important archival material.

Item 4.2 Publisher's Report

Dr A. Richford presented Doc. C.M.1992/Pub:6 and distributed an updated version of material prepared by the Production Editor. He noted that the current number of institutional subscriptions, 313, showed a positive trend, but that growth was slower than the figure originally projected, which had been based on an overly optimistic assessment of how many free subscriptions would be converted to paid subscriptions. Of the 129 names removed from the complimentary list, only 26

had subscribed. The General Secretary informed the Committee that it had been noted at the mid-term Bureau meeting that the number of paid subscriptions was below expectations and that the remaining number of free subscriptions (about 80) should perhaps be further reduced. Members of the Committee were aware that this was a sensitive issue, but agreed that the current list should be reduced by about two-thirds so that only abstracting services, publication exchanges, and the like should be retained. After discussing the issue, including the importance of taking into account the needs of countries with hard-currency problems, the Committee decided that Delegates should be asked to make suggestions as to which institutes, if any, should receive free copies of the *ICES Journal*.

Doc. C.M.1992/Pub:7, the statement of the Joint Account between Academic Press and ICES for the *ICES Journal* for 1991, which had been reviewed by the Bureau at its mid-term meeting, was noted.

Agenda Item 5 ICES IDENTIFICATION LEAFLETS FOR PLANKTON

The Editor's Report (Doc. C.M.1992/L:9) recorded the publication of Nos. 178, 179, and 180 in 1992, thus resuming publication for the first time since 1986. The Committee was pleased to note that other numbers had been initiated and were in various stages of preparation.

Agenda Item 6 ICES IDENTIFICATION LEAFLETS FOR DISEASES AND PARASITES OF FISH AND SHELLFISH

Nos. 41–50, dated 1991, were the first set to be published since 1987. The Editor reported (Doc. C.M.1992/F:17) the acquisition of two more manuscripts during the past year, making a total of seven, which was three short of the ten that constituted a publishable set. Additional material was being solicited. The question of the future development of the leaflets in their present format had been discussed at the 1991 meeting of the Working Group on the Pathology and Diseases of Marine Organisms, but could not be followed up in 1992 since the Editor had not been able to be present. The Committee agreed that the Editor's presence at the 1993 meeting of the Working Group should be supported and given high priority.

Agenda Item 7 TECHNIQUES IN MARINE ENVIRONMENTAL SCIENCES

The Editor (Environment Secretary) reported (Doc. C.M.1992/E:48) the publication of Nos. 13–16 in 1991. In addition, one manuscript had been submitted for publication, and two others were being prepared for submission.

Agenda Item 8 FUTURE HANDLING OF THE ICES MARINE SCIENCE SYMPOSIA SERIES

The General Secretary introduced Doc. C.M.1992/Pub:4 and summarized the background for its preparation. In response to issues discussed at the 1991 meeting of the Committee, Dr Hawkins, Prof. Hopkins, and Dr Sinclair had agreed to draft a paper on the problems associated with publication of this series and proposing possible solutions. Owing to time constraints, the Bureau had not been able to discuss all of the material in detail at its mid-term meeting, but members recorded their general support for the views expressed as well as approving of the additional comments and proposals prepared by the General Secretary.

The Committee was asked to open discussion by considering Pub:4 first in terms of improving production of the Symposium volumes, focusing on the relative merits of 1) retaining the *status quo* with slight amendments, 2) appointing a Technical Editor, and 3) creating a new Secretariat staff position of Scientific Editor. The point was made, however, that such a discussion might be influenced by giving consideration to a proposal that Symposium proceedings be transferred in future to volumes of the *ICES Journal of Marine Science*. In view of the possibility that the current decline in the submission of papers might continue, placing in jeopardy the maintenance of good quarterly issues and the prospects for expansion to six issues per year, the inclusion of Symposium papers could be of great value. The Editor of the *Journal* had already been approached by the Convener of an ICES Symposium who was interested in having the proceedings published in this way, and he suggested that they might be so published as a test issue. In addition, having the Symposia included within the *Journal* would enhance the distribution of the Symposia publications. There ensued a lengthy discussion of the possible pros and cons of accepting the proposal. It was noted that there was some reluctance in North America to recognize the status of symposium volumes, which could lead to reduced participation by those authors who would be affected. This problem would be overcome if the papers were published as part of an established, less specialized series such as the *ICES Journal*. In addition, the editing and publishing expertise of the *Journal* team would be of a high order, surpassing that of most other constellations for handling symposium proceedings. The views of Academic Press were sought, and Dr Richford said that they would certainly be open to such a proposal. Supposing that the proceedings were published as a supplement to the current quarterly rather than being incorporated in regular numbers, he outlined the financial implications, stressing the absolute necessity for control at every stage in order to ensure that page budgets and deadlines were met. The current page budget of 500 pages in 1993, for example, supported an institu-

tional subscription rate of GBP 96. The doubling of this page budget to accommodate two average symposium volumes of 250 pages each would require a doubling of the rate. An increase in the amount of material published would also increase the attractiveness of the *Journal*, but it would be necessary as well to consider the potential response of subscribers to such an increase. As a quarterly of only 500 pages, compared to many larger monthly journals which could more easily accommodate additional pages, it would be most sensible, initially, to think in terms of adding a single annual supplement. Since the Council had tended to hold two Symposia each year, the Committee gave detailed consideration to the various possibilities for publishing the proceedings, including two-tier systems that would entail the use of other Council facilities, such as publication of the "lesser" papers or those from Symposia of relatively limited interest in the *ICES Cooperative Research Report* series.

In discussing this issue, the Committee was aware of the complexity of the problems involved, not least those presented by the competitiveness existing with respect to acquiring the Council's support for holding a Symposium and the succeeding publication of the papers. It was generally agreed that Symposia would inevitably include papers which might not meet the highest review standards (such as those by scientists from developing countries), but that many of these papers should be published since they were of importance in providing an adequate record of the key transactions of the meeting. It was also possible to edit weaker papers down to size so that they would not take up space better reserved for superior material. The Committee thought that the proposal to publish Symposium papers as supplements to the *Journal* had great merit and deserved serious consideration, although it might be necessary to view it as an objective that needed to be phased in over several years rather than one which could be realized immediately.

The Committee supported the introduction of a registration fee at Symposia, but specified that it should be reserved for retaining an eventual Technical Editor or other editorial support and providing a copy of the published proceedings to each participant; it should not be used to cover the expenses incurred by Steering Committee meetings.

Continuing its discussion of how best to publish Symposium proceedings, the Committee reviewed the state of progress of the papers presented at the Symposium on Shellfish Life Histories and Shellfishery Models held in June 1990, which had already been discussed at last year's meeting. The Convener/Editor had done a great deal of work in preparing the papers, but other extremely heavy responsibilities that could not be foreseen had constituted a major hindrance to progress. The Committee drafted in detail a number of possibilities for dealing with the problems that had arisen as a result of the de-

lays, both past and projected, in publication. There was unanimity in viewing the protection of the authors' interests as the principal problem to be solved. It was stressed that the Symposium had attracted numerous papers of excellent quality, including a number related to work of the Shellfish Committee, which ought to be published without further delay. After considering various options, including the requirement of engaging a paid Technical Editor to complete the job, the Committee agreed that the decision of how to proceed would best be left to the discretion of the Secretariat.

Agenda Item 9 RECORDINGS OF RARE FISH SPECIES

In response to a proposal made at last year's meeting, the Chairman of the Consultative Committee had solicited the views of members of the Pelagic Fish, Demersal Fish, Baltic Fish, and Biological Oceanography Committees with respect to including recordings of rare fish species in an annual issue of the *ICES Journal*. Such records could be of value as precursors of broad climatic change and in tracking trends of interest from a conservation viewpoint. The Committee discussed the difficulty of defining rarity in fish, touching on the subjective and political aspects, and in general found that it lacked sufficient information to draw any conclusions. It recorded its interest in the initial proposal, but required additional and more specific input before evaluating how the material could be published in the *Journal*.

Agenda Item 10 MATTERS REFERRED TO COMMITTEE BY BUREAU OR COUNCIL

No specific issues were referred to the Committee for consideration.

Agenda Item 11 ANY OTHER BUSINESS

The Committee discussed the proposal that the *Atlas of North Sea Fishes*, scheduled to be published in the *ICES Cooperative Research Report* series, be published commercially as a possibility for widening its distribution. It had been mentioned that the CEC might be interested in purchasing about 2,000 copies, which would more than cover production costs. The Committee agreed that the publication merited wide distribution.

The Chairman of the Committee thanked those present for their participation in the meeting. The General Secretary, speaking on behalf of the participants, thanked the Chairman warmly for his contribution over the past three years, including his sensitive support, at times behind the scenes as well, in dealing with complex issues. He was seconded by those present. There being no other business, the Chairman adjourned the meeting at 13.10 hrs.

DOCUMENTS

Pub:1		Agenda for the Publications Committee.
Pub:2		Publication activities in 1991/1992.
Pub:3		Sale of ICES publications during the last three years.
Pub:4		Future handling of the <i>ICES Marine Science Symposia</i> series.
Pub:5	J.H.S. Blaxter, J.W. Ramster, and S.J. Smith	Report of the Editors of the <i>ICES Journal of Marine Science</i> for 1991-1992.
Pub:6	A. Richford	Academic Press publisher's report for 1992: <i>ICES Journal of Marine Science</i> .
Pub:7		Financial status of <i>ICES Journal of Marine Science</i> for 1991.

REPORT OF CONSULTATIVE COMMITTEE

Chairman: Prof. C.C.E. Hopkins

The Committee met during the following four sessions:

Wednesday 23 September	17.00 - 20.45 hrs
Saturday 26 September	13.00 - 14.30 hrs
Tuesday 29 September	14.40 - 19.00 hrs
Wednesday 30 September	08.35 - 17.40 hrs

Except for the Chairmen of the Statistics and Baltic Fish Committees at the first session, and the Chairmen of the Mariculture and Biological Oceanography Committees at the second session, all members of the Committee, together with the General Secretary, Fishery Secretary, and Environment Secretary, were present at each session. The President, Oceanography Secretary, and Ms I. Lützhøft attended the third and fourth sessions, and Ms M. Hänschell attended the first session. Some of the newly elected Chairmen attended the second, third, and fourth sessions.

Agenda Item 1 ADOPTION OF AGENDA

The Chairman welcomed all those in attendance, particularly those who were attending for the first time, and expressed his hope for a very successful Statutory Meeting. The draft Agenda was adopted without change.

Agenda Item 2 ARRANGEMENTS FOR STATUTORY MEETING

Item 2.1 General Arrangements

The General Secretary provided information on the general arrangements for the meeting, including the locations of the meeting rooms, items to be sold and location of the "ICES Shop", and the contents of the information bags prepared by the hosts. He then reviewed the order of presentations at the opening session, the items to be covered at the closing session, and the social events.

Item 2.2 Review of Programme of Sessions (Blue Card) and List of Papers

The General Secretary briefly reviewed the programme listed on the Blue Card. It was proposed that the letter coding used to designate each Subject/Area Committee should be listed on the Blue Card in the future.

Item 2.3 Prizes for Best Paper/Poster Presentations and Young Scientist Award

The Chairman requested all Subject/Area Committee Chairmen to be on the look-out for good work on pa-

pers and associated visual materials as well as good posters and to provide nominations for the best paper and poster.

In addition, this year a new award would be given to a young scientist showing good effort; nominations for the young scientist award should be submitted with supporting documentation. All nominations should be given to the Chairman as soon as possible after the last session of each Committee, with the final deadline at 18.30 hrs on Monday (with the exception of the Pelagic Committee which had a session on Tuesday). It was pointed out that all awards would consist of framed certificates.

Agenda Item 3 CONDUCT OF THE STATUTORY MEETING

Item 3.1 Instructions to Chairmen, Conveners, and Rapporteurs

The General Secretary informed the Committee that additional guidelines had been provided this year for Committee Chairmen and Rapporteurs as suggested by the Programme Planning Group (Doc. C.M.1992/A:2). The *Guidelines for Committee Chairmen* summarized much of the information in the *Chairmen's Handbook* and included some additional items. The *Guidelines* document was seen as being very useful as it was briefer and more readable than the *Handbook*. It was agreed that the item stating that papers should not be considered if neither the author nor the assigned presenter were present at the session should be deleted, and that this should be left to the discretion of the Chairman. The Committee also welcomed the *Instructions for Rapporteurs*, but suggested that the instruction to make a brief reference to each paper was not necessary and should be deleted. A note should be added stating that the *ICES Annual Report* would contain a list of titles and authors of all papers presented at the Statutory Meeting (Doc. C.M. 1992/A:2). A further suggestion, which would be helpful to all participants at the Statutory Meeting, was to have the Committee letter codes included on the Blue Card in the list of scientific Committees and Chairmen, as was done for the list of Theme Sessions and Conveners.

Item 3.2 Presentation of Papers

Committee Chairmen were once again urged to weight the time allocated for each presentation according to the importance of the paper and the interest it was expected to generate, and to take these times into account when preparing Orders of the Day.

It was suggested that there should be some screening of contributions prior to the meeting so that bad ones could be rejected.

Item 3.3 Handling of Recommendations

Draft Committee Recommendations had been prepared for the Subject/Area Committees based on recommendations made in Working and Study Group reports, and this year for the first time these had been collated into a single document (Doc. C.M.1992/A:6) and distributed to Committee Chairmen. This procedure had been advocated by the Programme Planning Committee (Doc. C.M.1992/A:2) in order to facilitate scrutiny of recommendations by Committees other than the Committee sponsoring the recommendation, and consequently improve communication and coordination among Committees in relation to recommendations.

A further measure suggested by the Programme Planning Committee to improve communication among Committees was for the Advisory Committees to invite additional Subject/Area Committee Chairmen to their Consultations. The Chairman of ACFM reported that three additional Committee Chairmen and one Working Group Chairman had participated in the ACFM Consultations, and he felt this had been useful.

The General Secretary pointed out that a list (Doc. C.M.1992/Gen:5) of all the subsidiary Groups for each Committee had been prepared and this should help identify Committee responsibilities for setting terms of reference. It was noted that the Study Group on Pilot Whales was the responsibility of the Consultative Committee and not ACFM as was mistakenly stated in the list.

The General Secretary stressed the importance of checking the suitability of dates and venues, and the availability of Chairmen, for all proposed meetings; last year there had been numerous changes after the Statutory Meeting and many of those could have been avoided by thorough checking. As usual, the Professional officers would screen all Committee recommendations to ensure that all the necessary information was provided and to provide editorial assistance.

Item 3.4 Committee and Theme Session Reports

It was clearly stated in the *Instructions to Rapporteurs* that the deadline for the submission of Committee and Theme Session reports was at the close of the scientific sessions. Chairmen were asked to ensure that this deadline was met.

Item 3.5 Future Consultative Committee Meetings

The Chairman reported that he felt progress had been made at this year's Programme Planning Group meeting; less time had been spent on scheduling sessions for the Statutory Meeting which had made it possible to spend more time discussing interdisciplinary affairs. The Programme Planning Group (Doc. C.M.1992/A:2) had proposed that in future, at least in some years, it would be preferable to have one day devoted to planning the Statutory Meeting and another day (or more) for consideration of strategic and scientific issues involving more Committee Chairmen, possibly even an intersessional meeting of the full Consultative Committee. The budgetary implication had been investigated and it appeared that it was not very substantial because many Committee Chairmen would be attending other meetings at ICES which would take place shortly before or after. The Bureau had indicated some support for the proposal.

Within the Committee, there was general support for the proposal as it recognized that the strategic and scientific issues deserved more attention from the Consultative Committee and there was little opportunity to address these during the Statutory Meeting. Some strong reservations were expressed about members having to devote further time to Consultative Committee work, particularly at a time of the year when many members were already devoting much time to other ICES meetings. However, it was agreed that an intersessional meeting of the Consultative Committee to address substantive issues (e.g., marine mammal issues, the role of ACME, possible restructuring of the Subject/Area Committees, interdisciplinary questions) would be highly desirable and that such a meeting should take place in May or June of 1993 for three days. Intersessional meetings would not become routine. The Chairman of the Consultative Committee would write to Committee members inviting them to suggest items for the agenda. The agenda would then be established and distributed before the meeting. It was hoped to be able to devote almost all of the three days to strategic issues, but some time would have to be spent deciding plans for the 1993 Statutory Meeting. In order to keep the time spent planning the Statutory Meeting to a minimum, the Chairman and the General Secretary would prepare a draft session timetable prior to the meeting. In addition, Committee codings for scientific contributions would be circulated to members for review prior to the meeting.

Agenda Item 4 ELECTION OF NEW COMMITTEE CHAIRMEN

At the first session, the General Secretary announced the times when the elections of five Chairmen for new

three-year terms would be held. The results of the elections were as follows:

Fish Capture: Mr R. Fonteyne (Belgium) replacing Prof. K. Olsen (Norway),

Marine Environmental Quality: Mr S. Carlberg (Sweden) replacing Dr V. Dethlefsen (Germany),

Demersal Fish: Mr E. Aro (Finland) replacing Prof. N. Daan (Netherlands),

Baltic Fish: Mr B. Sjöstrand (Sweden) replacing Dr W. Weber (Germany),

Biological Oceanography: Dr M. Reeve (USA) replacing Dr K. Richardson (Denmark).

Agenda Item 5 PROGRESS REPORT ON THE NINTH DIALOGUE MEETING

The General Secretary reported that the Ninth Dialogue Meeting would be held in Edinburgh, Scotland, UK from 7-8 June 1993 in conjunction with the NASCO Annual Meeting and would be co-sponsored by NASCO and IBSFC. The topic would be "Atlantic Salmon: Management and Fishery Environments, Today and Tomorrow", and there would probably be 13-14 speakers representing the scientific, managerial, and user disciplines. He explained that the large number of speakers was because of the complex nature of Atlantic and Baltic salmon fisheries and their management and the large number of different user groups compared to the more traditional commercial fisheries which had been the basis of previous Dialogue Meetings. A first planning meeting involving as many of the speakers as possible and representatives of ICES, NASCO, and IBSFC would be held on 5 November 1992 at ICES Headquarters. A prospectus on the Meeting would be prepared and circulated following the first planning meeting. A second and final planning meeting would be held in mid March 1993.

The Committee endorsed the plans as described.

Agenda Item 6 REPORT OF INTER-COMMITTEE RECRUITMENT GROUP

The Inter-Committee Recruitment Group (IRG) met several times during the Statutory Meeting. The Group was concerned that, within ICES in recent years, the Cod and Climate issues had not received the attention they deserved and that there was a need to inject a new impetus. Much work was going on within other organizations and it was important that ICES did not shut itself out of that. The IRG recommended that ICES sponsor a Cod and Climate Change programme as a North Atlantic component of I-GLOBEC, and also that a Working

Group on Cod and Climate Change be established to investigate two technical issues that required attention as a matter of priority.

The IRG had been hampered by being restricted to lunchtime sessions. At the next Statutory Meeting, a meeting should be scheduled during session times.

Agenda Item 7 ENHANCING THE INTERDISCIPLINARY ROLE OF ICES

Item 7.1 Report of Study Group on Ecosystem Effects of Fishing Activities

The Chairman of the Study Group on Ecosystem Effects of Fishing Activities, Mr H. Gislason (Denmark), presented the recommendations of the Study Group (Doc. C.M.1992/G:11). The Study Group recommended that it meet again in 1994 to develop the use of broader-based indices of impact, such as diversity indices, for its work, evaluate methods of assessing the impact of groundfish fisheries on benthos, and consider the attributes of possible indicator species for the evaluation of the long-term impact of fisheries. The Study Group also needed to have considerably more information collected on discards and offal so that it could analyze these data. In addition, the Study Group recommended that its report on the ecosystem effects of fishing activities in the North Sea should be published in the *ICES Cooperative Research Report* series. Finally, the Study Group recommended that ICES support initiatives to establish areas of appropriate size that would be closed for all fishing in order to monitor the response of benthic communities in heavily fished areas and allow process studies that help understand the impacts of fisheries.

The Committee commended Mr Gislason on the excellent work conducted by his Study Group. The Consultative Committee endorsed the recommendation for the terms of reference for the future work of the Group and the publication of its report. It could not, however, endorse the recommendation concerning the closure of areas to fishing, but decided instead to include a term of reference for the next meeting that requested the Study Group to develop a design and planning framework for establishing and monitoring such areas. It was noted that the Government of the Netherlands was committed to preparing a detailed proposal for closing fishing areas, but that the Study Group should prepare general criteria and not respond to a specific issue. Finally, the Consultative Committee agreed that it wished to expand the work of this Study Group and lengthen the term over which it worked. Accordingly, it was agreed that the Group should become a Working Group.

Item 7.2 Subject/Area Committee Structure

The Chairman noted that the Subject/Area Committees, where science was coordinated within ICES, may not be the best structure for the interdisciplinary work within ICES. Accordingly, it would be useful to consider whether it might be worthwhile to change the present structure to obtain a better arrangement for coordinating interdisciplinary science. This should also include finding a place for ecosystem modelling.

In the discussion, it was pointed that no structure would be perfect, and that a broader perspective could be developed within the present Committees if the Chairmen permitted/encouraged a wider perspective. Nonetheless, some change in the names of certain Committees might be beneficial.

It was further pointed out that if the Subject/Area Committees were changed, the way in which papers were handled at Statutory Meetings would also have to be changed. Many people felt that Theme Sessions attracted the best papers, but that the Committee structure was good for the coordination of research activities and conducting business. However, a general, non-focused Committee would not provide a better alternative.

A number of specific suggestions were made for changes in Committees or the addition of a new Committee. Owing to a lack of time for extensive discussion, the Chairman requested each member of the Consultative Committee to prepare a short paper containing suggested changes in the Committee structure and identifying scientific issues which should be handled by each Committee. These papers should be submitted to him before the end of the 1992. He would compile these responses for further discussion at the next meeting of the Consultative Committee.

Item 7.3 Structure and Composition of ACMP

The Chairman noted, building on the discussion of the General Secretary's paper at the 1991 Statutory Meeting ("Enhancing the interdisciplinary role of ICES", Doc. C.M.1991/Del:11), that further work had been done and that several papers, including one he had written at the request of the Bureau, were now available: a) "The future of ACMP: its role and composition" (Doc. C.M. 1992/Del:12), b) a paper by ACMP on "Enhancing the interdisciplinary role of ICES: strategic considerations" (Doc. C.M.1992/Poll:8), and c) a paper by the Environment Secretary on "Enhancing the interdisciplinary role of ICES: a complementary document to C.M.1991/Del:11" (Doc. C.M.1992/Del:15). These three papers were briefly presented.

In presenting Doc. C.M.1992/Poll:8, the Chairman of ACMP stressed that this paper had been accepted by the

entire ACMP. The paper covered past and current practices of ACMP and stressed the need for ICES to develop and adopt a long-term strategy for its work and the development of advice to the Commissions. The paper provided a general strategy for a possible restructuring of ACMP. The main thrust of the document was that the composition of ACMP, the structure of the Working Groups, and the relations with the regulatory commissions should be decided on the basis of a long-term strategy by ICES for its environmental work.

The Environment Secretary briefly summarized her paper (Doc. C.M.1992/Del:15), noting that the composition of ACMP was not covered because it was the subject of the other two papers. Her paper described the development of the pollution-related work in ICES over the past two decades, and the shift in emphasis from co-ordination of research to the development of advice during the past decade. She felt that ICES should strengthen its pollution-related research activities, thereby also providing a better platform for participation by the USA and Canada. She stressed the growing importance of the computerized pollution data bank within ICES and pointed out certain developments with regard to the regulatory commissions. Finally, she stressed the importance of the Council ensuring that adequate resources were available to support this work.

The Chairman summarized his paper (Doc. C.M.1992/Del:12) which was written on the basis of his experience as an *ex officio* member of ACMP and now as Chairman of the Consultative Committee. It was his considered opinion that support for ACMP would be stronger if there were national representation on ACMP. With a national member, Delegates would be able to provide much better support for ACMP. He noted that a major reason for the discussion of this issue was that the field in which ACMP was operating had changed drastically in the past five years. Accordingly, he proposed that ACMP should be re-established on a national representation basis as soon as possible. After the new ACMP was constituted, the members and their Delegates should work together to determine the following:

- a) the remit, goals, and issues to be handled by ACMP, bearing in mind the restructuring of the regulatory commissions and the need to promote both research and advice;
- b) the need for a new, more appropriate name for ACMP, reflecting the revised goals and structure;
- c) on the basis of a), review the present Working and Study Groups supporting ACMP and provide proposals for essential changes, including possible amalgamation or renovation.

In the discussion, it was pointed out that a lack of evolution on the part of ACMP was a very important issue. ACMP had been established in the mid-1970s and still worked under the same remit. A much broader framework was now needed to cover, for example, the relationship between fisheries and the environment, and the collection of data that could be used for a broader ecosystem approach. The ACMP membership should be changed to national representation and a much broader remit must be developed.

It was also pointed out that, to attract the best scientists to the work of ACMP, four approaches could be used:

- a) the sponsorship or promotion of the best scientific research on environmental issues;
- b) the development of a scientific view of environmental management, whereby conflicts could be resolved openly;
- c) the review of work on the tactics of methodology and the calibration of measurements (these topics were of importance, but had assumed too large a role in the past);
- d) the development of specific advice to commissions.

It was recalled that, when ACFM was established in the late 1970s, there was much discussion in the Working Groups that membership consisting of national nominees would bring a political slant to the ACFM advice. That had not proved to be the case.

It was pointed out that there appeared to be a perception in the pollution regulatory commissions and in some national delegations in the commissions' work that ACMP did not give balanced advice; this perception could be corrected with the new structure.

It was further pointed out that the documents by ACMP and the Chairman of the Consultative Committee complemented each other. A long-term strategy was definitely needed for the development of the ICES environmental programme; in that context, it was easier to identify what should be done and how to do it. Better advice could also be provided in a long-term framework. It was proposed that ACMP itself should develop a long-term strategy for the environmental work within ICES; it should not wait for that to be done by the Delegates. With regard to ACMP's tasks, it was more important to ensure that there was proper expertise at the Working Group level, so that the Groups could provide initial drafts of advice to ACMP.

The Chairman reported that his paper had been presented to the Bureau and that his suggestions had been

received positively. The Consultative Committee also endorsed the suggestions in the Chairman's paper and agreed that they should go forward to the Delegates, with the caveats suggested.

Note: At the second session of the Delegates meeting held on Monday 28 September, it was decided to rename ACMP as the Advisory Committee on the Marine Environment (ACME) and re-establish the membership of the Committee on the basis of national nominees appointed by the Council (while retaining the ex officio membership of the Chairmen of five Subject/Area Committees), with both changes to take effect on 1 November 1992. In light of this decision, all subsequent sections of this report will make reference, where appropriate, to ACME instead of ACMP.

Item 7.4 Working/Study Group Membership and Terms of Reference

The terms of reference of the ICES Working and Study Groups were discussed under Item 15.1. There was no time available for a discussion of the membership of these Groups.

Agenda Item 8 SCIENTIFIC INTERACTION WITH NORTH ATLANTIC MARINE MAMMAL COMMISSION

At the inaugural meeting of the North Atlantic Marine Mammal Commission (NAMMCO) in September 1992, it was decided that NAMMCO should try to establish a relationship with ICES, and a request to ICES for advice was formulated (Doc. C.M.1992/Del:10 and Addendum). The request for advice included an item on the assessment of the pilot whale stock in the Northeast Atlantic. NAMMCO had suggested that the results of the analyses should be provided to NAMMCO directly from a Working Group or Study Group and not through the Advisory Committees. It was subsequently learned that the suggestion as to how the advice should be processed within ICES had been made in an attempt to assist ICES rather than to interfere with ICES procedures, and that NAMMCO would be willing to withdraw this suggestion.

The question of whether ICES would establish a relationship with NAMMCO and provide advice was a matter for Delegates to decide. It was recognized that if ICES agreed to respond positively to the request for advice, this might invite controversy and there might be political implications, but the overriding consideration had to be for ICES to consider the matter from a scientific standpoint.

ACFM provided the Consultative Committee with a discussion document entitled "Considerations if ICES is to

provide advice on the status and safe exploitation levels for pilot whales and other small cetaceans". It was the view of ACFM that if it were agreed to provide advice on the status of pilot whale stocks, the advice should be formulated by ACFM.

The Chairman of the Marine Mammals Committee reported on discussions in his Committee on the pilot whale issue following consideration of the report of the Study Group on Pilot Whales. The work of the International Whaling Commission (IWC) on pilot whales, particularly in relation to management, had been noted. The question of scientific dialogue with IWC had been considered and the Study Group had concluded that this was highly desirable. The view of the Marine Mammals Committee was that it would be possible to make a population assessment in the near future and that it was important to ensure cooperation with scientists in the Scientific Committee of IWC and in the Scientific Committee of NAMMCO. A two-step procedure was suggested. First, all relevant data should be compiled, gaps identified, and risks identified in relation to various management measures. Secondly, following discussions with NAMMCO about management objectives, assessments and catch forecasts could be made. The Marine Mammals Committee had agreed that management advice should be provided by ACFM.

It was commented that it was not necessary to define management objectives in order to make an assessment of the stock as this would be a purely scientific exercise. Information on management objectives was only required if advice were to be provided on catch options. The request for advice had been made to ICES in order to obtain an objective scientific evaluation. ACFM had shown itself capable of providing advice for fish stocks on a scientific basis and without the intrusion of politics, and it was important to stress that this could be maintained for marine mammal advice.

The Chairman of ACFM reported that he had been working closely with the Marine Mammals Committee in considering this issue. ICES had been involved in various marine mammal activities in the past, and there was no scientific reason why assessments could not be undertaken. ACFM provided advice on some marine mammals and, while this was only a small part of its work, sufficient expertise was available within ICES for ACFM to draw upon if advice were to be provided on pilot whales.

The part of the NAMMCO request dealing with contaminants and radioactivity in relation to pilot whales was discussed. It was decided that this should be considered by ACME at its next meeting.

A sub-group of the Committee was asked to prepare draft terms of reference for the next meeting of the

Study Group on Long-Finned Pilot Whales. These terms of reference, which were later agreed (see Item 15.1), requested an assessment of the population, but no catch prognoses. The Chairman of the Consultative Committee would write to the Chairman of the Study Group to explain that a catch forecast was not required. The Consultative Committee would be the "parent" Committee for the Study Group for the present time. There would probably be a need for a dialogue with NAMMCO concerning the use of any advice provided. Once this dialogue had been completed, it may be appropriate to transfer the responsibility for the Group to ACFM.

It was suggested that ICES needed to formulate a strategy on how marine mammals should be handled within the ICES structure. This would be a suitable topic for discussion at the mid-term meeting of the Consultative Committee (see Item 3.5).

Agenda Item 9 PUBLICATION OF RECORDINGS OF RARE FISH SPECIES

The Chairman reported that, on the basis of a request from Prof. R. Beverton and Dr G. Potts, some means should be provided within ICES for the publication of sightings of rare fish species. He had requested the Chairmen of the Biological Oceanography, Pelagic Fish, and Demersal Fish Committees to poll their members concerning potential interest in such reports. The Chairman of the Demersal Committee reported that he had received no reply from members to his letter to them concerning this topic. The Chairman of the Biological Oceanography Committee stated that she had received three positive replies to her letter, but that it was difficult to assess whether it was a worthwhile project on that basis.

It was proposed that one or two pages [per number or volume] in the *ICES Journal of Marine Science* could be devoted to recordings of sightings of rare fish.

The Committee noted that this request had been received from the Publications Committee which would consider it in more detail when it met on Monday morning.

Agenda Item 10 OPEN LECTURE AND MINISYMPOSIUM FOR 1994 STATUTORY MEETING

Open Lecture

The Committee noted that the Open Lecture at the 1993 Statutory Meeting would be given by Dr (Ms) J. McDowell Capuzzo (USA) on "Biological Effects of Contaminants".

After a brief discussion, the Committee agreed to recommend that the 1994 Open Lecture should be given by

Prof. J. McGlade (University of Warwick, UK) on the topic of "Putting Fishermen into Fishery Models". The focus of this Lecture would be on aspects of human behaviour, justice and ethics, sociobiology and the dynamics of games, the role of communities in governance, and the frameworks of power involved in the CEC's Common Fisheries Policy.

Mini-Symposium

The Committee was informed that the Mini-Symposium recommended last year for the 1993 Statutory Meeting on the "Effect of Fisheries and other Sources of Physical Disturbance on Benthic Systems", with Dr S. Hall (UK) as Convener, would have to be cancelled at the request of the Convener due to the difficulty in attracting the necessary participation by scientists from outside ICES (who possessed much of the necessary expertise on the topic). Several possibilities for alternative topics for 1993 were considered, but none were viable. It was pointed out that Mini-Symposia, when first introduced in 1980, had represented the first attempt at inter-Committee scientific sessions. Theme Sessions, introduced several years later, were also serving that purpose, and it was not necessary to always have a Mini-Symposium. Consequently, in light of having no candidate topics or Conveners for 1993, it was decided that there would not be a Mini-Symposium at the 1993 Statutory Meeting.

A proposal, supported by a number of Committees, for a Mini-Symposium in 1994 on "The Influence of Large-Scale Environmental Processes on the Migration, Distribution, and Abundance of Atlantic Fish Stocks and their Implication for Management", to be convened by Dr G.P. Arnold (UK), was endorsed by the Committee and recommended to the Council. It was noted that it might be appropriate to involve a Co-Convener, the selection of whom could be done at a somewhat later time. Such a topic was considered extremely timely and relevant and could draw on the findings of two international symposia in 1993 and would be in line with the current emphasis on interdisciplinary studies.

A proposal was made by the Mariculture Committee that the Mini-Symposium in 1995 should be on "Benefits and Responsibilities on the Introduction or Transfer of Organisms in Mariculture", with Dr J.T. Carlton (USA) as Convener. The Committee agreed to record this suggestion, but to leave open the possibility of considering other suggestions for 1995.

Agenda Item 11 **THEME SESSIONS FOR 1993 AND 1994 STATUTORY MEETINGS**

The Committee reviewed the Theme Sessions for the 1993 Statutory Meeting that had been agreed at last year's meeting. In light of the interdisciplinary discus-

sions that had taken place, it was proposed, and the Committee agreed, that individual ACFM and ACME Theme Sessions should be eliminated for the 1993 Statutory Meeting; only a Joint ACFM/ACME Session should be held.

In the absence of a Mini-Symposium for the 1993 Statutory Meeting (see Agenda Item 10), it was proposed that the Theme Session on "Management Objectives and Fishery Management Targets: Risk Assessment in the Provision of Scientific Advice", to be convened by Dr J.G. Shepherd (UK), should be transformed into the 1993 Mini-Symposium. However, contact with Dr Shepherd during the course of the meeting resulted in a negative response to this proposal.

It was also noted that the Hydrography Committee had been considering a Poster Session on "Computers in Fishery Science" that now appeared to be proposed as a Theme Session. Originally, Mr J.W. Ramster (UK) had offered to organize such a Session, but now Mr E. Moksness (Norway) and Dr B. Megrey (USA) would be assisting in the arrangements.

The Theme Sessions agreed for the 1993 Statutory Meeting were as follows:

- a) "Dynamics of Upwelling in the ICES Area"; Co-Conveners: Dr E. Hagen (Germany) and Mr A. Jorge da Silva (Portugal);
- b) "Management Objectives and Fishery Management Targets: Risk Assessment in the Provision of Scientific Advice"; Convener: Dr J.G. Shepherd (UK);
- c) "Factors Affecting the Exposure of Organisms to Contaminants at Interfaces in the Marine Environment"; Convener: Dr H. Windom (USA);
- d) "Implications of Stock Enhancement of Marine Organisms"; Convener: Ms J. Støttrup (Denmark);
- e) "Impact of Gelatinous Zooplankton Predators on Coastal and Shelf Ecosystems"; Convener: Dr M. Reeve (USA);
- f) "Computers in Fishery Research"; Co-Conveners: Mr E. Moksness (Norway), Dr B. Megrey (USA), and Mr J.W. Ramster (UK);
- g) "ACFM/ACME Joint Session"; Convener: President.

It was noted that, as in previous years, these Theme Sessions would be subject to the submission of sufficient numbers of relevant paper titles and the final approval

of the Programme Planning Group (or full Consultative Committee if it were to meet intersessionally instead of the Programme Planning Group) and the possibility was left open for other topics to be added for 1993 at the mid-term meeting.

The Theme Sessions agreed for 1994 were as follows:

- a) "Non-Target Species"; Convener: Mr O. Bergstad (Norway);
- b) "Impacts Likely to Affect Shellfish in Aquaculture and Natural Populations"; Convener: Dr M. Héral (France);
- c) "ACFM/ACME Joint Session"; Convener: President.

These Theme Session titles would be reviewed next year, and additional titles would need to be identified. The Committee agreed that Theme Sessions should be discussed at the Committee's first session at the 1993 Statutory Meeting to ensure that changes and additions could be discussed in the individual Subject/Area Committees.

Agenda Item 12 ICES SYMPOSIA

It was noted that the following Symposia had been approved by the Council for 1993 and 1995:

- a) "Mass Rearing of Juvenile Fish"; Convener: Dr I. Huse (Norway); to be held in Bergen, Norway from 21-23 June 1993;
- b) "Cod and Climate Change"; Convener: Mr J. Jakobsson (Iceland); to be held in Reykjavik, Iceland from 23-27 August 1993;
- d) "Fisheries and Plankton Acoustics"; Convenor: Mr E.J. Simmonds (UK); to be held in Aberdeen, Scotland, UK from 12-16 June 1995.

The Committee considered two further proposals for Symposia. The Biological Oceanography Committee had recommended a Symposium on "Zooplankton Production - Measurement and Role in Global Ecosystems Dynamics and Biogeochemical Cycles" to be held in Plymouth, England, UK in September 1994 with Dr M. Reeve (USA) and Mr H.-R. Skjoldal (Norway) as Co-Convenors. The Committee considered the topic to be important and timely, given the role of zooplankton in all ecosystem modelling, the upcoming Symposium on "Cod and Climate Change" and the GLOBEC project. The subject would not overlap with the "Fisheries and Plankton Acoustics" Symposium. Some consideration was given to the proposed dates because September was a busy time for many fisheries scientists and for the

ICES Secretariat. Consideration was given to holding the Symposium at an earlier time of the year, but it was not possible to contact the organizers to determine if an alternative time would be possible. It was suggested that the date could be changed later if possible. The Committee agreed to recommend that the Symposium should be held, with IOC and SCOR as co-sponsors.

The Demersal Fish and Biological Oceanography Committees recommended that a Symposium on "The Changes in the North Sea Ecosystem and their Causes: Århus 1975 Revisited" should be held in Århus, Denmark in June 1995 with Prof. N. Daan (Netherlands) and Dr K. Richardson (Denmark) as Co-Convenors. The original Århus Symposium had been a benchmark, but much work had been done since it took place nearly 20 years ago. The Symposium would not be restricted to consideration of the North Sea, but the North Sea would be a focus. It was considered undesirable to hold this Symposium in the same month as the Symposium on "Fisheries and Plankton Acoustics", and it was proposed to change the date from June to July 1995. With this change, the Committee agreed to recommend the Symposium to the Council.

The Marine Mammals Committee had recommended that ICES join with NAFO in organizing a Symposium addressing the role of marine mammals in ecosystems to be held in September 1995 in Dartmouth, NS, Canada. It had nominated Mr J. Sigurjonsson (Iceland) as Co-Convenor. It was agreed to endorse this recommendation.

Agenda Item 13 MINUTES OF ACFM AND RELEVANT MATTERS

The Chairman of ACFM drew attention to the sections of the ACFM Minutes (Docs. C.M.1992/A:3 and A:4) which related to the reports of the Study Group on Pilot Whales, the Study Group on Ecosystem Effects of Fishing Activities, and the Study Group on Seals and Small Cetaceans in European Seas, and planning for the Ninth ICES Dialogue Meeting.

He mentioned two matters of concern to ACFM. Delegates had last year been urged to maintain the overall level of participation of Working Group members in the re-arranged area-based Working Groups. There was some evidence from this year that the new area-based Working Groups were suffering some reduction in the overall level of participation. He stressed that the success of the re-arrangement was dependent upon the participation being maintained at the same level as before, at least for the first few meetings.

He also stressed the need for adequate computer facilities at ICES Headquarters for use by the Working Groups. The number of PCs was currently inadequate,

particularly when two or more Working Groups were meeting concurrently. The General Secretary informed the Committee that he was aware of these needs and that the Finance Committee and Delegates would be considering requests for the expenditure of funds for more computer equipment.

As a point of information, the Chairman of ACFM informed the Committee that ACFM had noted that ICES had not received a request for advice on management of eel stocks in recent years. ACFM, at its November 1991 meeting, had recommended that the Working Group on the Assessment of the European Eel should be replaced by a Study Group on Eels which should be the responsibility of ANACAT. Subsequently, Poland had requested advice from ICES in relation to a decline in the abundance of glass eels. During the current Statutory Meeting, ANACAT had considered establishing a Study Group on Eels, but had been unable to secure a Chairman. Furthermore, ANACAT had suggested that this work might be more appropriately undertaken by EIFAC which had a Study Group on Eels. ICES would write to EIFAC to seek clarification as to whether EIFAC would be the appropriate body to investigate the Polish concerns.

Agenda Item 14 MINUTES OF ACMP AND RELEVANT MATTERS

At the first session, the Chairman of ACMP noted that he had a number of matters (Doc. C.M.1992/A:5) that he wished to bring before the Committee. Unfortunately, insufficient time at subsequent sessions resulted in these matters not being considered.

Agenda Item 15 RECOMMENDATIONS BY ADVISORY AND SUBJECT/AREA COMMITTEES

Item 15.1 Recommendations

The Committee carefully considered all of the recommendations submitted by the Subject/Area and Advisory Committees, and by the Consultative Committee itself. As usual, some were rejected as being more properly included in the relevant Committee reports for action by the Committee Chairmen. The resulting set of recommendations was approved for Council consideration.

The Committee considered a recommendation drafted by a sub-group on the basis of discussions under Agenda Item 8 on scientific interaction with the North Atlantic Marine Mammal Commission (NAMMCO). The recommendation proposed a transformation of the existing Study Group on Pilot Whales into a Study Group on Long-finned Pilot Whales, with a new Chairman and expanded terms of reference. It was noted that, owing to the possible ramifications of including catch projec-

tions in the assessment work, catch projections and prognoses had specifically been omitted from the terms of reference. The Chairman of the Consultative Committee agreed to write a letter to the new Chairman of the Study Group specifically informing him that catch projections and prognoses were not to be covered by the Study Group. After a discussion of the parentage of this revised Study Group, it was agreed that it would remain under the Consultative Committee for the time being, but that its report would be considered at the November 1993 ACFM meeting. After the information had been transmitted to NAMMCO and feedback from this organization had been received by ICES, it could be decided whether this Study Group should be transferred to ACFM.

The Committee again, as in recent years, discussed the parentage of the Working Group on Introductions and Transfers of Marine Organisms. This Working Group had belonged to the Mariculture Committee until the 1991 Statutory Meeting when it had been transferred to ACMP, owing to the fact that the Group's activities were of an advisory nature, that its advice often had wide ecological implications requiring thorough review, and that neither the Working Group nor the Mariculture Committee were empowered to advise on behalf of the Council. This transfer had not, however, proved to be particularly satisfactory on either side, and ACMP had not felt itself completely competent to review the recommendations of the Group. There was considerable discussion on the best parentage of this Working Group. It was ultimately agreed that, as the greatest part of the Working Group's activities related to scientific aspects covered by the Mariculture Committee, it should be transferred back to that Committee. However, all issues of an advisory nature, including the final agreement of a Code of Practice on Introductions and Transfers, must be channelled through an Advisory Committee for thorough review before the advice could be provided.

In reviewing the ACME Working Group on the Statistical Aspects of Environmental Monitoring, it was pointed out that most of the terms of reference of this Group were of relevance to the Statistics Committee and the Working Group on Methods of Fish Stock Assessment, which had considerable experience on these topics. It was felt that better use should be made of existing expertise within ICES in other Groups, and that there should be better cooperation between the environmental and fisheries sides of ICES. The Chairman pointed out that steps were being taken to ensure closer integration of the Statistics Committee in the work of ICES.

The fact that all Working Groups reporting to ACME would meet in a three-month period in 1993 was questioned. It was suggested that it might be better to hold these meetings towards the end of the calendar year so that members of the new ACME could have more time

to review and digest the reports of its Groups. It was also pointed out that the length of most ACME Working Group meetings was very short in relation to the number of items the Groups had to consider. Finally, it was suggested that there might be a one-day overlap in the meetings of ACFM and ACME to consider issues covered by both Advisory Committees and other matters of common interest.

In response to a query concerning the agenda and timetable of the first meeting of ACME, the Environment Secretary stated that she would work with the new Chairman of ACME, when appointed, to develop an agenda and detailed timetable for the conduct of the meeting and distribute them as soon as practical in the new year.

When considering the recommendations of the Demersal Fish Committee, it was noted that the Category 1 recommendation concerning the future publication of a document highlighting the progress made in advancing multispecies assessments at the seven meetings of the Multispecies Assessment Working Group, to be edited by Mr J. Pope (UK) and Dr S. Murawski (USA), was intended to encourage the two co-editors to go forward with the preparation of this document. A final recommendation for the publication of this report would not be made until it had been completed, but the Committee expressed its keen interest in having this report completed.

In the discussion of the recommendations of the Biological Oceanography Committee, it was pointed out that one of the Co-Chairman of the Study Group on Seabird/Fish Interactions, Dr R.S. Bailey (UK), would no longer be in a position to fulfil his duties owing to his forthcoming employment in the ICES Secretariat; however, no replacement had yet been found. The Chairman of ACFM stated that the Committee would like to add a new term of reference to the Study Group requesting it to collate information on the by-catch of seabirds in the Baltic salmon drift-net fishery and report back to ACFM, preferably in May 1993. This information had been requested by the IBSFC. There was much discussion concerning this request, in terms of how the data could be collected and whether the Study Group could conduct a quantitative evaluation of these data. It was ultimately generally agreed that, as this Group had been established for scientific purposes and had not yet had its first meeting, it was inappropriate to request it to prepare quantitative information on by-catches. The Chairman of ACFM then withdrew his request for this term of reference.

A term of reference for the Benthos Ecology Working Group concerning the preparation of a list of endangered marine benthic species was questioned. It was agreed that the use of the term "endangered" should be

avoided in this context, and the term of reference was reformulated.

A recommendation for the next meeting of the Steering Group on Fisheries/Environmental Management Objectives and Supporting Research Programmes in the Baltic Sea was discussed. It was noted that this Group had experienced a somewhat difficult beginning owing to the complexity of its subject, but that the objectives of the Group were very important to the Council's work. Given that a number of the Subject/Area Committee Chairmen listed as members of the Group in the original Council Resolution (C.Res.1991/2:3) had changed this year, and that their absence could have a negative effect on the continuity and functioning of the Steering Group, it had been proposed that the new Chairmen of the Committees named to participate in this Group could designate another person to participate on their behalf in the interests of better continuity. Accordingly, for the Biological Oceanography Committee, Dr K. Richardson (Denmark) would remain on the Group; for the Baltic Fish Committee, both the outgoing Chairman, Dr W. Weber (Germany), and the incoming Chairman, Mr B. Sjöstrand (Sweden), would participate in the 1993 meeting; for the Marine Environmental Quality Committee, the incoming Chairman, Mr S. Carlberg (Sweden), would participate. There was no change for the Hydrography Committee, represented by Dr T. Osborn (USA). In addition, coordinators had been appointed for each of the four general areas of research identified by the Steering Group at its 1992 meeting, and these would be invited to attend the meeting.

The Committee then discussed whether the annual meeting of the Programme Planning Group for the preparation of the scientific programme for the 1993 Statutory Meeting should be supplemented or supplanted by a mid-term meeting of the full Consultative Committee to permit an in-depth discussion of strategic issues. It was generally felt that much of the work of the Programme Planning Group could be conducted by the Secretariat, but that there were several important aspects of planning for the Statutory Meeting that should preferably involve at least some of the Committee Chairmen, namely, final review of the coding of papers for the various Committees, and the grouping of papers into Theme Sessions when relevant. Thus, a portion of a mid-term meeting should be devoted to a review and finalization of paper codes and plans for the Statutory Meeting. To justify calling a mid-term meeting of the entire Consultative Committee, however, there must be critical issues of a strategic nature to be discussed which cannot be discussed during the course of a Statutory Meeting owing to a lack of the time that must be devoted to an appropriate consideration of such issues. It was agreed that such strategic discussions were very important, but that they must be conducted efficiently. The scheduling of a mid-term meeting of the Consultative Committee fol-

lowing consecutive meetings of ACFM and ACME and before the meetings of the Steering Group on Fisheries/Environmental Management Objectives and Supporting Research in the Baltic Sea and the Bureau would require several persons devoting at least three consecutive weeks at ICES Headquarters on Council business. In light of this, a strong statement was made that it was unrealistic to expect people to make such major commitments of their time to ICES, especially if they were from institutes outside of those which traditionally participated in ICES work. The importance of efficiency in the work of strategic planning was again stressed, and echoed by many members.

Nonetheless, the Committee agreed that there were critical matters of strategic importance to be discussed in 1993 and, accordingly, agreed that a three-day, mid-term meeting of the Consultative Committee should be held immediately after the meeting of ACME in mid-June 1993. In addition to preparing the programme of the Statutory Meeting, this meeting would consider 1) how to improve Statutory Meetings, including possible changes in Committee structure, 2) the objectives and strategy for ACME work developed by the new ACME and how ACME could be assisted in its work, and 3) any other topics as time would permit. A draft paper on item 1) would be prepared by the Chairman of the Consultative Committee on the basis of written contributions sent to him before the end of 1992. A draft paper on item 2) would be prepared by ACME at its June 1993 meeting. The results of the discussion on both topics would be provided to the Bureau immediately thereafter.

The Environment Secretary pointed out the difficulties in this schedule for her, which might also apply to the new Chairman of ACME. At its first meeting, in addition to normal business and strategic discussions on the aims of the new ACME and its working procedures, ACME would be required to conduct a thorough review of the final draft of the North Sea Quality Status Report prepared by the North Sea Task Force. This would be the final major contribution of ICES to the North Sea Task Force, representing a large commitment to a highly visible end product. The week of the meetings of the Consultative Committee and the Steering Group would be needed to ensure that this review was in final condition to be presented at the meeting of the North Sea Task Force, scheduled for 22-26 June 1993. Thus, the participation of the Chairman of the new ACME in all four meetings, as would be contemplated, would represent a commitment of four consecutive weeks of very demanding meetings.

In concluding this agenda item, it was requested that the Secretariat should prepare a display of the schedule of meetings in block calendar form, such as is presently used in planning ACFM-related meetings, for inclusion in the *ICES Annual Report*.

Item 15.2 Working/Study Groups to be Dissolved/Established

The following table summarizes the Working/Study/Planning/Steering Groups and Workshops that were dissolved, established, or renamed:

Type of Action	Name
Dissolved	Working Group
	ICES/NSTF/OSPARCOM <i>ad hoc</i> Working Group on Sediment Baseline Study Data Assessment
	O-Group Flatfish Working Group
	Working Group on Herring Larval Surveys South of 62°N
	Study Group
	Study Group on Age Units for Herring
	Study Group on the Analysis of Feeding Data
	Study Group on the Biological Significance of Contaminants in Marine Sediments
	Study Group on Demersal Stocks in Division IIIa
	Study Group on the Fecundity of Sole and Plaice in Sub-areas IV, VII, and VIII
	Study Group on Fisheries Units in Sub-areas VII and VIII
	Study Group on Tagging Experiments for Juvenile Plaice
	Study Group on Young Fish Surveys in the Baltic
	Planning Group
	<i>Ad hoc</i> Planning Group on the ICES/IOC/OSPARCOM Intercomparison Programme on the Analysis of Chlorobiphenyls in Marine Media
	Planning Group for Acoustic Surveys in Sub-area IV and Division IIIa

ctd.

Type of Action	Name
Dissolved	<p>Steering Group</p> <p>Steering Group on Cod and Climate Change</p>
Established	<p>Working Group</p> <p>Working Group on Cod and Climate Change</p> <p>Study Group</p> <p>Study Group on Target Strength Methodology</p> <p>Study Group on Research Vessel Noise Measurement</p> <p>Study Group on the Biology of Baltic Flounder</p> <p>Study Group on the Evaluation of Baltic Fish Data</p> <p>Study Group on the Biology, Life History, and Assessment of <i>Majid</i> Crabs</p> <p>Study Group on the Life History, Population Biology, and Assessment of <i>Crangon</i></p> <p>Study Group on Stock Identification Protocols for Finfish and Shellfish Stocks</p> <p>Study Group on Methods of Spatial and Temporal Integration</p> <p>Planning Group</p> <p>Planning Group for the Development of Multispecies, Multifleet Assessment Tools</p> <p>Planning Group for Herring Surveys</p> <p>Steering Group</p> <p>Steering Group on Quality Assurance of Chemical Measurements in the Baltic Sea</p> <p>Steering Group on Quality Assurance of Biological Measurements in the Baltic Sea</p> <p>Workshop</p> <p>Workshop on Sampling Strategies for Age and Maturity Data</p> <p>Mackerel/Horse Mackerel Egg Production Workshop</p> <p>Workshop on the Distribution and Sources of Pathogens in Marine Mammals</p> <p>ICES/HELCOM Workshop on Quality Assurance of Chemical Analytical Procedures for the Baltic Monitoring Programme</p>
Renamed	<p>Working Group</p> <p>Working Group on Ecosystem Effects of Fishing Activities (<u>formerly</u> Study Group on Ecosystem Effects of Fishing Activities)</p> <p>Working Group on the Assessment of Norway Pout and Sandeel (<u>formerly</u> Industrial Fisheries Working Group)</p> <p>Working Group on Statistical Aspects of Environmental Monitoring (<u>formerly</u> Working Group on Statistical Aspects of Trend Monitoring)</p> <p>Working Group on Environmental Interactions of Mariculture (<u>formerly</u> Working Group on Environmental Impacts of Mariculture)</p> <p>Study Group</p> <p>Study Group on Long-Finned Pilot Whales (<u>formerly</u> Study Group on Pilot Whales)</p> <p>Study Group on North-East Atlantic Salmon Fisheries (<u>formerly</u> Study Group on the Norwegian Sea and Faroes Salmon Fishery)</p> <p>Study Group on the Life History and Assessment of Cephalopods (<u>formerly</u> Study Group on Cephalopod Biology)</p>

ctd.

Type of Action	Name
Renamed	Study Group
	Study Group on Environmental Modelling of the Baltic Sea (<u>formerly</u> Study Group on Baltic Sea Modelling)
	Study Group on Impacts Likely to Affect Shellfish in Aquaculture and Natural Populations (<u>formerly</u> Study Group on Pollution Affecting Shellfish in Aquaculture and Natural Populations)

The following table compares the number of scheduled meetings of Council Groups, Workshops, and Advisory Committees in 1990-1993. After having declined from 77 meetings in 1991 to 75 in 1992, the number in 1993

expanded to 79 as a result of an increase in Working (+6) and Study Group (+3) meetings and a decrease in Workshops (-5).

Meetings	1990	1991	1992	1993
Working Groups	46	45	36	42
Sub-Group of a Working Group	1	-	1	1
Study Groups	12	16	16	19
Planning Groups	3	4	4	3
Workshops	3	6	9	4
Advisory Committees	3	3	3	3
Inter-Committee Recruitment Group	1	1	1	1
Others	4	2	5	6
Total	73	77	75	79

Item 15.3 New Working/Study Group Chairmen

The Council's attention was drawn to the following new Chairmen of Working/Study/Planning/Steering Groups

and Workshops (Note: Those indicated by an * were either elected by ACFM at its 27 October - 4 November 1992 meeting or otherwise selected and approved by the President on behalf of the Council):

Chairman	Group
Dr K. Brander (UK)	Working Group on Cod and Climate Change
Dr H. Dahlin (Sweden)	Working Group on Shelf Seas Oceanography
Prof. B. Draganik (Poland)	Study Group on the Biology of Baltic Flounders
Mr A. Eltink (Netherlands)	Mackerel/Horse Mackerel Egg Production Workshop
Mr C. Eriksson (Sweden)	Baltic Salmon and Trout Assessment Working Group
Dr K. Friedland (USA)	Study Group on Stock Identification Protocols for Finfish and Shellfish Stocks
Dr U. Harms (Germany)	Steering Group on Quality Assurance of Chemical Measurements in the Baltic Sea
Dr J. Harwood (UK)	Workshop on the Distribution and Sources of Pathogens in Marine Mammals
Dr L. Hernroth (Sweden)	Steering Group on Quality Assurance of Biological Measurements in the Baltic Sea
Dr B. Howell (UK)	Working Group on Mass Rearing of Juvenile Marine Fish
Prof. E. Gurney (UK)	Study Group on Methods of Spatial and Temporal Integration
Mr E. Götze (Germany)	Planning Group for Hydroacoustic Surveys in the Baltic
Mr J.A. Jacobsen (Denmark)	Blue Whiting Assessment Working Group
Dr K. Jones (UK)	Working Group on Phytoplankton and the Management of their Effects
Mr D. Latrouite (France)	Study Group on the Biology, Life History, and Assessment of <i>Majid</i> Crabs
Dr A. McVicar (UK)	Working Group on Pathology and Diseases of Marine Organisms
Mr T. Mitson (UK)	Study Group on Research Vessel Noise Measurement
Dr T. Neudecker (Germany)	Study Group on the Life History, Population Biology, and Assessment of <i>Crangon</i>
Mr E. Ona (Norway)	Study Group on Target Strength Methodology
Dr T. Raid (Estonia)	Study Group on the Evaluation of Baltic Fish Data
Dr J. Rice (Canada)	Multispecies Assessment Working Group

ctd.

Chairman	Group
Dr L. Rickards (UK)	Working Group on Marine Data Management
Prof. D. Schnack (Germany)	Study Group on Gulf III Sampler Efficiency
Mr E.J. Simmonds (UK)	Working Group on Fisheries Acoustics Science and Technology
Mr E.J. Simmonds (UK)	Planning Group for Herring Surveys
Mr B. Sjöstrand (Sweden)	Working Group on Multispecies Assessment of Baltic Fish
Mr P. Sparre (Denmark)	Planning Group for the Development of Multispecies, Multifleet Assessment Tools
Dr G. Stefánsson (Iceland)	Workshop on Sampling Strategies for Age and Maturity Data
Mr T.K. Stokes (UK)	Working Group on Long-Term Management Measures
Dr G. Topping (UK)	ICES/HELCOM Workshop on Quality Assurance of Chemical Analytical Procedures
Dr U. Harms (Germany)	for the Baltic Monitoring Programme
Dr F. Wulff (Sweden)	Study Group on Environmental Modelling of the Baltic Sea
(To be appointed)	Working Group on Genetics
(To be appointed)	Study Group on Long-Finned Pilot Whales

Agenda Item 16 **MATTERS REFERRED TO THE COMMITTEE BY THE BUREAU OR COUNCIL**

There were no matters referred to the Committee by the Bureau or Council that we not covered in other agenda items.

Agenda Item 17 **ANY OTHER BUSINESS**

The Chairman of ACFM drew attention to the fact that the report of the Study Group on Cephalopod Biology (Doc. C.M.1992/K:38), which had met from 21-22 September 1992, had been drafted before the meeting of the Group and constituted only a preliminary report. Since this Study Group's report was on the agenda for the November 1992 meeting of ACFM, he expressed concern as to whether the final version of the report would be available by November. The Chairman of the Shellfish Committee reported that he would try to obtain any recommendations from the Group before the end of the Statutory Meeting and that the report should be ready in time, and also pointed out that the Group had been unfortunate in having both its 1991 and 1992 meet-

ings immediately prior to the Statutory Meeting, thus making it impossible to have reports available for the Statutory Meeting, and that future meetings of the Group would be scheduled so as to avoid this problem.

Both the Chairmen of ANACAT and the Mariculture Committee raised concerns relative to some poor quality and otherwise inappropriate papers which had been presented at this year's Statutory Meeting, and the need for possible screening of papers in advance of future Statutory Meetings. It was agreed that this matter would be discussed at the 1993 mid-term meeting of the Consultative Committee.

The Chairman recognized the hard work, excellent contributions, and stimulating ideas of the outgoing Chairmen of ACMP and the Fish Capture, Marine Environmental Quality, Demersal Fish, Baltic Fish, and Biological Oceanography Committees. He thanked them warmly for their efforts during their terms of office. The Chairman thanked everyone for their enthusiasm in addressing the issues at this meeting and declared the meeting adjourned at 17.40 hrs.

DOCUMENTS

A:1	Agenda for the Consultative Committee
A:2	Report of the Programme Planning Group meeting, ICES Headquarters, 28-29 May 1992
A:3	Minutes of ACFM meeting, ICES Headquarters, 29 October - 6 November 1991
A:4	Minutes of ACFM meeting, ICES Headquarters, 19-27 May 1992
A:5	Minutes of ACMP meeting, ICES Headquarters, 5-12 June 1992
A:6	Compendium of recommendations from Working/Study Group reports

REPORT OF THE INTER-COMMITTEE RECRUITMENT GROUP

Chairman: Dr M.P. Sissenwine

The Inter-Committee Recruitment Group (IRG) met twice during the 1992 Statutory Meeting. The following members were present: Dr M. Sissenwine (Chairman), Prof. T. Osborn (Hydrography Committee), Dr V. Dethlefsen (Marine Environmental Quality Committee), Prof. N. Daan (Demersal Fish Committee), Prof. E. Houde (Pelagic Fish Committee), Dr R.C.A. Bannister (Shellfish Committee), and Dr K. Richardson (Biological Oceanography Committee). Prof. C.E.E. Hopkins (Consultative Committee Chairman) and Dr M. Heath (Chairman of the Working Group on Recruitment Processes) also attended.

Discussion of the Cod and Climate Change (CCC) programme occupied virtually all of the available time. The Group reviewed the report of the Steering Group on Cod and Climate Change (Doc. G:17) and concluded that, while the report contained some useful information, it did not "do justice" to the CCC. There had been significant progress (e.g., preparation of synopses on cod populations and their environments, scientific plans for regional studies) that were not documented in the report. The Group concluded that in part the problem reflected the difficulty of "working by correspondence" rather than holding an intersessional meeting.

The Group discussed at length the opportunities associated with the Cod and Climate Change programme, and the requirements for increasing the rate of the progress. The original rationale for the CCC was that a) pan-Atlantic cod populations were arguably the best understood fishery resources anywhere; b) the region was known to have experienced large, biologically significant, climate fluctuations in the past, and global climate models indicated that the region was particularly sensitive to long-term change associated with "greenhouse" warming; and c) by coordinating research on cod populations and their environment and by using a common approach, much could be learned about the process that controlled the response of these populations to climate change.

Since planning was initiated in 1989, there had only been one authorized meeting; yet a conceptual framework for the study (Docs. C.M.1990/G:50 and C.M. 1991/G:78) had been formulated and some regional studies had been planned. In addition, progress had been made in modelling the climate and circulation of the North Atlantic, such that the opportunity to link regional and basin-scale models was even greater than it was when the CCC was initiated.

Concurrent with planning by ICES on Cod and Climate Change, the Scientific Committee for Oceanic Research

(SCOR) and the Intergovernmental Oceanographic Commission (IOC) had initiated an international programme on global ecosystems dynamics, known as International GLOBEC (I-GLOBEC). At the first meeting of the Scientific Steering Committee of I-GLOBEC, the ICES Cod and Climate Change programme had been identified as a North Atlantic component.

The Group concluded that sponsoring CCC as a North Atlantic component of I-GLOBEC was a unique opportunity for ICES to expand the scope of its activity by placing greater emphasis on environmental interdisciplinary research, and to enhance linkages with SCOR, IOC, and the broader marine science community. But, in order for ICES to take advantage of the opportunity, it would need to make a long-term commitment to the research and intensify the effort by regularly holding intersessional meetings, rather than working by correspondence. The Group felt that the significance of the programme and its long-term nature clearly merited establishing a Working Group on Cod and Climate Change.

In discussion of the terms of reference of a Working Group, the Group identified two technical issues that required priority attention:

- a) how to use the results of global and basin-scale physical models as boundary conditions and forcing functions for regional physical and biological models;
- b) how to incorporate numerical population models of species of particular interest within spatially resolved ecosystem models in which other species were represented as a few aggregate functional groups.

The Group felt that these technical problems should be considered by a Working Group on Cod and Climate Change, but it was recognized that more specialized Workshops may also be required.

During its deliberations, the Group noted that, while the CCC stressed cod, the programme should be viewed as interdisciplinary research on the ecosystem which contained cod. It should serve as a model for research on other species and ecosystems. The importance of participation by biological and physical oceanographers, ecosystem modellers, as well as fisheries biologists was stressed. Furthermore, it would be essential for the Working Group on CCC to coordinate closely with several other Working Groups and Committees. Specific at-

tention was drawn to the need for coordination with the Working Group on Recruitment Processes and the Working Group on Shelf Seas Oceanography.

Because of time constraints, the Group was unable to give the report of the Working Group on Recruitment Processes (Doc. L:6) adequate attention. Nevertheless, the Group wanted to highlight the report and endorse its recommendations (which would be forwarded by the Biological Oceanography Committee).

In summary, the Group recommended that:

- a) ICES should sponsor a Cod and Climate Change programme as a North Atlantic component of I-GLOBEC;

- b) in order to carry out this programme, ICES should establish a Working Group on Cod and Climate Change which should meet intersessionally to fulfill specific terms of reference;
- c) the Inter-Committee Recruitment Group should meet at the 1993 Statutory Meeting to review progress by the Working Group on Cod and Climate Change and to consider opportunities to coordinate and enhance other research relevant to recruitment.

DOCUMENTS

G:17
Ref. C+L

Report of the Steering Group on Cod and Climate Change

L:6

Report of the Working Group on Recruitment Processes, Fuengirola, Spain, 23-26 June 1992

REPORTS OF SUBJECT/AREA COMMITTEES

FISH CAPTURE COMMITTEE

Chairman: Prof. K. Olsen

Rapporteur: Dr J. Traynor

The Committee met on 24 September from 14.30 - 16.00 hrs, on 25 September from 09.00 - 11.00 hrs, and on 28 September from 09.00 - 13.00 hrs. During the sessions, reports of the Committee's activities and 34 scientific contributions were discussed.

Committee Business

Prof. Kjell Olsen, Committee Chairman, opened the Fish Capture meeting and Dr Jim Traynor was selected as rapporteur. After adoption of the agenda, the Chairman presented the Report of Activities for the Committee (Doc. B:1) noting that not all nations had contributed progress reports to the Committee. Dr Traynor resigned as Chairman of the Working Group on Fisheries Acoustics Science and Technology, and the Committee endorsed the proposal that Mr E.J. Simmonds be appointed the new Chairman.

Election of Chairman

Mr Ronald Fonteyne was elected Chairman of the Fish Capture Committee.

Working Group Reports

A report of the meeting of the Working Group on Fishing Technology and Fish Behaviour (FTFB) (15-16 June 1992, Bergen, Norway) was presented by the Chairman, Mr B. van Marlen. The Working Group had met to consider, in particular, techniques for measuring selectivity of fishing gears, analysis procedures and forms of reporting results. Sixteen papers were presented, 13 of which dealt with the special topic. In addition, a draft report on the "Evaluation of possible variability in the fishing power of the GOV trawl" was presented and discussed. A number of Working Group recommendations were presented to the Committee for consideration.

Responding to C.Res.1990/2:8, Doc. B:39 contained a report of a FTFB Sub-group: "Evaluation of sources of variability in the fishing power of the Grand Overture Verticale (GOV) bottom trawl". The paper reviewed factors that could be sources of bias and variations in trawl performance and reviewed the present manual for the ICES International Young Fish Survey/International Bottom Trawl Survey. The paper provided specifications including drawings of gear and rigging, procedures for checking net and rigging measurements, and recommendations for improvement of gear performance. Much of the discussion concerned the use of the constraint method of maintaining a more constant door

spread. Although Doc. B:39 indicated that more work was necessary before the procedure should be adopted, many members felt that recent data on this technique had been very positive and that the Committee should consider this aspect at its next meeting.

Doc. B:5, the report of the meeting of the Working Group on Fisheries Acoustics Science and Technology (FAST) (17-18 June 1992, Bergen, Norway) was presented by the Chairman, Dr J. Traynor. Terms of reference for the meeting were to a) evaluate the methodologies and results for *in situ* target strength measurements and b) evaluate the methodologies and results for species and pattern recognition studies using procedures for classifying acoustic signals. Eight of the 15 presentations dealt with the special topics for the meeting. Several recommendations were presented to the Committee for consideration.

The next paper relating to Committee business was Doc. B:6, a report of the Joint Session of FTFB and FAST (16 June 1992, Bergen, Norway), presented by the Chairman, Dr P. Stewart. Radiated noise of survey vessels was the special topic for the meeting and seven of nine papers for the session dealt with that topic. Recommendations from the Joint Session were presented to the Committee for consideration.

Mr W. Brugge, DG XIV, EC, addressed the Committee to describe some research opportunities within the EC. He indicated that in the Fisheries and Agricultural Research program, funding for research and development had ended, but a new program had started. Amongst the research areas, no acceptable proposals had been received for the fishing technique topics. A second call for proposals due by 30 October 1992 had been made. Mr Brugge encouraged Committee members to consider submitting proposals.

Scientific Contributions

The subject area of the first group of scientific contributions was "Fisheries acoustic science and technology". Doc. B:7 described a mooring system (BITS) designed to make zooplankton and micronekton measurements from a mooring. The current system, which had ten bi-frequency (165 kHz and 1.140 kHz) located at various depths, a dual beam sonar (at 165 kHz), and an eight frequency (100 to 3000 kHz) sensor, was currently moored in Southern California and had a radio link (VHF) to shore. Doc. B:9 described performance measures for two 210 kHz transducers. The author argued

that when *in situ* measures were not available, theoretical computations may provide more appropriate values of performance parameters than laboratory measurements. Discussion centred around the relative merits of laboratory and theoretical values. Doc. B:10 presented target strength information for herring at 18, 38, and 120 kHz using a three-frequency Simrad EK500. Target strengths at 38 kHz were assumed to follow the equation $TS = 20 \log l - 71.9$. The values at 18 and 120 kHz were calculated by comparing SAs at those frequencies to the values at 38 kHz. The calculated target strengths were -42.9, -41.2, and -42.6 for 18, 38, and 120 kHz, respectively. Doc. D:10 described the results of geostatistic analysis of acoustic data collected on 0-group herring in a fjord. The paper described a practical application of the technique. Standard error of the mean density was much lower (1590) in the night when the fish were more evenly distributed than in the day (5290) when the fish were highly aggregated. Doc. B:8 described target strength measurements of ocean redfish (mean length - 36.9 cm). The measurement situation was ideal for target strength measurement with the fish being presented almost exclusively as single fish targets; the length range was narrow and there were no contaminant species. Target strength was -38.9 dB in the 75 - 100 m range and decreased to -40.1 dB below 125 m. No effect on target strength could be associated with fish length, boat spread, time of day, and male-female ratio. Discussions centred around potential causes for the observed changes with depth and details of the parameters for data collection. In Doc. B:37, the underwater sound emission of a new research vessel was compared with other research vessels. Major sources of noise generated by vessels were discussed. For the vessels measured, a wide range of noise levels was observed. Discussion centred around the need for more research information about the effect of vessel noise on fish. Doc. B:17, which presented information about an intercalibration between a Russian and Norwegian vessel, was read by title.

Four papers were presented on the subject of "Fish behaviour and effects of fishing". Doc. B:33, which was briefly described by the Committee Chairman, presented results from a lake in which it was demonstrated, using acoustically tagged fish, that fish were able to learn to avoid the trawl. The Chairman remarked that, if those results applied to marine stocks, the implications for resource assessment could be very significant. Doc. B:30 reviewed research results from nine countries designed to assess the survival rates of fish escaping from nets and codends. Discussion emphasized the importance of this type of review and suggested that, because of the amount of work being carried out in this research area, this review should be regularly updated. Doc. B:29 described a prototype experiment to determine survival rates of saithe escaping through codends, using a ringed cod and cover and a cage suspended for about

one week at 40 m below the surface. Although many experimental problems were encountered, one successful measurement indicated high survival rates (98%) for saithe after 6-7 days. Initial information on redfish indicated a much lower survival rate. This experiment was one of the rare attempts to carry out such experiments in open water. Further experiments were planned. The final paper on this subject (Doc. N:17) reported ongoing work to develop efficient warning devices to prevent entrapment of cetaceans in fishing nets. Various techniques to place acoustically-visible devices on nets were discussed and typical encounter scenarios were presented as were other possible avoidance techniques. The author indicated that knowledge of fish behaviour in the vicinity of gear in conjunction with observed cetacean behaviour should be used to minimize cetacean-gear interaction.

The next group of papers involved "Fishing gear selection". Doc. B:14 described the effect of controlled release of fluid mackerel extract as bait in Norway lobster pots. For release rates higher than 6 ml/h, the extract had higher catch rates than natural mackerel bait. Size composition using the two baits was very similar. Doc. B:11 described an experiment to obtain size selection of penned saithe by forcing the fish against an adjustable grid. The selection range was narrow, only about 5 cm. No mortalities were observed over periods of 7-14 days. The use of this grid was suggested for seine fisheries along the coast of Norway. Doc. B:12 dealt with measurement of selectivity of gill nets and trawl cod ends for flounder. The authors indicated that an increase in minimum mesh size for both gill nets and cod ends of trawls would improve the long-term yield for these stocks. Doc. B:20 extended measurements of the escapement of fish under the ground rope of trawls using bag-nets to a trawl (codhopper) used for stock assessment in the North Sea. For all species studied, more smaller fish were observed to escape under the ground rope of the trawl. Plaice, dab, haddock, whiting, and cod all reacted in this manner and efficiency as a function of fish size was estimated. The authors stated that the results indicated that catches in bottom trawls do not provide representative size information and expressed a need to make those type of measurements for all "standard trawls" as well as the need for gear technologists to design trawl changes to minimize the observed effect. Discussion emphasized the importance of the type of work reported in the paper. Docs. B:2 and B:3 reported the results of the use of square mesh windows in bottom trawls and seines (Doc. B:2) and *Nephrops* nets (Doc. B:3). Whereas the window appeared to be useful in bottom trawls, it was less effective in seiners. For the *Nephrops* fishery, a window with 135 mm square mesh was very successful in separating *Nephrops* from non-target species. Doc. B:36 compared codend selectivity on *Nephrops* using a new curve-fitting method; selectivity improvement using the square mesh was marginal.

Doc. B:25 described an extended logistic curve for a symmetric distribution of retention rates in selection experiments, allowing a better fit to non-symmetric distributions. Discussion centred around the appropriateness of the model used and potential alternative procedures. Doc. B:28 described a computer program to analyze selectivity studies from trouser trawl or alternate haul studies. Doc. B:24 examined the problem of the extreme variability in repeated hauls within a small area. The author indicated that the extreme variations in his experiment could not be attributed entirely to variations in shooting and towing time, but must also be associated with patchiness of fish captured and variation in the fishing process. The author also suggested that the appropriate towing speed to use for quantitative assessments was speed through the water and not over the ground.

The next group of contributions dealt with "Fishing gear construction and operation". Doc. B:19, which dealt with shape estimation of trawls using underwater video techniques, was read by title. Doc. B:18 included a model developed on the basis of theory to predict the effect of ship motion on the dynamic behaviour of a beam trawl and predict that ship motion would cause "bouncing" of the trawl in severe conditions. Doc. B:22 described measurements of wing- and door-spread and trawl heights on a research vessel for two trawls fished from 40 to 400 m bottom depth. Variations of the parameters were discussed. Mechanisms for the variations

and potential causes for errors in quantitative trawl surveys were presented. Doc. B:21 discussed the reduction in mesh size of various types of netting over time. The author determined that, as long as they were kept out of sunlight, the effect of environmental variations on mesh size was minimal. Discussion centred around the analysis procedures and whether those results could be extended to the general situation, and it was felt that more work was needed. Doc. B:13 presented information about procedures for determining the drag coefficient for trawl gear. Doc. B:35 described a computer program for designing bottom trawls. Various options for input parameters and type of design were allowed. Comparisons of design parameters with measured parameters were favourable. A demonstration of the program on a personal computer was given. Discussion centred on the availability of the program (written first in Basic, then in Pascal) and it was recommended that the program be developed and documented in English. Doc. B:34 considered the accuracy requirements for the calculation of the hydrodynamic resistance of trawls. The author suggested that a primary need was improvement in the accuracy of resistance of a trawl net section. If such information were available, he argued that a more accurate calculation of the hydrodynamic resistance of the body and cod end of fishing trawls could be made. The Committee recognized the important work on theoretical trawl dynamics carried out by the author Prof. Harry Stengel and his colleagues in Rostock.

DOCUMENTS

B:1		Report of Activities, 1991
B:2	G. Thorsteinsson	The experience with square mesh windows in bottom trawling and seining in Icelandic waters
Ref. G		
B:3	G. Thorsteinsson	Experiments with square mesh windows in the <i>Nephrops</i> trawling off south Iceland
Ref. K		
B:4		Report of the Working Group on Fishing Technology and Fish Behaviour, Bergen, 15-16 June 1992
B:5		Report of the Working Group on Fisheries Acoustics Science and Technology, Bergen, 17-18 June 1992
B:6		Report of the Joint Session of the Working Group on Fishing Technology and Fish Behaviour and the Working Group on Fisheries Acoustics Science and Technology, Bergen, 16 June 1992
B:7	D.V. Holliday	Acoustical measurement of zooplankton from moorings: a progress report
Ref. L		
B:8	P. Reynisson	Target strength measurements of oceanic redfish in the Irminger Sea
Ref. G		

B:9	K.G. Foote	Nominal performance measures for two 710-kHz transducers
B:10 Ref. H	K.G. Foote <i>et al.</i>	On the frequency dependence of target strength of mature herring
B:11	O.A. Misund and R. Skeide	Grid-sorting of penned saithe
B:12 Ref. J	J. Netzel <i>et al.</i>	Selectivity of fishing gear employed in the Polish flounder fishery
B:13	W. Moderhak	Drag coefficient of netting - influence of incidence angle of mesh bar and knot on its value
B:14 Ref. K	Å. Bjordal and S. Løkkeborg	Improved catch rates and selection of Norway lobster (<i>Nephrops norvegicus</i> L.) by controlled release of fluid bait extract in pot fishing
B:15		Withdrawn
B:16		Withdrawn
B:17 Ref. H	A.E. Dorchenev and K.A. Hansen	Intercalibration of acoustic systems onboard R/V "Johan Hjort" and R/V "PINRO"
B:18	C.G.J.M. van der Nat <i>et al.</i>	The effect of ship motions on the dynamic behaviour of a beam trawl
B:19	M. Kroeger <i>et al.</i>	Shape estimation of trawls by the help of underwater video techniques
B:20 Ref. G	E. Dahm	Escapement of fish underneath the groundrope of a standard bottom trawl used for stock assessment purposes in the North Sea
B:21	E. Dahm	Reduction of mesh size of netting after long-time storage under atmospheric conditions
B:22	J.E. Marteinson	Trawl performance during bottom trawl survey: measurements of wing spread, door spread and trawl height
B:23		Withdrawn
B:24	S. Ehrich	Do different towing distances influence the variance of catch data, if the towing time is constant?
B:25 Ref. D	K. Lange	An extended logistic curve for asymmetric distributions of retention rates in selection experiments
B:26		Withdrawn
B:27		Withdrawn
B:28 Ref. D	R.B. Millar	Analysis of trawl selectivity studies: implementation in SAS
B:29 Ref. G	J.A. Jacobsen <i>et al.</i>	Survival of saithe (<i>Pollachius virens</i> L.) escaping through trawl meshes
B:30	G.I. Sangster	The survival of fish escaping from fishing gears

B:31 Sess. Q Poster	J.H.B. Robertson	Using the twin trawl to measure cod-end selectivity
B:32 Sess. Q Poster	J. Main and G.I. Sangster	A new design of cod-end cover for mesh selection experiments
B:33	A.I. Pyanov	Fish learning and the fishery
B:34	H. Stengel	Considerations about the accuracy required for the calculation of the hydrodynamic resistance of trawls
B:35	U. Lorenzen and U. Richter	Design of bottom trawls using a computer program
B:36 Ref. D+K	M. Larsvik and L. Ulme- strand	Square and diamond mesh trawl codend selection on <i>Nephrops norvegicus</i> (L.) analyzed with the curve-fit method isotonic regression
B:37	D. de Haan	The underwater sound emission of research vessels and the beam trawler TX 48
B:38 Ref. L		Withdrawn
B:39 Ref. G+H		Report from FTFB Subgroup: Evaluation of sources of variability in fishing power of the GOV trawl
B:40 Sess. Q Poster	C.W. Glass <i>et al.</i>	Investigation of the principles of fish behaviour underlying mesh selection
B:41 Sess. Q Poster	S. Olsen and C.S. Wardle	Fish behaviour in relation to fish capture - important issues arising from the Bergen Symposium, June 1992

HYDROGRAPHY COMMITTEE

Chairman: Dr T. Osborn

Rapporteurs: Dr M. Heath and Mr A. Jorge da Silva

The Chairman welcomed all participants and appointed the Rapporteurs.

Committee Business

A representative from the ICES Secretariat drew attention to the following four available documents/publications:

- a) questionnaire/inventory on oceanographic activities,
- b) details of ICES data exchange formats,
- c) atlas of IYFS bottom temperatures,
- d) publication of JPOTS manual on methods of processing oceanographic data (price - DKK 200).

Attention was drawn to two developments in relation to the Global Ocean Observing System (GOOS). First, at the Rio Conference, in Agenda 21, Chapter 17, all member states were urged to support IOC and other organizations in collecting ocean data, especially in relation to GOOS, and training for developing countries. Secondly, the first session on implementation of GOOS would be held early in 1993.

Attention was drawn to the customary Hydrography dinner to be held on Saturday 26 September.

Dr van Aken (Netherlands) introduced three topics for consideration as Theme Sessions or Special Topic Sessions at future Statutory Meetings:

- a) Special Topic Session on results of the WOCE Hydrographic Programme (WHP) in the North Atlantic, for which participating scientists should be invited to report their results. The Programme involved most of the ICES Member Countries (Canada, Denmark, Finland, France, Germany, Netherlands, Norway, Portugal, Russia, Spain, Sweden, UK, and USA) and consisted of hydrographic surveys (a standard survey with a full set of physical, chemical, and tracers, and repeated surveys for T, S, O₂, and nutrients), XBT surveys, current meter moorings, surface drifters, and sub-surface floats. Session contributions could be helpful in answering questions posed by the Committee.

- b) Theme Session on the Results of JGOFS (GCFS, BOFS), a programme that aimed at understanding the carbon cycle in the North Atlantic, where ships from Germany, Netherlands, UK, and USA were involved. The Session should have the concurrence of the International JGOFS Organization and attract the attention of marine scientists from different fields.

- c) Special Topic Session on large-scale (Atlantic wide) ocean circulation models in order to keep the ICES community informed of the state of the art, available model products, and observational requirements to initialize and validate those models.

These suggestions were put forward in order to make a session on models rather multidisciplinary within the context of ICES, as well as by bringing in people from atmospheric sciences. The Committee's attention was also drawn to the ongoing research activities on shelf edge processes, namely the Ocean Margin Experiment (OMEX), and those by scientists from the UK, Spain, and Portugal. A suggestion by the Committee Chairman was accepted whereby Dr van Aken (Netherlands) should chair a group, composed of the Chairmen of the Working Group on Oceanic Hydrography and the Working Group on Shelf Seas Oceanography, to discuss the best way to proceed with Dr van Aken's recommendations on future Theme Sessions, and provide a report in time for the Working Group meetings in 1993.

Hydrographer's Report

The Hydrographer reported on ICES activities since the 1991 Statutory Meeting, mentioning specifically:

- a) archaeology;
- b) the requests of the North Sea Task Force on nutrients that had taken up about 30% of the available resources, which had not been anticipated;
- c) the evolution of the ICES data bank, namely with the acquisition of a new computer system, the response of Member Countries through the use of ROSCOP, and the adoption by IOC of the ICES quality control procedures;
- d) the continued compiling of data sets from SKA-GEX and the Greenland Sea Project.

Additional Remarks

The Chairman drew attention to the following items:

- a) JPOTS was bringing the algorithms to calculate salinity up to date in order to refer to the new International Temperature Scale 1990;
- b) The Theme Session on "Dynamics of Upwelling" to be held in 1993 was coming along well, according to the report from the Conveners;
- c) A Theme Session on "Computers in Fisheries Research" had been announced for 1993 without the proper endorsement of any Committee, and the Hydrography Committee should issue a recommendation to support the proposed Session (this was accepted).

Working Group and Study Group Reports

Working Group on Oceanic Hydrography, Torshavn, 22-24 April 1992 (Doc. C:4)

The Working Group had discussed a large number of issues, but the principal conclusion was that the main attention in the next few years should be on developing a range of ocean models at different scales. The necessity for different scales arose from the need to provide inputs to the next generation of chemical and biological models.

The principal recommendations from the Group concerned:

- a) the need for the Hydrography Committee to promote the collection of sea surface salinity data from ships of opportunity;
- b) the need for members to continue to supply data to ICES from standard sections;
- c) the need to respond positively to an IOC initiative to prepare precise bathymetry maps of the North Atlantic, and extend this activity into the Nordic seas;
- d) the need for the Working Group to hold a session on observation and modelling variability of the North Atlantic in 1994.

It was further suggested that the Working Group should review the WHP observational manual as a guide for hydrographic procedures.

This proposal was accepted and a similar proposal pertaining to the Marine Chemistry Working Group was also accepted.

The next Working Group meeting should be held in Aberdeen in April 1993 to coincide with a one-day symposium celebrating the 100th anniversary of the first hydrographic measurements in the Faroe/Shetland Channel to be held by the Marine Laboratory in Aberdeen. Details of the proposed agenda for the 1993 meeting of the Working Group were contained in Doc. C:4.

Working Group on Marine Data Management, Tors-havn, 22-24 April 1992 (Doc. C:5)

The principal agenda items for the Working Group concerned the management of ADCP and SEASOAR data.

Concerning ADCP data, the Working Group recognized that records from moored rigs presented no problem since they were analogous to those from conventional recording current meters. The main difficulty concerned data from vessel mounted systems, as a consequence of the variety of operational configurations and potential quality variations. The Working Group concluded that it was not yet possible to consider archiving such data at a central location. However, collecting institutes should be encouraged to conform to certain principles when archiving data at their own sites.

Concerning SEASOAR data, the Working Group noted two possible methods of storing records in a standard format: as time series, or as pseudo casts. The Working Group preferred the option of archiving data as time series records, and exchanging in standard IOC GF3 format.

The Working Group requested that its next meeting be held in Aberdeen, to coincide with the meeting of the Working Group on Oceanic Hydrography (22-24 April 1993). A new Chairman would be required for the Group, and the Group proposed Dr L. Rickards (UK). The Committee approved the proposal.

Working Group on Shelf Seas Oceanography, Copenhagen 26-28 February 1992 (Doc. C:3)

The Chairman of the Working Group on Shelf Seas Oceanography reported that the Group had reviewed the initiatives on Harmful Algal Blooms, Cod and Climate, SKAGEX, and its main recent work on North Sea nutrients. He presented the Committee with an example of what was now possible to achieve using the ICES nutrient data base, in the form of maps showing ratios of nutrients concentration from different time periods.

Prof. M. Mork (Norway), who had been asked at the first session of the Committee to chair an *ad hoc* meeting of members of the Working Group on Shelf Seas Oceanography to deal with the future of the Working Group, announced that Dr H. Dahlin (Sweden) had received the support of Working Group members to

take the chair. Dr Dahlin was then invited to report on the meeting of the *ad hoc* group.

Dr Dahlin pointed out that the Working Group had been working in the past few years with specific tasks (nutrients, monitoring) that might have kept most oceanographers, and especially modellers, away. This year, a meeting of the Study Group on the Dynamics of Algal Blooms had taken place in Vigo. Two hydrographers, both members of the Hydrography Committee and the Working Group, attended the meeting and felt that quite a lot of physics had to be put into the programmes coming out of the Study Group's work. This led to the proposal for two of the terms of reference for the next meeting of the Working Group.

Study Group on SKAGEX, Gdynia, 4-8 November 1991 (Doc. C:1)

On behalf of the Chairman of the Study Group on SKAGEX, Dr Dahlin informed the Committee that a workshop was planned for November 1992 to present the results of the experiment. However, the results were much more abundant than initially expected at the beginning and so the Study Group was proposing a final meeting in 1993 to a) finalize the SKAGEX atlas, b) summarize the findings, and c) outline follow-up activities.

Study Group on the Dynamics of Algal Blooms, Vigo, 7-9 April 1992 (Doc. L:4)

The Chairman of the Study Group outlined how the ICES activities related to the IOC Harmful Algal Bloom Programme.

The main conclusion of the meeting of the Study Group was that the most productive approach to the issue was likely to be the development of population dynamics models of the particular species of concern in each study area. The main problem was perceived to be the difficulty in distinguishing growth and loss terms in the field, in particular, the identification of rates of mortality, dispersal, and encystment.

The Study Group proposed promoting pilot studies in three areas (Gulf of Maine, Skagerrak/Kattegat, and the Iberian Coast) as a precursor to recommending protocols for a major investigation. It was recommended that each pilot study should, as far as possible, be an international cooperative effort. The need for involvement by hydrographers was especially identified.

Report of the Steering Group on Cod and Climate Change (Doc. G:17)

The objective of the Cod and Climate Change programme was to relate physical variability of the envi-

ronment to variability in fish stocks. This task was perceived to be constrained primarily by the lack of appropriate theory, and a general inadequacy of data. However, in the case of cod, there were generally more data than for other species, and the Cod and Climate Change programme, therefore, represented a unique opportunity. The Inter-Committee Recruitment Group would be examining the Steering Group's report in detail later in the Statutory Meeting, after which more information would be available.

Scientific Contributions

The first scientific contribution (Doc. C:15) related closely to the report of the Working Group on Marine Data Management, and concerned possible ways of utilizing routine logged data from shipborne ADCP systems. The presentation contained some interesting proposals and prompted some discussion of the possible difficulties.

Two further contributions (Docs. C:6 and C:20) referred to observations of exceptionally high salinities in the North Sea and Northeast Atlantic during 1989-1991. Together with another published report of exceptional salinities in the northern North Sea, there was clear evidence of an unusual event in the Northeast Atlantic during the period. Doc. C:20 suggested that the basis of this was an increased contribution of southern water from west of the Iberian shelf to the shelf edge current west of the UK and south-west approaches.

Finally, Doc. C:19 documented results from field work demonstrating the extent to which shelf edge current water was transported across the shelf break onto the shelf northwest of the Scottish Hebrides. This water mixed with Coastal Current water and contributed to the Fair Isle inflow into the North Sea.

A series of papers on the Greenland Sea and the Fram Strait hydrography was presented. The papers dealt with the seasonal variability of the cyclonic circulation (Doc. C:26) and distribution of water masses (Doc. C:27) in the Greenland Sea, the space and time variability of the exchange through Fram Strait (Docs. C:28 and C:29) and the large scale circulation of the Greenland Sea, eddy and mean kinetic energy based on the use of drifters (Doc. C:31). Doc. C:10 dealt with the long-term average transport and circulation through Fram Strait.

Another paper (Doc. C:33) dealt with the eventual transport of organically fixed nutrients from the Danish west coast into the Kattegat, concluding that it should be minor, if any.

Doc. C:21 dealt with an eddy-resolving numerical model of the Nordic seas that aimed at explaining the deep water formation. Doc. C:23 presented results of a 3-

dimensional baroclinic model of the Barents Sea aimed at performing both diagnostic (transport variations, seasonal circulation pattern) and prognostic (dispersion studies) simulations. Doc. C:32 reported on spatial structures, time scales, and driving forces of coastal jets in the Arkona Basin. Generation and intermittency of near-bottom turbulent mixing were the subject of Doc. C:25. Doc. C:17 presented the general features of the circulation induced by upwelling favourable winds over the Portuguese northern shelf.

Finally, Doc. C:8 dealt with deep convection in the Central Greenland Sea. Space scales of the order of 1 km were reported for the convection cells, and similar scales (less than 2 km) were reported during the paper's discussion for the Gulf of Lyon.

One paper (Doc. C:2) reported on the water masses of Arctic origin found in the West Iceland Sea, mentioning

their presence down to the Denmark Strait, at least in some years, the variability being probably due to a pulsatory character of the outflow from the Arctic.

Two papers were presented on the hydrography and dynamics around the Faroe Islands. Doc. C:12 reported on the high directional stability of the residual current around the Faroe Plateau, following the topography in an anticyclonic circulation, with evidence of (not necessarily local) tidal rectification. Doc. C:13 mentioned the variability in the hydrographic conditions over the Faroe Bank, pointing out causes like instabilities in the flow of Atlantic water.

Finally, Doc. C:24 presented results on the variability of the hydrographic characteristics west of Ireland in 1990, 1991, and 1992.

DOCUMENTS

C:1 Sess. V		Report of the Meeting of the ICES Study Group on SKAGEX, Gdynia, Poland, 4-8 November 1991
C:2	E. Buch <i>et al.</i>	Arctic Ocean deep water masses in the western Iceland Sea
C:3		Report of the Working Group on Shelf Seas Oceanography, Copenhagen, 26-28 February 1992
C:4		Report of the Working Group on Oceanic Hydrography, Torshavn, Faroe Islands, 22-24 April 1992
C:5 Ref. D		Report of the Working Group on Marine Data Management, Torshavn, Faroe Islands, 23-25 April 1992
C:6	G. Becker <i>et al.</i>	Recent high salinity in the English Channel/southern North Sea
C:7	ICES Hydrographer	Hydrographer's Report
C:8	J. Fischer <i>et al.</i>	Observations related to deep convection in the central Greenland Sea
C:9 Sess. U	T. Wojewodzki and A. Grelowski	Long-term changes of temperature, salinity and oxygen in the Gdansk Deep
C:10	S. Jónsson and A. Foldvik	The transport and circulation in Fram Strait
C:11		Withdrawn
C:12	B. Hansen	Residual and tidal currents on the Faroe Plateau
C:13	L. Lastein	Hydrographic investigations on the Faroe Bank 1985-1992
C:14		Withdrawn
C:15	B. Lundgren	What to do with ADCP data?

C:16		Withdrawn
C:17	A. J. da Silva	Dependence of upwelling-related circulation on wind forcing and stratification over the Portuguese northern shelf
C:18	V.V. Tereschenko	Results from long-period oceanographic observations along the Barents Sea standard sections during 0-group fish surveys
C:19	W.R. Turrell <i>et al.</i>	Hydrographic observations at the continental shelf edge northwest of Scotland
C:20	D.J. Ellett and W.J. Turrell	Increased salinity levels in the NE Atlantic
C:21	C. Heinze	A primitive equation model study of the European Polar Seas
C:22		Withdrawn
C:23	I.H. Harms	First results of a three-dimensional, baroclinic Barents Sea model
C:24	O.V. Titov <i>et al.</i>	Physical and chemical characteristics of waters west of the British Isles in spring 1992
C:25	H. Prandke and A. Stips	On the nature of near-bottom mixing in Baltic water basins
C:26	A. Scharrel	Horizontal circulation in the Greenland Sea 1986-1989
C:27	M. Matthias	Seasonal variability of the water mass distribution in the Greenland Sea
C:28	K. Herbig	Exchange through Fram Strait: meridional variability in the year 1984
C:29	K. Chrubassik	Exchanges through Fram Strait: interannual variability of the transports
C:30	D. Dobberphuhl	Exchange through Fram Strait: watermass transports during 1984-1985
C:31	K. Latarius	The near-surface circulation in the Greenland Sea
C:32	H.U. Lass and Th. Schmidt	Observations of coastal jets in the Arkona Basin
C:33 Sess. U	J. Heilmann	The fate of organically fixed nutrients off the Danish west coast - are they transported into the Kattegat?

STATISTICS COMMITTEE

Chairman: Dr M. Fogarty

Rapporteurs: Mr S.J. Smith and Dr R. Grainger

The Committee met on Friday 25 September from 09:00 - 13:00 hrs, Saturday 26 September from 16:30 - 18:00 hrs, and Monday 28 September from 09:00 - 11:00 hrs. The Chairman opened the first session by introducing himself and appointing Mr Smith as Rapporteur for sessions 1 and 2, and Dr Grainger as Rapporteur for session 3. The agenda was adopted as presented.

The Chairman made a brief presentation on ideas for future directions for the Statistics Committee. Under the guidance of the previous two Chairmen, the Committee had become a forum for development and evaluation of quantitative methodology, particularly for use in stock assessments. The Chairman suggested that in keeping with the interdisciplinary theme being promoted for ICES, the Committee should consider extending its role to assisting in the development and evaluation of quantitative methodology for environmental monitoring and assessment. Examples of possible contributions that the Committee could make were: modelling the effects of pollutants on population dynamics of marine species; assisting in the design and analysis of monitoring programmes and joint work with hydrographers and oceanographers interested in modelling the transport and distribution of pollutants in the environment and their potential effects on the dynamics of marine species.

A list of draft recommendations was distributed in preparation for general discussion during the third session. To this list, the Chairman added the idea of a workshop in 1994 on the analysis of weight-at-age and maturity-at-age data.

The Chairman extended the Committee's appreciation to Dr Grainger for his indispensable role in guiding critical aspects of the Committee's responsibilities and for his assistance in all matters related to the Committee's work. The Chairman led a hearty round of applause for Dr Grainger and wished him the best of luck in his new position with FAO.

Scientific contributions covering a wide range of topics were presented during the three Committee sessions.

Survey Design and Analysis

Doc. D:12 by J. Rivoirard reviewed the course on geostatistics held in Fontainebleau for one week in February 1992 which was attended by a number of ICES and non-ICES scientists. It was noted that the course cover-

ed material in one week that was generally covered in greater detail in a year-long graduate course.

Doc. D:10 by K. Foote and J. Rivoirard presented an application of the use of geostatistics methods to analyze data collected from an acoustic survey of herring. The variance estimates were higher for estimates from data collected during the day than those collected during the night. The paper argued that by taking spatial structure into account, the resulting variances were more realistic than those obtained by sampling theory methods.

In Doc. D:23, W. Warren applied a simple global estimator, a krigged mean and point kriging (with and without transformation) to results from an acoustic survey of redfish. It was concluded that for practical purposes, there was little difference between the results from these methods.

S. Murawski presented the highlights from the Workshop on the Analysis of Trawl Survey Data (Doc. D:6) held in Woods Hole in June 1992. The terms of reference for the Workshop were reviewed along with the approach used of applying a number of different methods to two contributed data sets (IYFS herring survey data and Icelandic cod survey) and comparing the results. A number of recommendations were contained in the report. All present felt that the Workshop was an important first step, but that the results were not definitive. A recommendation for more further workshops would be drafted.

Indices obtained from simulated fixed and random station survey designs were compared in Doc. D:13 by Grastein and Hansen on the basis of the degree of correlation with stock size. The indices from the fixed design were found to be more correlated with stock size than those from the random design. This approach was novel in that the results of these two kinds of designs were usually compared only with respect to the precision of the survey estimates.

W. Warren pointed out the advantages of mixing fixed and random designs and proposed a design in which only a partial set of stations was replaced each year by random sampling (Doc. D:21). A measure of "persistence" was presented which could be used to predict the gains in precision made from using fixed stations.

Most studies of the precision of survey estimates deal solely with the within survey variance; however, Pennington and Godo (Doc. D:9) showed that the between-

survey variances could be as large or larger. They pointed out that the various methods which had been proposed to increase the precision of survey estimates avoided this second source of variation. A time series method was presented which took the between-survey variance into account.

Confidence intervals for survey estimates are usually very wide and often have negative lower bounds due to large standard errors and the use of the normal approximation. W. Warren (Doc. D:22) presented an example of confidence intervals constructed from bootstrap re-sampling of the data. The resultant lower limits were positive, but the intervals were still very wide. The author concluded that the bootstrap methodology was appropriate, but perhaps nothing could improve the precision of the particular survey analyzed in the paper.

A simulation study of four survey strategies for spatially correlated populations was the subject of a paper by Simmonds and Fryer (Doc. D:24). The authors pointed out that precision was not the only criterion which should be used to assess different survey designs; bias should also be considered. The choice of strategy depended on the objectives of the study, and so each survey must be considered individually. This study provided a means of making the evaluation. Several members commented that this was a very interesting and important paper, although the result were what might be expected. The study was confined to the 1-dimension situation which was appropriate for acoustic surveys, but may need to be developed to handle the 2-dimension case which is probably more appropriate for trawl surveys. It was also suggested that it should be modified to accommodate non-stationary time series. It was commented that little is known of fish patchiness and that this study helped in deciding how to improve this situation, but there was also a need to consider more complex analyses such as kriging. There was a consensus that it was essential to use simulated data to make valid evaluations, but that it was also necessary to make comparisons with real data (e.g., VPA results).

The Committee agreed that there was a strong need to hold another Workshop on the analysis of survey data to further compare different methods (some of the nine methods explored at the Workshop on the Analysis of Trawl Survey Data would not need to be pursued). However, such a Workshop would require much preparation, particularly for the data sets, and it may be best to have the preparation done by a small informal group or by a Study Group. It was agreed to discuss this informally with Committee members during the coming year and to decide on firm plans at next year's Statistics Committee meeting.

General Discussion on Survey Design and Analysis: The Chairman commenced a round of general discussion by

setting out the following themes emerging from the previous presentations:

- a) Geostatistical methods can potentially take advantage of the information content in the spatial structure of populations to provide more realistic estimates of variance. However, this approach would require model-based estimators and accompanying assumptions. In contrast, conventional random sampling theory provided unbiased estimates and did not require any model assumption, but could not take advantage of spatial structure.
- b) Although fixed (systematic) designs often provide more precise estimates than random designs, strong assumptions are often required to estimate variances for systematic designs.
- c) We cannot ignore the between-survey error due to interannual changes in catchability. Most methods consider only the within-survey component of variance.

In the subsequent discussion, it was emphasized that although statistical considerations about survey design were important, questions of design and method of analyses should be evaluated according to the purposes the results are to serve. The Trawl Survey Workshop (Doc. D:6) attempted to address that point by evaluating the results according to their correlation with VPA estimates. However, multi-species and multi-country surveys may serve many purposes, and finding a unique standard by which to evaluate them could be very difficult. Discussion also ensued on the merits of using fixed station designs. It was proposed that although fixed stations appeared to be useful for "persistent" species, "the jury was still out" on the general applicability to more mobile species.

The discussions about incorporating spatial information into estimates of abundance ranged from suggestions to improve on the models used (incorporation of mean/variance relationships) to suggesting that recommendations should be able to be made about the timing and design of surveys based on what was known about the spatial structure.

It was suggested that estimates of between-survey variance as described in Doc. D:9 should be made available as a standard piece of information for stock assessments.

Multispecies Modelling

The BEAM 4 (Doc. D:2) computer package for assessing fishery management and allocation scenarios was

presented by P. Sparre. This latest version of a set of software developed in FAO offered biologists, economists, and fishery managers a tool to evaluate the various impacts of decisions.

A somewhat similar type of tool was presented by P. Lewy (Doc. D:17) for the assessment of bioeconomic consequences of technical measures (e.g., areal closures, reallocation to different gear sectors, and mesh size changes). The discussion dealt with some of the technical aspects of these models and on including a mechanism for evaluating the cost/benefit of collecting more data.

A length-based multispecies model for the central Baltic which estimated the predation mortalities of herring and sprat (Doc. D:16) was described by I. Bundegaard and H. Sparholt. The length-specific mortalities found were in general agreement with the results from the age-based MSVPA. The length-based model also demonstrated that the optimal predator/pre size ratio increased with increasing predator size. The authors of this paper were complimented for taking the length-based approach and providing results which were reassuring for those using MSVPA. It was commented that this was the only way to resolve the question of predation at the 0-group stage. Further, it was surprising that the cod prey size preference distributions did not seem to have a greater standard deviation at greater cod lengths. If cod did switch predation onto the most abundant size class of prey, then this should be incorporated into the model, but the problem was to determine the extent of the switching.

Fishery Modelling

In Doc. D:18, Groger and Ehrich presented the use of the Beta distribution to model the frequency distribution of catch data. Bootstrap methods were used to assess the accuracy of the parameter estimates and to investigate sample size requirements and calculate confidence intervals.

Deterministic and stochastic models for catch rate information from stationary gears (longlines, gillnets, traps) were presented by Fogarty and Addison in Doc. D:34. There was a great deal of interest in this paper and suggestions for improving the models by adding time dependencies and multi-species interactions were discussed.

Population Dynamics

Doc. D:20 by J. Horwood compared estimates of spawning biomass from VPA with those from egg production estimates. The resulting estimates differed greatly and the author made the point that more should be done to validate the estimates from VPA with independent studies.

R. Cook (Doc D:25) presented an application of a seasonally separable fishing mortality model for sandeel. The fishery was currently closed and stock status was assessed by incorporating survey and commercial data from the past into the model and using recent survey to assess the current status of the stock.

In Doc. D:29, R.J.H. Beverton and P.F. Randerson investigated the effects of changes in the catchability coefficient q due to fishing pressure and changes in age-at-maturity without changes in size-at-maturity on the long-term stability of a fishery. The authors' results indicated that stability was enhanced in the stochastic form of their model.

R.J.H. Beverton and T.C. Iles (D:30) discussed methods for examining recruitment series for possible effects due to parent stock size and environmental variation. The authors showed that the analysis of the recruitment series with respect to either stock or environmental effects must be conditional on the relationship with the other factor.

Hoening *et al.* (Doc. D:32) presented a multiple linear regression model for estimating survival rates for mature and immature capelin in NAFO Division 3L. The fishery on capelin in 3L only lasts a few days and the authors assumed that natural mortality and fishing mortality acted sequentially in time.

Shelton *et al.* (Doc. D:33) used this model for a survival model and a Monte-Carlo simulation to assess the current management procedure for this fishery.

Bayesian influence methods were applied by S. Kuikka and O. Varis (Doc. D:5) to assess various management strategies for the Baltic salmon fishery. The resulting model included dependencies between the economic, management, and biological aspects of the system. This model also allowed one to assess the value of collecting new information on various aspects of the system.

Biological Sampling

The application of the Jackknife method for estimating variances and covariances of parameters for a von Bertalanffy growth equation was discussed in a paper by S. Fifas and M. Jezequel (Doc. D:28).

The question of the optimal allocation of sampling effort for determining stomach contents of whiting was investigated by P. Degnbol (Doc. D:31). Although there were some questions from the participants about the statistical analysis, many said that they had come to the same conclusion as the author that effort would be better spent sampling fewer stomachs at more sites.

H. Sparholt presented a paper (Doc. D:15) which described the construction of age-length keys for all the stocks of herring and sprat in the central Baltic using seasonalized von Bertalanffy growth curves applied to mean length-at-age data and estimated stock numbers at age. In the following discussion, it was suggested that it would be useful to further develop the model by incorporating stochastic growth based on the probability distribution of length at age. It was suggested that the apparent seasonal variation in length at age for older herring could be due to the fact that larger fish tended to arrive at the spawning grounds (and get caught) earlier than smaller fish.

Committee Business

The Fishery Secretary presented the Progress Report for 1991/92 (Doc. D:35). It was noted that the publication of the volume of *ICES Fishery Statistics* for the year 1989 had been held up by a lack of data for France and Spain, and Committee members from those countries were urged to exert any influence possible to ensure that those submissions were made soon. Returns for 1990 had not yet been made by France, Ireland, Netherlands, Spain, and UK (Guernsey). The Advance Release of the volume (Doc. Gen:4) for 1991 was also far from complete.

The Fishery Secretary presented the Report of the Statistics Committee Liaison Working Group (Doc. D:1). The Working Group had prepared the ICES position for the meeting of the Coordinating Working Party (CWP) on Atlantic Fishery Statistics. Its second term of reference had been to review the status of the STATLANT 27B reporting system and consider its future existence. The Working Group could not justify the demands which the 27B submission put on national offices and the ICES Secretariat given the fact that reporting was very incomplete and that very little use was made of the data. The Committee endorsed the recommendation from the Working Group to discontinue the reporting requirement forthwith. The Working Group had also proposed changes in the instructions for completion of

the STATLANT 27A form and these were also endorsed by the Committee.

The Fishery Secretary reported on the outcome of the Fifteenth Session of CWP. The CWP had endorsed the proposal to discontinue the STATLANT 27B reporting scheme, but had decided that a complete review of the STATLANT reporting system should be undertaken before the next meeting. ICES would make proposals for changes to the 27A form, or for an additional form, as part of that review. Those items formed the basis of two Committee recommendations. At the request of ICES, the question of catch misreporting was discussed. Many other topics of concern to ICES were considered and many recommendations made.

D. Cross of EUROSTAT presented a paper (Doc. D:3) proposing closer cooperation between the ICES Statistics Committee and the Statistics Committee Liaison Working Group on one hand, and the EUROSTAT Working Group on Fishery Statistics on the other. It was noted the latter Working Group would be meeting immediately after the 1992 Statutory Meeting. Future meetings of that Working Group could be scheduled for dates adjacent to ICES Statistics Committee or Liaison Working Group meetings and this would encourage participation of fishery statisticians at the ICES meetings. These proposals were strongly welcomed and the Committee agreed that cooperation between ICES and EUROSTAT should be encouraged.

The participation of fishery statisticians in Statistics Committee and Liaison Working Group meetings had declined in recent years. While the new direction the Committee had taken in the last few years which had resulted in an increase in the consideration of analytical matters was a welcome development, it was important to maintain a coverage of fishery statistics issues because those concern the quality of the basic data used in stock assessments. Scheduling of a special session devoted to fishery statistics and cooperation with EUROSTAT were possible ways that this aspect of the Committee's activities could be invigorated.

DOCUMENTS

D:1		Report of the Statistics Committee Liaison Working Group, Copenhagen, 29-30 January 1992
D:2	P. Sparre	BEAM IV, a bio-economic multi-species multi-fleet, multi-plant, multi-area extension of the traditional forecast model
D:3	D.G. Cross	ICES-EC collaboration in fishery statistics
D:4		Withdrawn

D:5 Ref. M	S. Kuikka and O. Varis	Use of Bayesian influence diagram in fisheries management: the Baltic salmon case
D:6 Ref. G+H+J		Report of the Workshop on the Analysis of Trawl Survey Data, Woods Hole, MA, USA, 4-9 June 1992
D:7		Withdrawn
D:8		Withdrawn
D:9	M. Pennington and O.R. Godø	Measuring the effect of changes in catchability on the variance of marine survey abundance indices
D:10 Ref. B+H	K.G. Foote and J. Rivoirard	Geostatistical analysis of acoustic survey data on 0-group herring in a fjord
D:11		Withdrawn
D:12	J. Rivoirard	Comments on the course on Geostatistics for Fish Survey Data (Fontainebleau, 3-7 February 1992)
D:13 Ref. G	J.M. Gråstein and B. Hansen	Is dice-throwing really the best way to design a groundfish survey?
D:14		Withdrawn
D:15 Ref. J	I. Bundgaard and H. Sparholt	Seasonalized age/length keys with variable hatching time for herring and sprat in the Baltic
D:16 Ref. J	I. Bundgaard and H. Sparholt	Length-based multi-species model for estimation of predation mortalities of herring and sprat in the Baltic
D:17	P. Lewy <i>et al.</i>	Description of the STCF North Sea database system and the prediction model ABC, Assessments of Bioeconomic Consequences of technical measures
D:18	J. Gröger and S. Ehrich	The importance of catch frequency distributions for the interpretation of catch data and the fit by the very adaptable and realistic β -distribution
D:19	L.N. Zavjyalov <i>et al.</i>	Automatic ichthyologic complex
D:20 Ref. G	J.W. Horwood	A comparison of assessment methods: VIIIf and g sole
D:21	W.G. Warren	The potential of sampling with partial replacement for fisheries surveys
D:22	W.G. Warren	Bootstrap confidence intervals for abundance in highly aggregated populations
D:23	W.G. Warren	The effect of different options in spatial analysis of fisheries survey data
D:24 Ref. B	E.J. Simmonds and R.J. Fryer	A simulation study of survey strategies for structured populations

D:25 Ref. G	R.M. Cook	An assessment of the Shetland sandeel stock using a seasonally separable fishing mortality model with auxiliary data
D:26	Y. Morizur <i>et al.</i>	Bar codes in fisheries research: development of a new fish measuring board
D:27 Ref. B+K	S. Fifas and P. Berthou	An efficiency model of an experimental scallop (<i>Pecten maximus</i> L.) dredge. Example of the Saint Brieuc fishery (English Channel, France) sensitivity studies
D:28 Ref. K	S. Fifas and M. Jezequel	Estimation of variances and bias for growth parameters. Resampling techniques (Jackknife) and Taylor's developments. Is it interesting to back-calculate growth?
D:29 Ref. G+H	R.J.H. Beverton and P.F. Randerson	Stability in fisheries with stock-dependent catchability
D:30 Ref. C+G+H Iles	R.J.H. Beverton and T.C.	A note on the analysis of multiple data of recruitment, stock, and one or more environmental variables
D:31 Ref. G	P. Degnbol	The contents of whiting stomachs: statistics
D:32 Ref. H	J.M. Hoenig <i>et al.</i>	Estimation of survival rates for immature and mature capelin in NAFO Division 3L
D:33 Ref. H	P.A. Shelton <i>et al.</i>	Risk evaluation of the 10% harvest rate procedure for capelin in NAFO Division 3L
D:34	M.J. Fogarty and J.T. Addison	Stochastic models for stationary gear fisheries
D:35	ICES Fishery Secretary	Statistician's Progress Report

MARINE ENVIRONMENT QUALITY COMMITTEE

Chairman: Dr V. Dethlefsen

Rapporteur: Mr S. Carlberg

Introduction

The Chairman, Dr V. Dethlefsen opened the meeting. No changes in membership were announced. Mr S. Carlberg was appointed as Rapporteur.

The Chairman reported that the Consultative Committee had decided to propose to the Delegates that ACMP should be open for national representation including *ex officio* membership as well as the possibility for ACMP to invite selected specialists.

In the recent work of the Programme Planning Group, clusters of papers had been grouped together for Theme Sessions in order to encompass interests which crossed the traditional borders of the standing Committees. The idea with those Sessions was to present studies and results in a wider context.

The following topics were identified for future Committee activities:

- a) environmental impacts of the off-shore industry;
- b) environmental quality objectives;
- c) use of biomarkers for environmental effects, emphasizing the links between effects at cell level and at organism or community level.

Experience from Theme Sessions in 1992

It was concluded after some discussion that the increased use of Theme Sessions was positive in that it not only allowed a focus on relevant research items and their results, but also provided an excellent forum for cooperation between two or more standing Committees. However, it was also pointed out that the Theme Sessions had to be widely announced well in advance, that they required the Committee Chairman and all members to solicit suitable papers, and greater efforts by the Programme Planning Group in the further preparation of the Sessions. In this case, criticism was raised concerning the fact that the Theme Session on "Long-term changes and monitoring in the Baltic" had not been publicized through the normal ICES machinery.

Proposals for Topics or Theme Sessions for Future Meetings

It was noted that it had been decided in the 1991 meeting that H. Windom should conduct a Theme Session

entitled "Factors affecting the exposure of organisms to contaminants at interfaces in the marine environment", and members were urged to solicit papers for this Session.

In addition to this and the proposals indicated above, the following ideas were offered:

- a) dose-response data for biomarkers and common environmental contaminants;
- b) new acute and chronic sediment bioassays (techniques);
- c) monitoring data obtained with water and sediment bioassays.

It was decided that a Session on the impact of complex mixtures of contaminants should be held, with J. Everts as coordinator. In doing so, he should solicit papers in consultation with H. Windom in order to avoid overlaps between the Sessions. In the preparation of the Session, the following points should be taken into account:

- a) Theory of mixture toxicity
 - What is the 'state-of-the-art'?
 - How can theory be used to predict the toxicity of environmental samples?
 - How can individually harmless contaminant concentrations be combined to produce biological impacts?
- b) Modelling impact of complex discharges/input
 - Joint toxicity of mixture components.
 - Joint toxicity of multiple discharges.
- c) Fractionation approaches for identification of toxic components
 - Simple chemical fractionation followed by bioassay of toxic and non-toxic fractions.
- d) Use of bioassays for assessing complex mixture
 - Acute and/or chronic tests.
 - Water and sediment bioassays.

- Contaminant concentration techniques.

e) Future research needs

- Where do we go from here?

Furthermore, it was proposed to conduct a Theme Session in 1994 concerning the approaches used in the derivation of existing standards for the protection of the marine environment.

Election of Chairman

Mr S. Carlberg, Sweden, was elected new Chairman of the Committee.

Working Group Reports (Docs. E:4, E:5, Poll:5, E:7, Poll:7)

The Working Group on the Baltic Marine Environment (WGBME) concentrated on planning for a Baltic Sediment Baseline Study, summing up the PEX activities (to be printed by ICES in the near future), and planning for a joint study in selected areas of fluxes in the pelagic system.

The *ad hoc* Planning Group on the ICES/IOC/OSPAR-COM Intercomparison Programme on the Analysis of Chlorobiphenyls in Marine Media reported that a number of laboratories, by 1993-1994, would have reached proficiency level for these analyses.

From the report of the Working group on Biological Effects of Contaminants, it was noted that although the Aberdeen workshop on EROD intercomparisons had yielded valuable results, there was a need to organize a future intercalibration in order to control the many factors that influenced the results. The NSTF ring test of oyster embryo bioassay showed that, with minor exceptions, all participating laboratories were able to perform the test satisfactorily.

According to the report of the Working Group on the Effects of Extraction of Marine Sediments on Fisheries, new material had been reported from several countries concerning sea bed mapping. It was further noted that several countries now required environmental impact assessments to be carried out as part of the procedure for licensing the extraction of marine sediments and also that the "black box" tracking systems were now implemented by Belgium, UK, and the USA.

The Study Group on the Biological Significance of Contaminants in Marine Sediments had found itself in a position where not enough biological expertise participated in order to allow the Group to fully address its working agenda. The Group, therefore, proposed a change in its terms of reference in order for them to

correspond more closely to the composition of the Group. The report contained an extensive annex describing the characteristics of sediments which influenced contaminant exposure to marine organisms and methods for their quantification.

German Bight, Wadden Sea (Docs. E:22, E:23, E:24, E:21, E:36)

The first paper dealt with uptake of heavy metals in phytoplankton which was depending on the plankton species composition. The uptake of cadmium and zinc seemed to be regulated by the silicate concentration.

The next presentations reported on studies of atmospheric inputs of contaminants to the German Bight. The local patterns showed that the contribution from urban areas of Kiel and Hamburg could easily be seen and that the concentrations of, e.g., NO_x and SO₂ over the sea areas showed highest concentrations in the morning and evening. Furthermore, the highest concentrations were frequently found well offshore. Wind-directed sampling had made it possible to identify sources, and the input measurements actually performed verified the extensive modelling of the inputs. One important experience from the study was that episodic events could account for a deposition in one single month of up to 35% of the annual input of lead or arsenic.

Sediments (Docs. E:29, E:30, E:39)

In the first paper, results of the UK sediment monitoring under the JMG were presented. The material showed elevated heavy metal loads contributed by the major rivers on the eastern UK coast, with the north-eastern part contributing mainly lead and zinc. Cadmium and chromium showed elevated concentrations, not only at coastal sites, but also in the northern part of the Dogger Bank. All metals, except cadmium, showed a positive correlation to aluminum.

The second paper described an approach used by the UK Coordinating Group on Sea Disposal Monitoring in order to set environmental quality objectives. Their overall aim would be avoidance of significant effects upon species of importance to economic or conservation interests as well as preservation of conditions as close to natural as possible. The approach was based on a simple equilibrium partitioning scheme to screen sediments at sewage sludge disposal sites to see where the "action levels", as developed by the Group, would be exceeded and thus activate further studies. In the discussion, it was confirmed that action levels were not directed to reduce dumping as a first consequence.

The final paper contained information on the relative importance of fisheries and natural processes such as wind and wave action and their disturbance of the sea-

bed in the southern North Sea. The conclusion was that, particularly in the most shallow parts (0-12 m), the physical processes had the dominating disturbing effect.

Residues in organisms (Doc. E:37)

PCB, DDT, HCB, and HCH, amongst others, were analyzed in muscle tissue of herring and sprat in the Gulf of Finland in 1991. The reported concentration levels corresponded well with results reported earlier for clupeids from other parts of the Baltic.

Biological Effects, Immunology, and Biochemistry (Docs. E:12, E:13, E:14, E:15, E:41)

The following topics were considered: EROD activity and the effect of antioxidant enzymes in early life stages of turbot exposed to various chlorinated as well as non-halogenated organic contaminants; a methodological improvement of a set of immunocompetence assays in mussels by using a microtiter plate reader with advantages over microscopical techniques; tissue and cellular level assays of dab as a means to examine the processes behind such external stress that could also be detected with less sophisticated methods; review of recent field studies of biochemical indices of marine pollution. The techniques reviewed were hepatic mono-oxygenase (MFO) induction, metallothionein induction, and cholinesterase inhibition. These techniques had proved successful by i.a. allowing for an understanding of the chemical mechanisms they relied on in such a way that, e.g., PCBs and PAHs could be studied. The techniques should, however, be regarded as research tools rather than monitoring tools for the time being.

The last paper contained results on the mortality of fish larvae exposed to Elbe River water.

Heavy metals (Doc. E:18, E:19, E:20, E:31, E:45)

The suite of the first three papers described a novel technique for the analysis of heavy metals called total reflection X-ray fluorescence (TXRF) and its application in three studies: a) certification by a number of laboratories of sea water reference material for the Community Bureau of Reference (BCR), b) an IOC baseline study of trace metals in the open Atlantic Ocean, and c) the identification of the nature and origin of maritime oil samples using their heavy metal contents.

The fourth paper contained a report on monitoring of heavy metals and other chemical contaminants conducted in 1990 and 1991 around England and Wales as part of the activities for the MMP of NSTF. Generally, the results showed that all contaminants were present in highest concentrations in the estuaries, with rapidly decreasing concentrations through coastal to open sea waters. Some spot samples from industrialised estuaries

were in the same range as EQS values which should warrant further studies to assess possible biological effects. It was pointed out in the discussion that the concentration values for dissolved lead by far exceeded data reported earlier from any river and that, therefore, these data should be carefully reviewed.

The last paper dealt with a study of the heavy metal content in water, zooplankton, and suspended particles. The work was carried out within the German PRISMA project for the northern North Sea and adjacent areas.

Monitoring (Docs. E:32, E:33, E:34, E:16)

A report was given on observations of recovery of oysters and mussels following the ban in the UK on the use of TBT as antifouling agents in marine paints. In areas where the mussel and oyster beds were not strongly influenced by TBT deposits in sediments, the organisms showed great increase in growth rate and the distortion of specimens by shell thickening had stopped.

An approach used in the UK to set environmental quality standards at marine waste disposal sites was described. The objectives were a) general preservation of the ecosystem, and b) limited or no change in the environment outside the mixing zone. The parameters to be monitored were abundance, number of taxa, and abundance per taxa. It was declared that if abundance increased by more than 200% compared to a reference area, no action was needed. In the discussion, it was questioned whether the reference stations described could really be considered as undisturbed reference stations.

UK experience with oyster embryo assays for NSTF purposes (MMP) in coastal waters was reported. The results showed poor water quality in the estuaries of Tyne, Wear, and Tees. The test was judged as being reliable concerning water, but it was argued that rather than using water elutriates of sediments, efforts should be made to develop relevant methods for bio-assay of whole sediments.

The last paper presented results of monitoring of organic and inorganic contaminants in sea bird eggs. The author argued that sea birds should be included in a European monitoring effort since a) sea birds, as top predators, integrated the contamination over the food web, b) there was a low within-sample variation of contaminants, and, c) the residue content could be related to pollution parameters which were well documented in sea birds. In the discussion, these advantages were acknowledged and it was also pointed out that contaminant analysis of seabird eggs had been successfully used as a voluntary element of the Baltic Monitoring Programme of the Helsinki Convention for more than ten years.

DOCUMENTS

E:1		Withdrawn
E:2		Withdrawn
E:3 Sess. U		Report of the Steering Group for the Coordination of the Baseline Study of Contaminants in Baltic Sea Sediments, Lysekil, Sweden, 16-17 March 1992
E:4 Sess. U		Report of the Working Group on the Baltic Marine Environment, Lysekil, Sweden, 18-20 March 1992
E:5		Report of the <i>ad hoc</i> Planning Group on the ICES/IOC/OSPARCOM Intercomparison Programme on the Analysis of Chlorobiphenyls in Marine Media, Tenerife, Canary Islands, Spain, 7 March 1992
E:6		Report of the ICES/NSTF/OSPARCOM <i>ad hoc</i> Working Group on Sediment Baseline Study Data Assessment, Copenhagen, 27 April - 2 May 1992
E:7		Report of the Working Group on the Effects of Extraction of Marine Sediments on Fisheries
E:8		Withdrawn
E:9 Sess. O	A.D. Vethaak <i>et al.</i>	Notes on sampling design, statistical analysis and interpretation of fish disease prevalence data submitted to ICES
E:10 Sess. O	A.D. Vethaak	Epidemiology of diseases in flounder (<i>Platichthys flesus</i>) in Dutch coastal waters, with special reference to environmental stress factors
E:11 Sess. O	A.D. Vethaak	Large-scale mesocosm study of the effects of marine pollution on the health status of fish: general methods and <i>interim</i> report on epidemiology
E:12	L.D. Peters <i>et al.</i>	Toxicity studies, 7-ethoxyresorufin O-deethylase (EROD) and antioxidant enzymes in early life stages of turbot (<i>Scophthalmus maximus</i> L.) and sprat (<i>Sprattus sprattus</i> L.)
E:13	R.K. Pipe <i>et al.</i>	The development of immunocompetence assays in mussels for use with a microtiter plate reader
E:14	A. Pulsford <i>et al.</i>	Effects of environmental stress on dab <i>Limanda limanda</i> immune system
E:15	R.F. Addison	Biochemical indices of marine pollution: a review of recent field studies
E:16 Ref. L	P.H. Becker	Seabirds as monitors of chemicals in the marine environment
E:17 Sess. U	G. Weichart	Oxygen in the western Baltic Sea: a trend analysis
E:18	D. Schmidt and W. Gerwinski	A baseline study for trace metals in the open Atlantic Ocean

E:19	P. Freimann <i>et al.</i>	Improvement of quality assurance in seawater analysis: the performance of trace metal analyses by TXRF in the inter-calibration and certification stages for new reference materials
E:20	M. Schirmacher <i>et al.</i>	Use of trace metal analyses to identify maritime oil samples
E:21	S. Grune and L. Karbe	Hydrolytic activity and distribution of bacteria in the German Bight
E:22	H.-J. Rick and C.-D. Dürselen	Phytoplankton and heavy metals in the German Bight
E:23	H. Schlünzen <i>et al.</i>	Local atmospheric input patterns in the German Bight
E:24	M. Kriews <i>et al.</i>	A long-term study and source characterisation of atmospheric contaminants in the German Bight
E:25		Withdrawn
E:26		Withdrawn
E:27 Sess. O	W. Wahl <i>et al.</i>	Fish diseases in the Wadden Sea
E:28 Sess. O	A. Köhler and H.J. Pluta	Liver pathology and central detoxification and biotransformation systems in flounder (<i>Platichthys flesus</i> L.) in the German Wadden Sea
E:29	S.M. Rowlatt and D.R. Lovell	The chemical composition of sediments in the western North Sea
E:30	S.M. Rowlatt and J. Webster	Measures of sediment quality at sewage sludge disposal sites
E:31	R.J. Law <i>et al.</i>	Contaminants in seawater around England and Wales: results from monitoring surveys, 1990/91
E:32	M.J. Waldock <i>et al.</i>	Improvements in bioindicator performance in UK estuaries following the control of the use of antifouling paints
E:33	H.L. Rees and T.H. Pearson	An approach to the setting of environmental quality standards at marine waste disposal sites
E:34	J.E. Thain and P. Matthiesen	Experience with oyster embryo bioassay for NSTF and NMP purposes in coastal waters around England
E:35 Sess. O	D. Bucke and P.F. Dixon	Serological and histopathological studies on fish exposed <i>in vitro</i> to contaminated harbour sludge
E:36	H. Michaelis <i>et al.</i>	The "black spot disease" (anaerobic surface sediments) of the Wadden Sea
E:37 Ref. J	O. Roots and R. Aps	Polychlorinated biphenyls and organochlorine pesticides in the Baltic herring and sprat
E:38 Sess. U	D. Nehring	Research in connection with the scientific interpretation of nutrient data from the Baltic Monitoring Programme
E:39	L. van der Valk	Estimated amount of physical disturbance of the seabed in the shallow southern North Sea due to natural causes

E:40 Sess. U	S. Carlberg <i>et al.</i>	Swedish marine environmental monitoring - today and tomorrow
E:41 Ref. L	A. Rieckhoff and W. Nellen	Reaction of fish larvae to water of the Elbe river at Hamburg harbour
E:42 Sess. V	I. Kröncke	The ecology of the Dogger Bank: the actual state of knowledge
E:43 Sess. V	C. Pohl	Correlations between cadmium concentrations in seawater and zoo-plankton organisms (Copepoda) of the Arctic and Atlantic ocean
E:44 Sess. U	L. Brüggmann	Research and monitoring of contaminants in the Baltic Sea - two sides of one coin?
E:45	M. Harich <i>et al.</i>	Heavy metal distribution in different compartments of the northern North Sea and adjacent areas
E:46	J. Andrulewicz	Developing monitoring and assessment strategy in the Baltic Sea
E:47 Poster	E.-L. Poutanen <i>et al.</i>	Development of a geographic information system for the Baltic drainage area
E:48 Ref. Pub		Editor's Report on the <i>Techniques in Marine Environmental Sciences</i> for 1992
Poll:5		Report of the Working Group on Biological Effects of Contaminants, Copenhagen, 4-8 May 1992
Poll:7		Report of the Study Group on the Biological Significance of Contaminants in Marine Sediments, Copenhagen, 11-14 May 1992

MARICULTURE COMMITTEE

Chairman: Prof. H. Ackefors

Rapporteur: Dr R.H. Cook

Committee Business

The Committee held two sessions and discussed sixteen papers, including seven Working/Study Group reports and recommendations. In addition, nine reports were referred from other Committees.

The Chairman expressed his concern at the reduced number of papers submitted to the Committee; however, a number of reasons were apparent. Many aquaculturists currently participated at the more focused scientific meetings convened by such organizations as the World Aquaculture Society and its various affiliates, including the European Aquaculture Society or the Aquaculture Association of Canada, or aquaculture meetings under EIFAC. There had also been several recent conferences on mariculture, for example, the Bergen Symposium held in August 1992 on the "Cultivation of Atlantic Salmon". The Chairman noted the substantial reduction in papers from Norway. Several reasons for this were provided by the Norwegian representative; a major point was the limited time available for presentation and peer discussion at Committee meetings.

The Chairman would write to the national members of the Committee and encourage the submission of papers on mariculture from their countries. He further proposed that the Mariculture Committee should serve as a "clearing house" for the exchange of information on mariculture, taking into account the research and technological advances being presented at other aquaculture meetings and conferences. Committee members who planned to participate at other aquaculture conferences and symposia were invited to provide summary reports to the Committee Chairman for discussion at the Statutory Meeting. In this connection, Dr H. Rosenthal (Germany) agreed to provide a report to the Committee on the Workshop he was organizing: "Fish Farm Effluents and their Control in EC Countries" to be held in Hamburg, 23-25 November 1992.

Given the considerable development in mariculture in many ICES Member Countries, the Chairman proposed the presentation of strategic overviews on mariculture development for the EC, non-EC European community, Canada, and USA. These papers would be presented for discussion at the Committee meeting in 1993.

The Chairman drew attention to a number of other mariculture meetings taking place in the coming year.

- a) ICES Symposium on "Mass Rearing of Juvenile Fish", Bergen, 21-23 June 1993;
- b) 6th Annual Conference on Toxic Marine Phytoplankton, Nantes, 18-22 October 1993;
- c) World Aquaculture Society/European Aquaculture Society, Torremolinos, Spain, 26-28 May 1993;
- d) ICES Special Meeting on *Ichthyophonus*, Aberdeen, 21-22 January 1993.

There was a request for topics for future Mini-Symposia and Open Lectures. Some suggestions included:

- a) "Culture strategies for minimizing mariculture impacts using such technologies as triploidy, hormones, genetic, and environmental manipulation";
- b) "Improving the growth and cost of production efficiencies in mariculture";
- c) "Acceptability and adaptability of new mariculture species within existing markets".

A suggested topic for an Open Lecture in 1995 was "Benefits and responsibilities on the introduction or transfer of organisms in mariculture", to be given by Dr J. Carlton (USA).

Other suggestions for Open Lectures related to the impacts of ballast water or the use of genetically modified organisms (GMO) in mariculture.

The Chairman noted that Belgium, Denmark, Portugal, Poland, Russia, and the USA were not represented at the Committee meeting. He asked if representatives wished to comment on national activities. Brief overviews were provided by Canada, Norway, Iceland, UK (Scotland), and Ireland. The publication lists provided by Canada, Finland, and Spain were acknowledged (Doc. F:16).

Working/Study Group Reports

The new Chairman of the Working Group on the Pathology and Diseases of Marine Organisms, Dr A. McVicar, provided a summary of the report (Doc. F:2) and proposed that the Committee approve the recommenda-

tions. The concerns of sea lice infestations and resistance to control measures were priority issues.

The report on the Study Group on the Potential for the Culture of Species (Doc. F:3) was presented by Dr R.H. Cook. Eleven countries had participated in the survey which showed that 23 finfish and 13 invertebrate species were being studied or under commercial development. It was noted that Spain had significant studies underway on potential species and was invited to contribute. Other information was provided at the meeting. Final comments were to be provided to the Study Group Chairman, Dr J.E. Stewart (Canada), and the report was recommended for publication in the *ICES Cooperative Research Report* series.

The Chairman of the Working Group on the Mass Rearing of Juvenile Fish, Dr I. Huse (Norway), presented the report (Doc. F:4) and its recommendations. The Committee confirmed Dr B.R. Howell (UK) as its choice as incoming Working Group Chairman. A Working Group meeting was proposed to take place on 25-26 June 1993, immediately after the ICES Symposium on "Mass Rearing of Juvenile Fish" in Bergen. It was suggested that the Working Group should consider planning for a Workshop on halibut culture in 1994.

The report of the Working Group on Genetics (Doc. F:5), prepared by Dr Vilwock (Germany), was tabled. The Committee reviewed the recommendations and endorsed the convening of the next Working Group meeting in Stockholm in June 1993. The Chairman had been notified that Dr Vilwock was intending to step down as Working Group Chairman. Committee members were asked to provide nominations for his successor to the Committee Chairman.

The Working Group on Environmental Impacts of Mariculture (Doc. F:14) was presented by the Chairman, Dr H. Rosenthal (Germany). Highlights of the April 1992 Working Group meeting were presented. It was noted that an additional sixty research reports related to mariculture environmental issues had been catalogued. A report on the impacts of mariculture in the Baltic Sea was provided to ACMP. The review of advances in macroalgae culture was presented, and the Working Group concluded that no further action was required on this topic. The report "Chemicals in Mariculture" was at its final draft stage. This comprehensive document had been discussed at the 1992 ACMP meeting and was now ready for publication in the *ICES Cooperative Research Report* series. The Working Group intended to address the issue of monitoring and modelling at its 1993 meeting.

A recommendation to modify the name and functions of the Working Group on Environmental Impacts of Mariculture was proposed by Dr H. Rosenthal on behalf of the Working Group to reflect the new direction of mari-

culture environmental issues. The proposed name would be the "Working Group on Environmental Interactions of Mariculture" which would broaden the present mandate of the Group to address the interactions between mariculture and other uses of coastal marine resources. It would also provide advice on new strategies for site selection as well as improved approaches for criteria development and systems for monitoring and reporting. The Committee endorsed this proposal.

The report of the Working Group on Introductions and Transfers of Marine Organisms (Doc. Poll:3) was presented by Dr H. Rosenthal on behalf of the Working Group Chairman, Dr J. Carlton (USA). He reminded the Committee of the Theme Session on "Implications of Stock Enhancement of Marine Organisms" to be held during the 1993 Statutory Meeting in Dublin, with Ms J. Støttrup (Denmark) serving as Convener. The Working Group had requested reconsideration of its assignment to ACMP as the parent Committee. Dr B. Dybern addressed the Committee and provided the background that led to the decision and provided reasons for transferring the reporting of the Working Group on Introductions and Transfers of Marine Organisms back to the Mariculture Committee. These included:

- a) the relevant expertise within the Mariculture Committee to assess the advice from the Working Group;
- b) the subject matter dealt with a number of scientific problems related to species biology, ecology, distribution, pathology, genetics, and items related to aquaculture in general, including quarantine regulations, and had little to do with pollution;
- c) the need to keep pace with technical problems related to deliberate and accidental introductions in a global context;
- d) the Working Group must cooperate with relevant organizations interested in introductions and transfers of both marine and freshwater species, and the Mariculture Committee should give consideration to how to improve its provision of advice on introductions and transfers within ICES.

There was considerable discussion on this topic. A Committee recommendation was approved that the reporting of the Working Group on Introductions and Transfers of Marine Organisms should be returned to the Mariculture Committee.

The recommendations of the Workshop on Introductions and Transfers were endorsed by the Committee. It was noted that EIFAC had adopted the ICES Code of Prac-

tice and should, therefore, be consulted prior to the publication of the *ICES Cooperative Research Report*.

Dr M. Héral (France) provided the Committee with an update on the work of the Study Group on Pollution Affecting Shellfish in Aquaculture and Natural Populations (Doc. K:10). This document had been presented to the Shellfish Committee. He cited examples of major impacts of pollution on shellfish populations, e.g., TBT, hydrocarbons, eutrophication) and discussed the relationship between pollution and disease susceptibilities. He pointed out the need for interdisciplinary studies, such as the topic being addressed by the Study Group. The Committee supported these initiatives and took note that an ACMP Theme Session on the topic of Environmental Effects on Shellfish Populations was proposed for 1994.

Larval Rearing

Several papers focused on the subject of larval rearing, particularly of marine fish. Illumination levels were assessed in three first feeding tanks: a black tank, a white tank, and a tank with black sides and white bottom (Doc. F:6). The black tank proved most suitable for providing natural lighting conditions. The survival of larval turbot was enhanced through the addition of lactic bacteria during the first days of culture. Progress on comparative rearing experiments using Baltic and Skagerrak coastal cod was reported (Doc. F:12). The study identified biological features of the Baltic cod that could account for its poor hatching performance. The effects of stocking density on young halibut reared in circular tanks suggested a threshold of approximately 50 kg/m³ for 5-8 kg fish (Doc. F:13). An optimum density might be slightly higher; however, this would likely fall within a range of 100% to 200% coverage of the bottom surface area by the fish. This paper presented growth data on male and female halibut over the three years at three density levels.

Dietary trials were conducted on juvenile turbot in which combinations of fat, o-tocopherol, and L-carnitine were incorporated in the feed (Doc. G:81). The results from these trials showed that the lowest growth resulted

from diets supplement with fat. The addition of L-carnitine yielded better growth.

Disease

A report on the prevalence of IPN virus in farmed Atlantic salmon was presented (Doc. F:11). Ten years of monitoring data had revealed that a rapid spread of the virus had occurred at sea sites, whereas low frequency of detecting the virus had been observed in freshwater. As the infection tended to occur during the first summer in sea water, testing would continue and the effect of "fallowing" at cage sites would be evaluated as a measure to control these viral infections.

Doc. F:8 was not available and Docs. F:7, F:10, and F:15 were read by title only.

Other Business

Several members of the Committee expressed concern that there was insufficient time during Committee meetings to take into account the reports from the Working Groups, conduct Committee business, and have a reasonable amount of time to have scientific papers presented and discussed. There was a request that the meetings be placed "more in a block" and preferably not start on the first day if there were only two scheduled sessions. More time was needed and meeting room space should not be the prime constraint. Evening sessions were suggested.

It was pointed out that the ICES scientific forum provided an excellent "sounding board" for new ideas, developments, and research findings, and there had to be time for discussion. In addition, young scientists presenting their research benefited from receiving feedback from colleagues and there had to be time available for this exchange. The Committee Chairman was urged to seek extra time for Committee activities during the planning of next year's Statutory Meeting.

The Chairman closed the meeting by thanking all those who had contributed papers and all participants at the meeting.

DOCUMENTS

F:1		Report of Activities, 1991
F:2		Report of the Working Group on Pathology and Diseases of Marine Organisms, Copenhagen, 2-5 March 1992
Sess. O		
F:3	J.E. Stewart and R.H. Cook	Final Progress Report of the Study Group on the Potential for Culture of Species

F:4		Report of the Working Group on Mass Rearing of Juvenile Marine Fish
F:5		Report of the Working Group on Genetics
F:6	I. Huse <i>et al.</i>	Illumination in first feeding tanks for marine fish larvae
F:7 Sess. O	T. Lang	Results of macroscopical examination of the occurrence of <i>Ichthyophonus</i> spp. in herring (<i>Clupea harengus</i>) of the Baltic and North Sea
F:8	I. Garcia de la Banda <i>et al.</i>	Improvement of turbot larval development by lactic bacterial addition
F:9		Withdrawn
F:10 Ref. M	G.V. Grigorjev and S.A. Oganessian	On the relative number of Atlantic salmon males maturing under different rearing conditions
F:11 Ref. M	A.L.S. Munro and D. Smail	Controlling the spread of IPN virus in Scottish salmon farms
F:12 Ref. J	J. Pickova and P.-O. Larsson	Rearing experiments with cod. Comparisons between Baltic cod and Skagerrak coastal cod
F:13	B. Björnsson	The effects of stocking density on growth rate of young halibut (<i>Hippoglossus hippoglossus</i> L.) reared in large circular tanks for three years
F:14 Sess. O		Report of the Working Group on Environmental Impacts of Mariculture, Kiel 22-24 April 1992
F:15	M. Gillespie <i>et al.</i>	A progress report on the Sea Fish Industry Authority Halibut Rearing Programme
F:16		Publications of interest to the Mariculture Committee, with an Addendum
F:17 Ref. Pub		Report of the Editor of the ICES Identification Leaflets for Diseases and Parasites of Fish and Shellfish for 1992
G:81	C.A. Fernandez-Pato <i>et al.</i>	Effect on growth and muscle contents of turbot (<i>Scophthalmus maximus</i>), using diets with different levels of fat/tocopherol and L-carnitine

DEMERSAL FISH COMMITTEE

Chairman: Prof. N. Daan
Rapporteur: Dr A. Temming

The Demersal Fish Committee held three sessions on 24, 26, and 28 September.

The Chairman opened the meeting. Dr A. Temming was appointed Rapporteur. The Agenda was adopted. It was noted that some papers had been shifted to other Committees (Docs. G:80 and G:81) and to Theme Sessions, and that two papers had been withdrawn (Docs. G:20 and G:21). In addition, the following papers were not available for presentation: Docs. G:46, G:48, G:55, G:56, G:57, and G:63.

Matters Referred by the Consultative Committee

Recording of rare species. It was pointed out in the discussion that there were problems with the definition of "rare". Fishermen might record species which were rare in their catching device, but which were not rare in terms of population densities. Misinterpretation of data series might occur if there was a decrease in population density with time. As long as a species was not considered rare, it would not be recorded at all, while later on it may become rare and, therefore, be recorded. The interpretation of the records would then be that a new rare species had occurred. The members expressed their concern about the danger of misinterpretation of such data by people who were not familiar with the origin of the data.

The Chairman brought the Best Paper Presentation Award and the Young Scientist Award to the attention of the members and asked for suggestions, which should be provided to him together with some explanatory remarks.

Election of Chairman

Mr E. Aro (Finland) was elected new Chairman of the Demersal Fish Committee. Since discussions had begun within the Consultative Committee about possible changes in the ICES Committee structure, the new Chairman would, therefore, play an important role in this process.

Report of Activities

The report was presented by the Chairman. He noted that this year no contribution for Denmark was included in the report. He stated that it would be interesting to compare the report with previous versions in order to detect changes in sampling effort over time. It was his impression that there had been an observable increase in

terms of the numbers of species investigated, especially due to contributions from the southern areas, but that the sampling intensity had decreased in the boreal areas.

It was agreed that the Chairman would send a circular letter to the members to stress the need for incorporating information on tagging experiments in the Report of Activities.

Publications of Interest to the Committee

Although a code number (G:76) had been assigned to a report with this title, it had not been prepared.

Reports of Study and Steering Groups

A total of 12 reports was presented.

Division IIIa Demersal Stocks (Doc. G:2). The main task of this Group had been to collect the data necessary for assessments of populations which would now be handled in other Working Groups and, therefore, this Group would be dissolved.

Analysis of Feeding Data (Doc. G:4). This Study Group had developed a common data base format for the exchange of stock content data and had prepared the exchange and pre-processing of data from several ecosystems, to enable their analysis during the 1992 meeting of the Multispecies Assessment Working Group. Its terms of reference being effectively completed, the Group would be dissolved.

Progress Report for 1991 North Sea Stomach Sampling Project (Doc. G:12). The report summarized information in sampling intensity by species and sub-areas in comparison with data from the 1981 sampling programme. On average, intensity was higher, and many by-catch species were also covered, especially in 1991, which seemed to have quite some impact on the larvae of commercial species.

Tagging Experiments for Juvenile Plaice (Doc. G:10). The Study Group had set up a data base comprising, at present, information on 14,000 recaptures of plaice. In addition, programmes for handling an analysis of tagging data had been developed. The data base had been used to investigate from which nurseries the plaice in a particular spawning/management area originated in quantitative terms. The members of the Study Group had asked for additional contributions of existing data from other countries, especially from Germany and

Denmark, for their nurseries where the spatial coverage was not at present sufficient. The Study Group would be dissolved.

Ecosystem Effects of Fishing Activities (Doc. G:11). This report would be presented in the joint ACFM/ACMP Theme Session T.

Atlas of North Sea Fish (Doc. G:13). An example of a species description was presented in the final lay-out. The Committee recommended publication of the Atlas.

Redfish Stocks (Doc. G:14). The Study Group coordinates national research programmes on the oceanic type *S. mentella* in the Irminger Sea. It was stressed during the discussion that the names "deep-sea *S. mentella* and oceanic *S. mentella*" should be used in the future to avoid inconsistencies. It was recommended that this Study Group should meet again.

Fisheries Units in Sub-areas VII and VIII (Doc. G:15). This Study Group had developed fleet-based assessment methods and specified a data base format for quarterly fleet-disaggregated data. The terms of reference were completed and the Group would be dissolved.

Fecundity of Sole and Plaice in Sub-areas IV, VII, and VIII (Doc. G:16). The Study Group had analyzed data on egg production and fecundity in sole. Estimated spawning stock biomasses obtained from egg surveys were about two times higher than results from VPA. It was pointed out that despite this discrepancy, the egg surveys gave fishery-independent information about the trends in spawning stock biomass. Although there was no need to maintain this Study Group, the need to carry out a joint survey again in 1994 was stressed. In order to plan ship time, a recommendation was put forward to this extent.

Cod and Climate Change (Doc. G:17). The Group had encouraged communication among regional studies on cod and climate change. A five-year ICES programme on cod and climate change was recommended. Members appreciated an intensification of research on this topic. In particular, a joint ichthyoplankton survey in the North Sea was proposed. It was suggested, however, that a more concrete proposal should be worked out. The Chairman pointed out that these matters were being deferred to the Inter-Committee Recruitment Group to seek a solution.

Beam Trawl Surveys (Doc. G:18). The Study Group had analyzed results of annual beam trawl surveys by correspondence. It was recommended that the Study Group should meet in 1993 in order to make a comprehensive analysis of the historic data collected during these surveys.

Bottom Trawl Surveys in Sub-areas VI, VII, and VIII and Division IXa (Doc. G:19). It was expressed that little progress had been made with regard to the different terms of reference.

Scientific Contributions

Eight documents dealt with stock assessment of redfish.

Docs. G:28, G:29, and G:36 presented different approaches for stock separation of redfish stock based on the content of Cd-137, morphometric analysis, or electrophoretic methods.

Docs. G:64, G:51, and G:52 summarized the results from acoustic and biological surveys in the Irminger Sea. It was noted that the overall incidence of abnormalities in oceanic *S. mentella* had decreased since 1989. The presented results, however, were, to some extent, influenced by variations in the sampling procedure. It was suggested that the observed distribution patterns should be compared with hydrographical data.

Docs. G:58 and G:54 were read by title.

Six documents were presented on stock assessment of various species.

Doc G:71 represented a comprehensive summary of biological data for Icelandic cod and developed a valuable array of new approaches in the stock assessment of this species. It was noted that the presented data on maturity at age were remarkably constant over time. The paper should provide important input to the North-Western Working Group.

Doc. G:77 was read by title.

Docs. G:73 and G:74 deal with the acquisition of data from the French fishery for the assessment of monkfish (*Lophius piscatorius* L.).

Doc. G:8 was read by title.

Doc. G:40 described the French deep-sea fishery on roundnose grenadier. The optimum yield per recruit was predicted to be 2-3 times the present effort level. It was expressed by members that assessment approaches for deep-sea species were very useful, since it was expected that ICES would be asked for advice on these fisheries in the near future. Concern was expressed about the application of the artificial value of 0.2 for the natural mortality rate (M) of these extremely long-lived species. This would also bias the results of the assessments, especially because F was lower than M. It was noted that these fish might have a comparatively low productivity and that the initial high catches of the old accumulated stock might soon drop to a low level.

One paper, Doc. G:45, presented an analysis of the Danish fleet structure by means of cluster analysis. It was shown that the industrial fleet was the most important of the six Danish sub-fleets. Its landings accounted for 72% of the total Danish catch value.

Two documents were presented on multispecies problems.

Doc. G:67 gave an overview of the predictions of the multispecies forecast model for a variety of different scenarios. In each scenario, the effort of one of the seven fleets was varied. Saithe turned out to be equally important as a predator as whiting. It could also be shown that the increase in alternative prey for a particular predator had the same effects as a reduction in the predator stock.

Doc. Assess:20 contained the report of the Multispecies Assessment Working Group. It was stressed in the discussion that results from this Working Group should, to a greater extent, be published in scientific journals.

Six documents contained survey reports.

Doc. G:49 presented the likely usefulness of stow nets for monitoring of the pelagic fish fauna in the Wadden Sea in addition to beam trawl surveys.

Doc. G:37 analyzed Faroese groundfish surveys carried out between 1983 and 1991. Abundance indices by species and age class were compared with the corresponding VPA estimates. Based on these results, a restratification of the surveys was performed. It was noted that an analysis by age groups might cause problems when different restratifications were suggested for different age groups.

Docs. G:50 and G:82 summarized the results from Icelandic and Barents Sea 0-group fish surveys. Indices for cod and haddock in Icelandic and East Greenland waters were very low for 1992. The index for cod in the Barents Sea was the highest on record.

Docs. G:59 and G:60 presented results from beam trawl surveys in the English Channel and adjacent waters. It was stressed in the discussion that the use of a standardized gear would improve the usefulness of the data.

Five papers considered reproductive dynamics and growth.

Doc. G:26 was read by title.

Doc. G:22 presented data on growth of walleye pollock from the Bering and the Okhotsk Seas. Growth differences were shown to be statistically significant. The two stocks were separated from each other. It was pointed

out in the discussion that the k-estimates might be biased due to the relative high age of the recruits.

Doc. G:32 summarized results on growth of Greenland cod.

Docs. G:79 and G:78 reported on the influence of the stage of spawning of the females on the viability of the eggs and larvae produced. Several new methods for the analysis of the egg quality were presented.

Eleven papers were presented on trophodynamics of fish.

Doc. G:6 dealt with gastric evacuation and food consumption of little skate (*Raja erinacea*).

Doc. G:61 reanalyzed data on gastric evacuation of cod from the international gastric evacuation data base. A general model was derived which did not include meal size as a model parameter. It was stressed that more experiments with multiple meal techniques should be performed which presumably meet the natural feeding patterns more closely. It was also expressed that the presented results implied that stomachs should preferably be analyzed individually.

Doc. G:62 contained a description of an integrated computer program for the estimation of food consumption from 24-hour fishery data on stomach contents. It was pointed out that the evacuation rates estimated may be biased due to the inclusion of empty stomachs in the analysis.

Doc. G:9 described the variation in the diet of cod and haddock with respect to predation on herring and herring eggs. Both species showed a strong diet shift when herring or herring eggs appeared in the area.

Doc. G:70 presented results on food and feeding of cod in the Skagerrak and Kattegat in 1991.

Doc. G:24 and G:25 summarized the feeding habits and consumption of redfish and Greenland halibut in the West Greenland area, with special emphasis on predation of shrimp. Redfish were shown to be the more important of the two as a shrimp predator.

Doc. G:43 reported on the food composition and consumption of Chilean hake with special reference to cannibalism. Females appeared to be far more cannibalistic than males; their diet contained 23% Chilean hake, compared with only 4% in the males. It was noted that very high percentages of empty stomachs are generally observed in hake and that special attention should be given to the detection of regurgitated stomachs.

Doc. G:42 examined the effects of prey/predator switching in the MSVPA for the North Sea. Different degrees of prey switching were introduced into the MSVPA and it was checked whether the correspondence between model predictions and independent observations had increased by these assumptions. The analysis pointed in the direction of negative switching in the North Sea. However, the available evidence was not sufficient to reject the present assumption of "no switching".

Two papers (Docs. G:65 and G:66) were presented on genetic analysis of reared cod. Genetic tagging was found to be a useful method for control of survival, growth, and dispersal of released cod. In addition, associations between growth rate and genotype were investigated.

The last paper, Doc. G:68, dealt with distribution and abundance of John Dory (*Zeus faber*) in Portuguese continental waters and was read by title.

DOCUMENTS

G:1		Report of Activities, 1991
G:2 Ref. J		Report of the Study Group on Division IIIa Demersal Stocks, ICES Headquarters, 9-13 March 1992
G:3 Sess. P	O.K. Gutvik <i>et al.</i>	Growth is a many splendid thing: analyses in witch flounder (<i>Glyptocephalus cynoglossus</i>), patterns and implications
G:4 Ref. H+J		Report of the Study Group on the Analysis of Feeding Data, St. John's, Newfoundland, 17-19 March 1992
G:5 Sess. P	T. Laevastu	Interactions of size-selective fishing with variations in growth rates and effects on fish stocks
G:6	G.A. Nelson and M.R. Ross	Estimates of gastric evacuation and consumption rates in little skate (<i>Raja erinacea</i>)
G:7 Sess. P	M.R. Ross and G.A. Nelson	The influence of stock abundance and water temperature upon growth dynamics of haddock and yellowtail flounder on Georges Bank
G:8	E. Fahy and P. Gleeson	A second assessment of the stock of megrim <i>Lepidorhombus whiffiagonis</i> in Divisions VIIb,c,j and k, with particular reference to the landings of joint venture vessels
G:9 Ref. H	Å. Høines <i>et al.</i>	Seasonal variation of the diet of cod (<i>Gadus morhua</i> L.) and haddock (<i>Melanogrammus aeglefinus</i> L.) at a herring spawning ground
G:10		Report of the Study Group on Tagging Experiments for Juvenile Plaice, IJmuiden, 16-20 March 1992
G:11 Sess. T		Report of the Study Group on Ecosystem Effects of Fishing Activities, Copenhagen, 7-14 April 1992
G:12 Ref. H		Progress Report on the ICES 1991 North Sea Stomach Sampling Project, IJmuiden, 23-28 April 1992
G:13 Ref. H		Report of the Steering Group for the Production and Publication of an Atlas of North Sea Fish, IJmuiden, 29 April - 1 May 1992
G:14		Report of the Study Group on Redfish Stocks, Copenhagen, 13-15 May 1992
G:15		Report of the Study Group on Fisheries Units in Sub-areas VII and VIII, Nantes, France 3-10 June 1992

G:16		Report of the Study Group on Fecundity of Sole and Plaice in Sub-areas IV, VII, and VIII, Lowestoft, 6-10 July 1992
G:17 Ref. C+L		Report of the Steering Group on Cod and Climate Change
G:18 Ref. B		Report of the Study Group on Beam Trawl Surveys
G:19		Report of the Study Group on Bottom Trawl Surveys in Sub-areas VI, VII, and VIII and Division IXa
G:20		Withdrawn
G:21		Withdrawn
G:22	M. Kowalewska-Pahlke	A comparison of the growth rate in walleye pollock (<i>Theragra chalcogramma</i>) taken from the open waters of the Bering Sea and those from the open waters of the Okhotsk Sea in 1991
G:23 Sess. P	H. Marques da Silva	Growth of juvenile spiny dogfish (<i>Squalus acanthias</i>) in the NW Atlantic, with particular reference to the effect of density-dependence
G:24 Ref. K	S.A. Pedersen and F. Riget	Feeding habits of redfish, <i>Sebastes</i> sp., in West Greenland waters with special emphasis on predation on shrimp
G:25 Ref. K	S.A. Pedersen and F. Riget	Feeding habits of Greenland halibut (<i>Reinhardtius hippoglossoides</i>) in West Greenland waters with special emphasis on predation on shrimp and juvenile redfish
G:26	S. Alshuth and R. Grant Gilmore, Jr.	Early larval development, growth and spawning ecology of the black drum, <i>Pogonias cromis</i> L. (Pisces: Sciaenidae)
G:27		Withdrawn
G:28	J. Reinert <i>et al.</i>	Stock identification of <i>S. marinus</i> L. and <i>S. mentella</i> Travin in the North-East Atlantic based on measurements of Cs-137 content in the fish
G:29	J. Reinert and L. Lastein	Stock identification of <i>S. marinus</i> L. and <i>S. mentella</i> Travin in the North-East Atlantic based on meristic counts and morphometric measurements
G:30		Withdrawn
G:31		Withdrawn
G:32	J.R. Nielsen	Growth of Greenland cod, <i>Gadus ogac</i> , in the Nuuk area of West Greenland
G:33		Withdrawn
G:34		Withdrawn
G:35 Ref. F	Å. Bjordal and A.B. Skar	Tagging of saithe (<i>Pollachius virens</i> L.) at a Norwegian fish farm - preliminary results on migration

G:36	G. Nedreaas <i>et al.</i>	Electrophoretic studies of redfish (Genus <i>Sebastes</i>) from Icelandic and Greenland waters
G:37 Ref. D	J.M. Grástein	Analysis of the Faroese groundfish surveys 1983-1991
G:38		Withdrawn
G:39		Withdrawn
G:40	H. Dupouy and B. Kergoat	La pêche de grénadier de roche (<i>Coryphaenoides rupestris</i>) de l'ouest de l'Ecosse: production, mortalité par pêche et rendement par recrue
G:41		Withdrawn
G:42 Ref. H	J.R. Larsen and H. Gislason	MSVPA and prey/predator switching
G:43	K.A. Stobberup	Food composition and consumption of Chilean hake (<i>Merluccius gayi</i> G.) with special reference to cannibalism
G:44		Withdrawn
G:45	P. Lewy and M. Vinther	Identification of Danish North Sea trawl fleets and fisheries
G:46		Withdrawn
G:47		Withdrawn
G:48		Withdrawn
G:49 Ref. B	Th. Neudecker and P. Breckling	Preliminary results on studies of the effect of different fishing gear on the catchability of young flatfish and its effects on abundance indices
G:50	J.V. Magnússon and S. Sveinbjörnsson	Report on the 0-group fish survey in Iceland and East Greenland waters, August-September 1992
G:51	J. Magnússon <i>et al.</i>	Report on the Icelandic and Russian acoustic surveys on oceanic redfish in the Irminger Sea and adjacent waters in May-July 1992
G:52	J.V. Magnússon	Notes on the infestation by <i>Sphyrion lumpi</i> and abnormalities in the pigmentation of the oceanic <i>Sebastes mentella</i>
G:53	M.S. Shevelev <i>et al.</i>	Investigations on cod and haddock in the Barents Sea and adjacent waters in 1991
G:54	N.V. Mukhina <i>et al.</i>	Redfish spawning grounds in the Barents Sea and adjacent waters
G:55		Withdrawn
G:56		Withdrawn
G:57		Withdrawn
G:58 Ref. L	A.P. Pedchenko	The conditions of redfish aggregations formation in spring in the Irminger Sea

G:59 Ref. K	K. Ramsay	Preliminary analysis of fish and shellfish distributions in the eastern English Channel from beam trawl surveys, 1988-1991
G:60	D.J. Symonds and M.R. Vince	Beam trawl surveys in the Irish Sea, Bristol Channel and western English Channel
G:61 Ref. D	A. Temming and N. Andersen	Modelling gastric evacuation in cod. A new gastric evacuation model applicable for the estimation of the daily ration of cod in the field
G:62	A. Jarre-Teichmann	MAXIMS - a computer program for estimating the food consumption of fish
G:63		Withdrawn
G:64	J. Magnússon <i>et al.</i>	Report on the Icelandic acoustic survey on the oceanic <i>Sebastes mentella</i> in the Irminger Sea in June 1991
G:65 Ref. F	K.E. Jørstad and G. Nævdal	Genetic studies on released and recaptured cod in a fjord system
G:66 Ref. F	K.E. Jørstad and G. Nævdal	Studies on associations between genotypes and growth rate of 0-group cod
G:67 Ref. H	S.T. Forbes and P.A. Kunzlik	Multispecies forecasts for North Sea fish stocks. A presentation of further exploitation scenarios
G:68	A. Silva	Distribution and abundance of John Dory (<i>Zeus faber</i> , Linnaeus 1758) in the Portuguese continental waters (ICES Div. IXa) during 1986-1991
G:69		Withdrawn
G:70 Ref. J	J. Dorman <i>et al.</i>	Food and feeding of cod in the Skagerrak and the Kattegat in 1991
G:71 Ref. D	G. Stefánsson	Notes on the stock-dynamics and assessments of the Icelandic cod
G:72		Withdrawn
G:73	S. Fifas and Mtimet	Protocol d'échantillonnage et analyse stochastique de pseudo-cohorte du stock de baudroies communes (<i>Lophius piscatorius</i> L.) en Manche ouest (France). Traitement des différents types de présentation des débarquements
G:74	S. Fifas <i>et al.</i>	Une relation biométrique pour l'étude de la composition en taille des captures commerciales des baudroies (<i>Lophius piscatorius</i> L. et <i>Lophius budegassa</i> Spinola) en Manche ouest
G:75 Sess. T	R.J.H. Beverton	Rational harvesting and the conservation ethic
G:76		Withdrawn
G:77	E. Fahy and P. Gleeson	Aspects of the exploitation of the Northern hake <i>Merluccius merluccius</i> stock by fleets based in the Irish Republic

G:78 Ref. L	P. Solemdal <i>et al.</i>	The effects of maternal status of Arcto-Norwegian cod on egg quality and vitality of early larvae. I. The collection and the characteristics of the cod females, a pilot study
G:79 Ref. L	P. Solemdal <i>et al.</i>	The effects of maternal status of Arcto-Norwegian cod on egg quality and vitality of early larvae. II. Preliminary results of the experiment in 1992
G:80 Ref. L	I. Kröncke and R. Knust	Seasonal variations in macrofaunal abundance on the Dogger Bank in relation to stomach content of dab (<i>Limanda limanda</i>)
G:81 Ref. F	C.A. Fernandez-Pato <i>et al.</i>	Effect on growth and muscle contents of turbot (<i>Scophthalmus maximus</i>), using diets with different levels of fat/tocopherol and L-carnitine (presented in Mariculture Committee)
G:82 Ref. H		Preliminary report on the International O-Group Fish Survey in the Barents Sea and adjacent waters in August-September 1992
Assess:20	F. Serchuk and R. Grainger	Development of the basis and form of ICES fisheries management advice: historical background (1976-1990) and the new form of ACFM advice (1991-?)

PELAGIC FISH COMMITTEE

Chairman: Mr O. Hagström
Rapporteur: Mr E. Kirkegaard

The Committee held three sessions on 25, 28, and 29 September. The Rapporteur was appointed and the Agenda was adopted.

Committee Business

The Report of Activities (Doc. H:1) was adopted. The Chairman asked for the opinion of the Committee on the usefulness of the Report of Activities. The Committee in general considered the report to be very useful in giving an overview of the sampling activities.

The usefulness of a list of publications of interest to the Committee was discussed. As such a list would mainly include ICES papers, and a list of ICES papers already was available, the Committee could not support the idea.

At the 79th Statutory Meeting, the Committee had endorsed a proposal for a Symposium on "Migration and Spatial Distribution of Marine Fish". The Committee, at that time, had not been aware of a similar symposium being organized by the Fisheries Society of the British Isles to take place in 1993. As there was a large degree of overlap in the scientific topic of the two symposia, the Committee could not recommend that ICES should proceed with the plans for the its Symposium.

Three proposals for Theme Sessions/Mini-Symposia on the influence of environmental processes on the distribution and migration of fish were put forward. The Committee agreed that the three proposals could be combined and that there was an overlap as in the case of the Symposium proposal from last year with the symposium planned by the Fisheries Society of the British Isles. For that reason, the Committee decided not to proceed with a proposal for a Theme Session or Mini-Symposium in 1993. The Committee decided, however, to encourage scientists to work in the field of environmental processes and fish and to have a special topic on pelagic stocks and hydrography at next years Statutory Meeting.

The recommendation to establish a Planning Group for Herring Surveys, which would meet in 1993, was endorsed.

The recommendation that the Mackerel/Horse Mackerel Egg Production Workshop should meet in 1993 was endorsed.

The recommendation to establish a Study Group on Stock Separation Protocols for Finfish and Shellfish

Stocks put forward by the ANACAT Committee was endorsed.

The Chairman reported that a special meeting on *Ichthyophonus* was planned for early 1993 in Aberdeen.

The most recent developments in the Inter-Committee Recruitment Group were presented to the Committee by Prof. E. Houde and Dr M. Sissenwine.

Working/Study Group Reports

The Report of the International Bottom Trawl Survey Working Group (Doc. H:3) was presented by Dr H.J.L. Heessen. The Working Group had agreed on a revision to the "Manual for the International Bottom Trawl Surveys", which was presented as an addendum to the Working Group report.

The Report of the Study Group on Stock Identity of Mackerel and Horse Mackerel (Doc. H:4) was presented by Ms C. Porteiro. The Study Group found that the current information was not adequate to determine whether two separate stocks or one single stock occupied the Western and Southern areas. Plans for research and a sampling scheme were in the process of being finalized and new information was expected to be available in the near future.

Dr R.S. Bailey, in his presentation of the Report of the Workshop on Methods of Forecasting Herring Catches in Division IIIa and the North Sea (Doc. H:5), focused on stock separation methods. Several methods on stock separation which showed some potential were identified in the report. In general, however, more research was needed. Concerning the separation of the North Sea autumn and the Baltic spring spawners, an idea to look at methods which were salinity-sensitive was put forward.

The Report of the Study Group on Age Units for Herring (Doc. H:8) was presented by Dr R.S. Bailey. Although the use of a uniform system of expressing age in all fish species seemed attractive, the practical problems in using year instead of rings in some herring stocks would outweigh the advantages of having one system. The Committee was not in a position to make any recommendations and it was decided to ask the relevant Working Groups to consider the question.

Scientific Contributions

Survey Reports and Distribution

Doc. H:13 presented the distribution of mackerel and Norwegian spring-spawning herring in the Norwegian Sea based on data obtained during a pair-trawl survey. Mackerel were observed as far north as 73°N. Herring were caught throughout most of the surveyed area indicating that the Norwegian spring-spawning herring had resumed its oceanic feeding migration. This was confirmed by Doc. H:18 dealing with recent migration routes of Norwegian spring-spawning herring. A considerable change in the migration routes during the last decade was documented. During the discussion, it was mentioned that the present migration route was constant from year to year and may be partly due to learning.

Doc. H:16 addressed the effect on oxygen concentrations of the very high densities of Norwegian spring-spawning herring in the Ofotfjord where the stock was wintering. The low oxygen concentration observed was considered to be due to the cumulative effect, with a "carrying over" of the oxygen minimum from one year to the next. It was mentioned that the proposed effect could be verified by calculations estimating the likely oxygen reduction caused by the herring.

Reproductive Biology

Doc. H:9 described the growth of sardine larvae from the Cantabrian and Galician coasts estimated from daily increments on otoliths. The areal differences in growth were considered to be a result of differences in the production of prey items.

Doc. H:17 contained estimates of the magnitude and variability of egg mortality rates of bay anchovy. A model including predator abundance accounted for only 35-40% of the variation in mortality rates. During the discussion, it was mentioned that mortality due to other causes than predation may play an important role.

Doc. H:30 presented the preliminary results on the distribution of herring larvae obtained by a recently-developed towed video recording system. There was good agreement between data obtained by the video recording system and data sampled by a conventional sampler. The advantages and disadvantages of the new system were discussed. The system was characterized as an inexpensive routine instrument which could be used on most ships. One of the problems to be solved was the processing of the enormous number of pictures sampled.

Blue Whiting Investigations

Two papers dealing with blue whiting were presented. Doc. H:6 described the results of the joint Norwegian-

Russian acoustic survey in spring 1992. Doc. H:11 presented the results of an assessment of the Falkland blue whiting stock on the basis of the age composition of Polish catches. A number of comments were made concerning the large changes in stock biomass and fishing mortality estimated to have taken place in the time period included in the assessment, and it was mentioned that there were problems with the tuning of the VPA.

Stock Assessment

Doc H:21 presented an estimate of the spawning stock size of North Sea horse mackerel based on egg surveys carried out in 1991. The results indicated an increase in spawning stock size over the last 5 years. This increase was considered to be the result of migration as it could not be explained by recruitment.

Doc. H:10 addressed the stock identity of Bay of Biscay anchovy. Based on biological parameters, it was concluded that two groups might be distinguished. During the discussion, it was questioned whether the areal differences in length of spawning period could be a result of migration.

Doc. H:26 gave an overview of herring assessments in the Northeast and Northwest Atlantic. The paper concluded that although there were differences among assessments and working groups, they faced some general problems of underlying stock structure definition and methods and assessment working groups faced a common challenge to improve assessments by addressing these problems. It was discussed whether the recovery of several stocks had created assessment problems.

Growth parameters for yellowfin and bigeye tuna were presented in Doc. H:12. It was mentioned that the data on which the estimates were based may be biased as the samples did not cover the entire distribution of the stocks.

Invited Papers of Special Interest

In his presentation of Doc. D:6, Dr S. Murawski concentrated on the evaluation of the data on herring in the IYFS data base and draw attention to the recommendations given in the report.

Doc. D:10 was presented by Dr K. Foote. The paper addressed the problems of estimating precision of acoustic estimates of stock abundance.

DOCUMENTS

H:1		Report of Activities, 1991
H:2		Withdrawn
H:3 Ref. G		Report of the International Bottom Trawl Survey Working Group, Copenhagen, 13-17 January 1991
H:3 Addendum		Manual for International Bottom Trawl Surveys. Revision IV
H:4		Report of the Study Group on Stock Identity of Mackerel and Horse Mackerel, Vigo, 22-24 January 1992
H:5 Ref. J		Report of the Workshop on Methods of Forecasting Herring Catches in Division IIIa and the North Sea, Lysekil, Sweden, 10-13 March 1992
H:6	T. Monstad <i>et al.</i>	Report of the Joint Norwegian-Russian acoustic survey on blue whiting, spring 1992
H:7		Report of the Workshop for Revising the Horse Mackerel Database of Divisions VIIIc and IXa, Lisbon, 2-3 June 1992
H:8		Report of the Study Group on Age Units in Herring
H:9	F. Alvarez and F. Alemany	Regional growth differences in sardine (<i>Sardina pilchardus</i> Walb.) larvae from Cantabrian and Galician coasts
H:10	S. Junquera and G. Perez-Gandaras	Analysis of stock identity in Bay of Biscay anchovy using biological parameters
H:11	R. Grzebielec and K. Trela	An assessment of Falkland blue whiting stock on the basis of age composition of Polish catches
H:12	W. Pelczarski	Differences in age structure and growth rate of yellowfin and bigeye tuna caught with longlines in the central Atlantic
H:13	J.Chr. Holst and S.A. Iversen	Distribution of Norwegian spring-spawning herring and mackerel in the Norwegian Sea in late summer, 1991
H:14	J.Chr. Holst	Cannibalism as a factor regulating year class strength in the Norwegian spring-spawning herring stock
H:15 Ref. B Poster	O.A. Bergstad <i>et al.</i>	Acoustic survey of deep-water fish (<i>Coryphaenoides rupestris</i> , <i>Argentina silus</i>) of the Skagerrak
H:16 Sess. V	A. Dommasnes <i>et al.</i>	Reduced oxygen concentrations in herring wintering areas
H:17 Ref. L	S. Dorsey and E.D. Houde	Daily variability in mortality of bay anchovy, <i>Anchoa mitchilli</i> , eggs in Chesapeake Bay
H:18	I. Røttingen	Recent migration routes of Norwegian spring-spawning herring
H:19		Withdrawn

H:20 Ref. C		Report of the International Bottom Trawl Survey in the North Sea, Skagerrak and Kattegat in 1992: Quarter 1
H:21	A. Eltink	Horse mackerel egg production and spawning stock size in the North Sea in 1991
H:22		Withdrawn
H:23 Poster	L. Motos and A. Uriarte	Biomass assessment of the Bay of Biscay anchovy, <i>Engraulis encrasicolus</i> L., using the DEPM in 1991
H:24		Withdrawn
H:25		Withdrawn
H:26	R.L. Stephenson	An overview of herring assessments in the Northeast and Northwest Atlantic
H:27 Sess. O	B. Hjeltne and D.W. Skagen	<i>Ichthyophonus hoferi</i> disease in the herring in Norwegian waters
H:28		Withdrawn
H:29		Withdrawn
H:30 Ref. B	K. Wieland <i>et al.</i>	Preliminary results on the small scale distribution of herring larvae in the English Channel as obtained by means of a towed video recording system
H:31 Ref. G		Withdrawn
H:32	I.V. Borkin <i>et al.</i>	Some ichthyoplankton and hydroacoustic observations in waters to the west and northwest of the British Isles during spring 1992
H:33		Withdrawn
H:34 Sess. P	N. Broekhuizen <i>et al.</i>	A model of individual fish growth as the basis for a fish population module of the EC "European Seas Ecosystem Model" (ERSEM)
H:35	E.J. Simmonds <i>et al.</i>	Report of the 1991 ICES-coordinated acoustic survey of herring stocks in ICES Divisions VIa, IVa, and IVb
H:36		Withdrawn
H:37 Poster	C. Franco <i>et al.</i>	Horse mackerel (<i>Trachurus trachurus</i>) egg distribution and stage 1 egg production estimates in Divisions VIIIb,c and IXa from 1988, 1989, 1990 and 1991
H:38 Poster	L. Motos <i>et al.</i>	Mackerel (<i>Scomber scombrus</i>) egg distribution and stage 1 egg production estimates in Divisions VIIIb,c and IXa from 1988, 1989, 1990 and 1991

BALTIC FISH COMMITTEE

Chairman: Dr W. Weber

Rapporteur: Mr E. Aro

Administrative Matters

The Committee held four sessions on 24, 25, 26, and 28 September. The Agenda was adopted as proposed and the Rapporteur was appointed.

The Chairman informed the Committee that there were about 30 contributions to be presented and thus the time available for each presentation would be limited to about 10 minutes.

In the opening discussion, several Committee members and participants stressed their opinions about the importance of the Baltic Fish Committee and its role in the future. The Committee agreed on the importance of environmental matters and that effects of changes in the environment should be reflected more within national contributions.

Prof. G. Hempel informed the Committee about the forthcoming European conferences, workshops, and seminars concerning interdisciplinary Baltic Sea ecosystem studies. He stressed that the Baltic Sea was one of the key areas to the European Community and its scientific funding in the future. Prof. G. Hempel suggested, that a study was needed to map the major fields in co-operation and that a workshop should be arranged in 1993 in order to increase cooperation among Baltic states.

Dr J. Ahlheit informed the Committee about a series of three workshops in which scientists of all riparian countries of the Baltic Sea will/should participate. These workshops aimed at the formulation of detailed proposals for internationally coordinated research projects directed at the urgent problems of this marine/brackish-water ecosystem. These projects might be proposed for funding by the Commission of the European Communities and by national funding agencies of the Baltic Sea countries.

Prof. D. Schnack informed the Committee of the proposal and discussion paper for an internationally coordinated research project on the recruitment of cod in the Baltic. He presented the objectives related to a process-oriented phase of the project. It was agreed to have a special meeting to discuss and formulate a new more detailed and coordinated proposal for the project, and Committee members and participants were welcomed to participate in that meeting which would be held at 14.00 hrs on 24 September.

It was noted that contributions on Baltic salmon, which had been directed to the ANACAT Committee, were not presented in the Baltic Fish Committee even though Baltic salmon was an important component of the pelagic system in the Baltic. It was stressed that Baltic salmon papers should be referenced to the Baltic Fish Committee in the future.

The Chairman informed the Committee that one candidate would be nominated for the Young Scientist Award and for the Best Paper Presentation Award. Moreover, a special prize for the best presentation in the Baltic Fish Committee was offered by the Chairman. At the last session, Mr F. Arrhenius (Sweden) was selected by the Committee as the prize winner (Doc. J:7).

Election of Chairman

The election of the Baltic Fish Committee Chairman for next three-year term took place on 25 September. Eight Member Countries (Belgium, Canada, Denmark, Finland, France, Germany, Poland, and Sweden) were present for the nomination and election process. Two candidates (Mr B. Sjostrand, Sweden and Mr E. Aro, Finland) were nominated, and Mr B. Sjostrand was elected.

Study Group/Workshop Reports

The Chairman of the Study Group on Young Fish Surveys in the Baltic, Dr T. Raid, informed the Committee about the results of the meeting which had been held in the last week of August. The Study Group had started to include length and weight data of various species in the data base to be able to construct age-length keys and mean weight at age for use by assessment Working Groups. The Study Group recommended that the next meeting should be held in Gdynia, Poland in June 1993 with a different set of aims. The Committee decided to dissolve the Group, but recommended the establishment of a new Study Group on the Evaluation of Baltic Fish Data. The quantity of sampling activities seemed to be sufficient and the next step thus to improve data sets was to analyze the quality of the data.

The Chairman of the Workshop on Baltic Sprat Age Determination, Dr R. Aps, informed the Committee about the main results of the Workshop. There was about 80% agreement between the participants in sprat age determination, but the accuracy of sprat age determination could be improved by using transmitted light and higher magnification. The Workshop recommended

that a new Workshop was needed and should be organized in September 1994.

Scientific Contributions

The Chairman informed the Committee about Baltic activities in 1991 (Doc. J:1) and commended Estonia and Latvia for having included their sampling activities in the report. The Chairman also presented the Publications of Interest to the Baltic Fish Committee (Doc. J:2) and stressed the value of this list. Only three nations had submitted their information and he expressed the wish that the amount could be increased.

The Chairman presented the report of the Steering Group on Fisheries/Environmental Management Objectives and Supporting Research Programmes in the Baltic (Doc. J:11). He stressed that this Steering Group, reporting to the Consultative Committee, was really very important and was considered to be the prototype of an interdisciplinary Group. The Group had identified several possible projects to be handled in the future. One of them was discussed in more detail and would lead to immediate and long-term international cooperation. The project, "Recruitment Mechanisms in Baltic Cod", would include fecundity and quality of spawn, direct effects of physical and chemical factors, drift models, predation on early stages, nutrition and growth, ecology of early life stages and juveniles, as well as expansion of multispecies models to the pre-recruit phase.

The Chairman also informed the Committee about the results of the Workshop on the Analysis of Trawl Survey Data (Doc. D:6) and encouraged Committee members to look in more detail at that important report.

Acoustic surveys were dealt with in four presentations covering Sub-divisions 22-29 (Docs. J:8, J:10, J:19, and J:32). An increase in Baltic herring and sprat biomass was observed in all areas, and high levels of young herring and sprat were observed in the western Baltic. In the western areas, the distribution pattern differed from that in previous years, but in the Polish fishing zone, the distribution pattern of herring was more or less the same in 1990 as in 1989. The sprat biomass in the Polish fishing zone was higher because of the change in distribution pattern. In the eastern and northeastern parts of the Main Basin, the biomass of herring and sprat was estimated to be high. Three-spined sticklebacks were observed to be more abundant. The proportion of herring and sprat in biomass estimates was about 50% each. In the report of the Planning Group for Hydroacoustic Surveys in the Baltic, it was concluded from Latvian-Polish 1991 acoustic estimates that estimates for both herring and sprat could be used for stock assessments in the Main Basin, and from the joint Danish-German survey, the herring estimates could be used for the assessment in Sub-divisions 22-24.

Herring and sprat biology was dealt with in sixteen papers. The contributions concentrated on food, feeding, and growth of herring and sprat, forecasting of herring catches, parasites of herring, food consumption of herring and sprat, and the effect of increased trawl selection on the dynamics of herring stocks (Docs. J:4, J:7, J:17, J:20, J:21, J:22, J:24, J:25, J:26, J:27, J:42, J:43, J:44, E:37, F:7, and H:5). Nine of these contributions were presented in other meetings. In the northern Bornholm Basin, herring were observed feeding on invertebrates (Doc. J:17) and were considered as near-bottom dwellers, whereas in the southern part, they were feeding more traditionally, i.e., on zooplankton. Using the bioenergetical models, the total food consumption of herring was estimated to be about 5.0×10^7 tonnes and that of sprat about 4.7×10^7 tonnes (Doc. J:7). The diet of herring was observed to consist of about 90% zooplankton and for sprat 100% zooplankton. Herring and sprat 0-group fish made up almost 40% of the total consumption. In Doc. J:24, the decrease in mean weight at age of herring had been observed in the Main Basin and Gulf of Riga from 1985 onwards. These changes had been connected to the changes in feeding conditions and in the abundance of herring and sprat stocks. The changes in zooplankton community were assumed to be the effect of changes in hydrological conditions in the Baltic.

Herring abundance was considered to be the most important factor causing the decrease in growth rate. In Sub-division 26, the decreasing trend in mean weight at age had been observed since 1982 (Doc. J:27). The main reason for growth rate decrease had been the change in the zooplankton community and availability of some big copepods.

In the northern Baltic (Sub-divisions 29-32), a decrease in growth rate had also been observed (Docs. J:4 and J:42). This decreasing trend started in 1983-1984. Depending on the sub-division, herring growth correlated positively with herring catch rates and cod biomass and negatively with sprat stock biomass. The decrease in the predator (cod) stock had increased the survival rate of young herring and increased the stock size in numbers and biomass. The other factors besides density-dependent hypotheses were the changes in hydrographical conditions affecting the availability of food organisms.

The use of herring scales for back calculation of growth showed that the variation in individual growth was of the order of 10-15% of the mean and no trend was obvious (Doc. J:21). The results indicated that the observed individual growth changes could not clearly explain the observed decrease in herring size in the stock. The analysis on the effect of the increased codend mesh size on the catches and biomass of herring in the northern Baltic (Doc. J:22) indicated that maintaining the current fishing effort while increasing the mesh size from 20

mm to 36 mm would first substantially decrease catch rates and catch values. In the long run, however, the catches and especially catch values per recruit would increase.

In the sprat populations (Doc. J:25), a stable difference in the otolith structure had been shown between Sub-divisions 25 and 26. It was concluded that unless a more firm and satisfactory solution was found, assessments of sprat stocks in the Baltic should be made separately in Sub-divisions 22-25 and 26-32. This kind of difference had not been previously noted. In discussions, it was pointed out that Sub-division 25 seemed to be a mixing area for sprat populations/stocks as well as for herring and cod populations. The results of sprat feeding introduced a new index of feeding (feeding tension, Doc. J:26) reflecting the effort used by the specimen to get the food particle. According to the analysis it seemed obvious that the amount of food was currently the limiting factor for sprat growth. That was why the authors suggested an intensified sprat fishery in the Baltic to reduce the sprat stock size.

Baltic cod was dealt with in nine papers, of which four were presented in other meetings (Docs. F:12, G:2, G:70, J:29). Five papers referred to the Committee gave information on cod eggs and larvae drift, predation of herring and sprat on cod eggs and larvae, length at age in Sub-division 25, sex ratio and catch rate versus biomass of cod in the Baltic (Doc. J:3, J:5, J:18, J:37, and J:41). The results of a two-layer, linear flow model tried to estimate the drift of eggs and larvae from the Bornholm Basin to other areas (Doc. J:5). Sensitivity analysis of the model showed that the linear model was rather sensitive to the assumption of upper layer thickness. No such a pattern of 1-year-old cod predicted by the model could be shown. In discussion, it was noted that the use of upper layer thickness was very essential and probably not used in the proper fashion.

The preliminary results of herring and sprat feeding on cod eggs and larvae showed that the feeding rate, especially of sprat in the Bornholm Basin on cod eggs and larvae, appeared to be more substantial than expected (Doc. J:41). The consumption estimates indicated that predation of cod eggs might be of some importance and be a regulatory factor for cod recruitment in the area.

There had been an increase in mean length of cod in the 1980s in Sub-division 25 (Doc. J:3), but it did not necessarily mean an increase in growth of cod. It might be due to the changes in the distribution pattern of the decreasing cod stock. A decreasing mean length at age should have been expected because of very high fishing mortality during the observation period of 1984-1992, but this was not observed. The negative correlations between stock in numbers and mean length at age, and catch in numbers per hour at age and mean length at

age, indicated that increased availability of food was involved in the observations.

The sex ratio at age had varied considerably during the last three decades (Doc. J:18). The authors suggested that the increase in mean length of females attaining maturity could be explained as an effect of the shift in the spawning peak to earlier months and an increase in growth rate due to the decrease in stock size.

The reproductive potential seemed to be heavily dependent on the sex ratio at age, which varied with time. The analysis of catch rates versus biomass in the western and eastern Baltic cod stocks (Doc. J:37) showed that catch rates could be used to predict biomass in the coming year. The authors indicated that fewer assumptions were included in this approach and, therefore, it could better reflect the true biomass than present assessments. If so, this biomass estimate could be used as a fishery-independent method to verify VPAs.

Flatfish were dealt with in four papers (Doc. J:15, J:16, J:38, and B:12). Data on fecundity of Baltic flounder showed that fecundity in the Gulf of Gdansk was higher than in the Bornholm Basin (Doc. J:15) and was higher in the Gulf of Gdansk in 1991 than in 1963. Fishing mortality in the flounder stock in Sub-division 26 had been very high in the late 1980s and was now somewhat decreasing (Doc. J:16). Biomass had been decreasing until 1983, and since then had been rather stable at a lower level. Recruitment in the latest years had decreased considerably. The reason for the decrease in recruitment was not known. In the Oderbank Plateau, the proportion of flounder discards had varied between 22 and 36% annually (Doc. J:38). According to analyses, the optimum mesh size was about 120 mm. The authors indicated that employing a larger mesh size would also be beneficial to the cod fishery.

Eelpout were dealt with in Doc. J:28. Eelpout was a benthic feeder mainly active during daytime. The peak feeding had been observed in the morning hours and feeding intensity on molluscs was noted to be highest in the afternoon or night. During the spawning time of herring, eelpout in the Gulf of Riga was the main predator of herring eggs.

General aspects were dealt with in three papers (Doc. L:10, J:39, and J:40). The FISHBASE program was available from ICLARM (Doc. L:10). The program contained about 600 species, more than 8,600 synonyms, and about 20,000 common names. A synopsis of biological data on flounder in Sub-division 24 and Baltic herring in Sub-divisions 22 and 24 had been compiled using FISHBASE (Doc. J:39 and J:40). They were examples of how to use the FISHBASE program in the Baltic Sea. The size of the FISHBASE program was

about 55 MB and in cooperation with ICLARM was free of charge.

Multispecies approaches were dealt with in two papers (Doc. J:35 and J:23). In the western Baltic, the stomach data had been revised and material included 12,758 stomachs from 1978-1989 (Doc. J:35). New consumption ratios had been used and the estimates of consumption rates were now about half the size of the former ones. Predation pressure by cod on herring and sprat seemed to be low in recent years. The MSVPA had been expanded in the eastern Baltic to include cod as a prey item (Doc. J:23). The MSVPA showed that the 0-group and 1-group cod predation mortality was rather high and indeed higher than expected earlier. The value of 0-group predation mortality seemed to be very important in estimating recruitment to the exploitable stock.

Recommendations

The Chairman informed the Committee about the recommendations concerning meetings to be held in 1993 and 1994. Recommendations were discussed in all four sessions of the Committee. All were based on recommendations given by the various Groups dealing with Baltic matters. The Steering Group identified the need to compile and computerize the previously inaccessible hydrochemical, chemical, and biological data from Russia, Estonia, Latvia, Lithuania, Poland, and the former GDR.

The Committee drafted four recommendations. Firstly, it was agreed that the Planning Group for Hydroacoustic

Surveys in the Baltic should meet at ICES Headquarters (Chairman: Mr E. Gotze, Germany) from 19-20 April 1993.

Secondly, a new Study Group on the Biology of Baltic Flounder should be established, work during 1993 by correspondence, and have its first meeting in 1994 in Gdynia, Poland prior to the meeting of the Working Group on the Assessment of Demersal Stocks in the Baltic. It was agreed that Dr B. Draganik (Poland) should serve as Chairman of the Study Group.

Thirdly, it was agreed that the task of the former Study Group on Young Fish Surveys in the Baltic should be oriented more to assessment data bases and renamed as the Study Group on the Evaluation of Baltic Fish Data. It was agreed that this Study Group would meet in Gdynia, Poland from 14-18 June 1993 and be chaired by Dr T. Raid (Estonia).

The Committee agreed that the proposal of an internationally coordinated research project on the recruitment mechanisms of cod in the Baltic was very important. The sub-groups (chaired by Prof. D. Schnack) drafted a more detailed proposal. It was agreed to support the proposal, and many Committee members and participants would be involved in the project.

The Committee also agreed to support the recommendation made by the ANACAT Committee concerning stock identification protocols because the Committee strongly felt that such protocols could also be used in the Baltic Sea area for various species.

DOCUMENTS

J:1		Report of Activities, 1991
J:2		Publications of interest to the Baltic Fish Committee, 1991
J:3	O. Bagge <i>et al.</i>	Mean length at age of cod in the Baltic, Sub-division 25, 1984-92 as estimated from R/V "Dana" in March
J:4 Sess. P	E. Aro <i>et al.</i>	Changes in the growth rate of Baltic herring. Why some specimens are starving in the northern Baltic
J:5 Ref. C	E. Aro <i>et al.</i>	Estimation of Baltic cod eggs and larvae drift in the southern Baltic in July-August 1991 by a two-layer, two-dimensional linear flow model: sensitivity tests and verification of the model
J:6		Withdrawn
J:7 Ref. L	F. Arrhenius and S. Hansson	Food consumption of herring and sprat in the Baltic Sea
J:8	F. Shvetsov <i>et al.</i>	Distribution and size of herring and sprat stocks in the Baltic proper, determined by the acoustic method, October 1991

J:9		Withdrawn
J:10		Report of the Planning Group for Hydroacoustic Surveys in the Baltic, Copenhagen, 21-22 April 1992
J:11 Sess. T		Report of the Steering Group on Fisheries/Environmental Management Objectives and Supporting Research Programmes in the Baltic Sea, Copenhagen, 1-2 June 1992
J:12		Report of the Workshop on Baltic Sprat Age Determination, Tallinn, 31 August - 4 September 1992
J:13		Withdrawn
J:14		Withdrawn
J:15	J. Kuczynski and R. Zaporowski	Review of the data on fecundity of the Baltic flounder
J:16	B. Draganik	Fishing mortality and recruitment to the stock of flounder [<i>Platichthys flesus</i> (L.)] in Sub-division 26
J:17	J. Ostrowski and A. Mackiewicz	Feeding of cod and herring in the southern Baltic in 1991
J:18	M. Kosior and J. Skolski	Effect of variability in the sex ratio of cod on the population's reproductive potential estimates
J:19	A. Orlowski	Acoustic survey of fish stock abundance in the Polish fishery zone
J:20 Ref. L	T.B. Linkowski	Growth of sprat larvae in the southern Baltic estimated by otolith microstructure analysis
J:21 Sess. P	B. Sjöstrand	Changes in length at age in Baltic herring, studied by back-calculation from scales
J:22 Ref. B+H	P. Suuronen <i>et al.</i>	Impacts of increased cod-end mesh size on the catches and biomass of herring in the northern Baltic Sea
J:23	H. Jensen and H. Sparholt	Estimation of predation mortality of cod in the central Baltic using the MSVPA
J:24 Sess. P	G. Kornilovs <i>et al.</i>	The analysis of mean weight-at-age changes of Baltic herring in the Gulf of Riga
J:25	F. Shvetsov <i>et al.</i>	On some local properties of Baltic sprat (<i>Sprattus sprattus Balticus</i> Schn.)
J:26	M. Starodub <i>et al.</i>	The feeding of sprat in eastern Baltic
J:27	A. Davidyuk <i>et al.</i>	Feeding and growth of the Baltic herring (<i>Clupea harengus m. membras</i> L.)
J:28	E. Urtans	Feeding daily rhythm of eelpout (<i>Zoarces viviparus</i> L.) in the Gulf of Riga

J:29 Sess. P + U	T. Baranova	On the growth of eastern Baltic cod
J:30		Withdrawn
J:31		Withdrawn
J:32	E. Götze <i>et al.</i>	Report on the hydroacoustic survey in ICES Sub-divisions 22, 23, 23, 24 and 25 in October 1991
J:33		Withdrawn
J:34		Withdrawn
J:35	H. Sparholt <i>et al.</i>	Further development of the multispecies assessment of the fish stocks in the western Baltic
J:36 Ref. L	W. Weber and R. Froese	Synopsis of biological data on <i>Gadus morhua</i> L., ICES stock in Sub-divisions 22 and 24, using the FISHBASE database format
J:37	F. Thürow and W. Weber	Catch rates <i>versus</i> biomass in Baltic cod
J:38	C.C. Friess	Analysis of discards during the trawl fishery for flounder (<i>Platichthys flesus</i>) in the Oderbank area (ICES Sub-division 24) from 1983 to 1990
J:39 Ref. L	R. Froese and C.C. Friess	Synopsis of biological data on <i>Platichthys flesus</i> (L.), ICES Sub-division 24, using FISHBASE database format
J:40 Ref. L	R. Froese and O. Rechlin	Synopsis of biological data on <i>Clupea harengus</i> (L.), ICES assessment units 22 and 24, using the FISHBASE format
J:41 Ref. G + H	F.W. Köster	Predation by herring and sprat on cod eggs and larvae in the Bornholm Basin - preliminary results
J:42 Sess. P + U	R. Parmanne	Changes in the growth of herring in the northern Baltic Sea in 1970-1991
J:43 Sess. O	A. Turovsky <i>et al.</i>	The parasitic infestation and growth of clupeoids in the North-Eastern Baltic
J:44 Sess. U	R. Aps	Growth of sprat in the northern Baltic

SHELLFISH COMMITTEE

Chairman: Dr R.C.A. Bannister

Rapporteurs: Prof. C.H. Petersen, Dr S. Clark, Dr P. Rodhouse

The Committee met three times on 24, 25, and 26 September and was well attended. The incoming Chairman welcomed participants and paid tribute to the good work of the outgoing Chairman, Prof. C.C.E. Hopkins. Rapporteurs were appointed and the agenda adopted. For the benefit of a number of participants new to ICES, the Chairman summarized the aims of ICES and how it worked at the administrative, Statutory Meeting, and Committee levels in order to promote new work, organize collaboration, and inspire new thinking and scientific criticism. He stressed the present move towards more interdisciplinary activities, and explained the context of current discussions about the role of ACMP (Del:12, Del:15, and Poll:8). He described the role of the Inter-Committee Recruitment Group, and current initiatives concerning Cod and Climate Change. The Chairman described the new format of the Activities Report (Doc. K:1) which seemed generally acceptable to members. There was no report on publications this year.

Progress Reports

The Committee commended the comprehensive nature of the Report of the Working Group on the Assessment of *Nephrops* and *Pandalus* Stocks (Chairman: Dr N. Bailey, UK) (Doc. Assess:8) and in particular the introduction of a preliminary approach to an age-based assessment for *Nephrops* using cohort slicing.

The Committee adopted and commended the Report of the Study Group on the Life History and Assessment of *Pandalus* stocks (Chairman: Mr S. Munch-Petersen, Denmark) (Doc. K:8), and agreed a recommendation for the Study Group to meet for one week in Reykjavik in 1993 in order to carry out the tasks listed in its Annex 2.

The Committee adopted and commended the Report of the Study Group on the Life History and Assessment of *Nephrops* Stocks (Chairman: Dr N. Bailey, UK) (Doc. K:9), and agreed a recommendation for the Study Group to meet by correspondence in 1993 to monitor uptake of the Study Group recommendations by the *Nephrops* assessment Working Group, and if there was no progress in this uptake, the Study Group should meet for 4 days at Aberdeen in 1994 to pursue this.

The Committee adopted and commended the Report of the Study Group on Pollution Affecting Shellfish in Aquaculture and Natural Populations (Chairman: Dr M. Heral, France) (Doc. K:10). This report represented the

Chairman's overview, following cancellation of the Study Group meeting due to poor support. The Committee endorsed its support for the subject and agreed a strategy to keep the topic open in the interest of interdisciplinary cooperation. It, therefore, recommended that the Study Group should meet by correspondence in 1993 and prepare a Theme Session proposed for 1994 on the same topic in conjunction with the Mariculture and Marine Environmental Quality Committees. To broaden interest, however, the title of the Group should be changed to Study Group on the Impact of Factors Likely to Affect Shellfish in Aquaculture and Natural Populations.

The Committee adopted the Report of the Study Group on Squid Biology (Doc. K:2) which had met in Nantes in 1991 (Chairman: Dr U. Piatkowski, Germany), given verbally at the 1991 Statutory Meeting. Last year, this Group had been renamed the Study Group on Cephalopod Biology. This Study Group met again in Kiel immediately prior to the present Statutory Meeting. Its latest report (Doc. K:38) was incomplete, but a verbal report was received. Following a substantial discussion, including a meeting of an informal sub-group, the Shellfish Committee Chairman decided that ICES had a significant role to play in continuing to promote and coordinate cephalopod work, particularly in the area of population dynamics, recruitment processes, assessment methodology, and the improvement of data collection. The Committee, therefore, recommended that a Study Group on the Life History and Assessment of Cephalopods (Chairman: Dr U. Piatkowski, Germany) should be established and meet by correspondence in 1993 to further these aims.

The Working Group on Pectinid Stocks was currently in abeyance pending further developments in the understanding of recruitment processes.

Additional Recommendations

Following the presentation of papers on snow crab, *Chionoecetes opilio*, the Committee recommended that a Study Group on the Life History and Assessment of *Majid* crabs be formed and chaired by Dr G.Y. Conan (Canada), and should hold its first meeting in Jersey in 1993 to exchange information and promote collaboration on the life history, population dynamics, and management of *Majid* crabs in Europe and on the Atlantic and Pacific coasts of the United States and Canada.

Following discussions of papers on *Crangon*, the Committee recommended that a Study Group on the Life History, Population Biology, and Assessment of *Crangon* (Chairman: Dr T. Neudecker, Germany) should meet by correspondence in 1993 to exchange information and promote future collaboration on life history, fishery trends, causes of recruitment variation, fishery economics, sampling strategies, and multispecies interactions. The Study Group should report to the 1993 Statutory Meeting on the future orientation of work on *Crangon* in ICES.

Following presentation of Doc. K:16 (see below), the Committee recommended that for both scientific and enforcement purposes, carapace length should be accepted internationally as the only acceptable way of measuring a lobster.

The Committee endorsed a proposal from the Chairman to stress the importance of discussions about the management of shellfish stocks in the English Channel taking place within the framework of an informal bilateral working group organized by France and the United Kingdom, and that the group should consider the benefits of becoming established as a formal ICES assessment Working Group or Study Group.

Scientific Contributions

Nephrops (Docs. K:20, K:25)

Doc. K:20 applied VPA to sliced length cohorts interpreted as age for *Nephrops* at Iceland. It correlated output for F and biomass against effort and CPUE and showed trends in biomass and recruitment. Doc. K:22 applied geostatistics to log transformed data on abundance data for *Nephrops* in a trawl survey off Barcelona. Relative variograms were used to correct for a strongly proportional relation between mean and variance, and spatial distribution and biomass were described.

Lobster Docs. K:16, K:42, K:43, D:34)

Doc. K:16 described the relation between carapace length and total length in lobster in Jersey. The carapace length equivalent to the EC total length minimum landing size (MLS) of 240 mm was considerably shorter than the carapace length MLS of 85 mm, causing enforcement problems. Doc. K:42 described the results of tagging lobsters on an artificial reef and in a nearby fishery in the UK. Recaptures illustrated strong site loyalty, but some lobsters had moved quickly to nearby locations (up to 5 km). For three sites on different coasts in Britain, Doc. K:43 described new data on size at maturity, fecundity, and morphometrics. West coast lobsters were large and mature earlier. Doc. D:34, referred from the Statistics Committee, described deter-

ministic and stochastic models for birth-death processes representing entry and escape from traps on both a constant rate and time-dependent basis, and showed preliminary analyses from field data.

Majid Crabs (Docs. K:21, K:36, K:34, K:35, K:11)

Doc. K:21 provided a comprehensive overview of snow crab biology and life history in a local population in Newfoundland, and discussed problems of prediction and management. Doc. K:36 presented change-in-ratio and index-removal estimators in general form, illustrated their use for snow crab, and commended their wider application. Doc. K:34 illustrated the use of Leslie analysis in pursuit of abundance estimation from trap survey data. Doc. K:35 validated the use of carapace colour as a moult indicator for snow crab in Newfoundland, though discussion suggested the colours may not be universally applicable. Doc. K:11 illustrated the seasonality of CPUE in a new trap survey of spider crab in Jersey. The papers on snow crab were well received and generated discussion leading to the proposal for a new Study Group.

Swimming Crab (Doc. K:47)

Doc. K:47 described multivariate and bivariate regression methods for estimating size at maturity.

Crangon and Pandalus (Docs. K:28, K:37, K:39)

Doc. K:28 gave a preliminary summary of a long time series describing the seasonal variation in the proportion of egg-bearing females in the German Wadden Sea. Doc. K:37 gave a clear account of the evolution of effort and efficiency in the German cutter fishery in relation to profit and loss analysis, and its author was nominated for the Young Scientist Award. Doc. K:39 illustrated the start of an intercomparison between Norwegian and Russian trawl surveys for *Pandalus*. Doc. K:17 illustrated the role of laboratory experiments in *Pandalus* for studying larval growth and survival. A discussion on the *Crangon* papers led to the proposal for the formation of a new Study Group.

Bivalves (Docs. K:45, K:25, K:44, K:48)

Doc. K:48 described the initiation of European collaboration to quantify and explain fluctuations in cockle and mussel recruitment in five countries. Recruitment was distributed log normally and may be influenced by temperature via a link with predators. Doc. K:25 made an assessment of the consumption of *Mytilus* by eider duck predators in the Wadden Sea. Doc. K:44 described the screening of small samples of flat oyster in Norway for pathogens; none were found. Doc. K:48 calculated the number of toxic PSP phytoplankton cysts which might be taken into Dutch waters during mollusc importation.

It was noted from the floor that a view on this also required tests for the presence of dormant cysts in Dutch waters, and calculations of the number of cysts likely to come from other sources (e.g., ballast water).

Cephalopods (Docs. K:7, K:6, K:15, K:40, K:5, K:24, K:29, K:32, K:33, K:14)

Four papers (Docs. K:7, K:6, K:15, K:40) summarized information on the distribution, life history, and fisheries for *Loligo forbesi* in Scotland, the Azores, and Galicia. Docs. K:7 and K:40 included data derived from analyzing length modes, which needed validating. Doc. K:5 described comparable data for two *Illex* species. There was discussion about the similarities and differences between populations on different fishery and geographical scales, and about the difficulty of interpreting length data coming from biologically heterogeneous sources. Doc. K:24 described the feeding of flying squid in NW Africa. Doc. K:29 gave a comprehensive account of population dynamics in *Octopus mimus* including estimates of growth, mortality, and Y/R, as well as laboratory experiments aimed at validating analytical growth studies. Doc. K:32 analyzed fish otoliths

found in squid stomachs to describe squid predation on fish at Newfoundland. Docs. K:33 and K:34 described the use of statoliths to age cuttlefish, and were supported from the floor by a contribution from W. Macey (USA) on enhancement and image analysis in age studies using statoliths.

Special Topics

The Committee identified the following special topics for 1993 and 1994:

- a) Cephalopod life history and assessment;
- b) *Crangon* life history and population processes;
- c) Validation of length-based age slicing techniques;
- d) Experimental studies in support of growth and mortality estimation;
- e) Interactions between shellfish populations and oceanographic processes.

DOCUMENTS

K:1		Report of Activities, 1991
K:2		Report of the Study Group on Squid Biology, Nantes, 23-24 September 1991
Ref.C+H+L		
K:3		Withdrawn
K:4		Withdrawn
K:5	R.F. González <i>et al.</i>	<i>Illex coindetii</i> and <i>Todaropsis eblanae</i> (Cephalopoda, Omnastrephidae): their present status in Galician fisheries
K:6	G.J. Pierce <i>et al.</i>	The Scottish fishery for <i>Loligo forbesi</i> : current trends
K:7	G.J. Pierce <i>et al.</i>	The life history of <i>Loligo forbesi</i> in the northeast Atlantic
K:8		Report of the Study Group on Life Histories and Assessment Methods of <i>Pandalus</i> Stocks in the North Atlantic
K:9		Report of the Study Group on Life Histories and Assessment Methods of <i>Nephrops</i> Stocks
K:10		Report of the Study Group on Pollution Affecting Shellfish in Aquaculture and Natural Populations, Nantes, France, 1-3 July 1992
Ref. E+F		
K:11	C. Meyer	Seasonal variation in composition of trap catches of the spider crab (<i>M. squinado</i> Herbst, 1788) in a known inshore nursery area on the south coast of Jersey (British Channel Islands)
K:12		Withdrawn

K:13		Withdrawn
K:14	C.P. Raya <i>et al.</i>	Progress towards ageing cuttlefish (<i>Sepia hierredda</i> , Rang 1837) from the northwest African coast using statoliths
K:15	F.M. Porteiro	The present status of squid fishery in the Azores archipelago
K:16	S. Bossy <i>et al.</i>	A comparison between the use of total length and carapace length for measuring the minimum legal landing size for the European lobster (<i>H. gammarus</i> L.)
K:17	T. Rasmussen	Temperature-dependent growth and mortality rates in larvae of the deep water prawn, <i>Pandalus borealis</i> , reared in the laboratory
K:18		Withdrawn
K:19		Withdrawn
K:20	H. Eiriksson	A synopsis of age-based assessments and predictions on <i>Nephrops</i> at Iceland during 1977-1992
K:21	G.Y. Conan <i>et al.</i>	Life history and fishery management of majid crabs: the case study of the Bonne Bay (Newfoundland) <i>Chionoecetes opilio</i> population
K:22 Ref. D	G.Y. Conan <i>et al.</i>	Direct assessment of the harvestable biomass from a stock of <i>Nephrops norvegicus</i> , seasonal and spatial variations
K:23		Withdrawn
K:24	V. Hernandez-Garcia	Preliminary notes about feeding of three species of flying squids (<i>Cephalopoda</i> , <i>Omnastrepidae</i>) in Northwest Africa (CECAF area)
K:25	M. Egerrup and M.-L.H. Laursen	Aspects of predation on an intertidal blue mussels (<i>Mytilus edulis</i> L.) in the Danish Wadden Sea
K:26		Withdrawn
K:27		Withdrawn
K:28	Th. Neudecker <i>et al.</i>	Seasonality of egg-bearing shrimp (<i>Crangon crangon</i> L.) in coastal waters of the German Bight
K:29	M. Wolff and H. Perez	Population dynamics, food consumption and gross conversion efficiency of <i>Octopus mimus</i> Gould from Antofagasta (northern Chile)
K:30		Withdrawn
K:31		Withdrawn
K:32 Ref. G + H	E.G. Dawe	Predation by short-finned squid on Atlantic cod and other fish at Newfoundland, Canada
K:33	E.G. Dawe and P.C. Beck	Population structure, growth, and sexual maturation of short-finned squid at Newfoundland, Canada, based on statolith analysis
K:34 Ref. D	J.M. Hoenig <i>et al.</i>	Leslie analyses of commercial snow crab trap data: a comparative study of catchability coefficients

K:35	E.G. Dawe <i>et al.</i>	Molt indicators and growth per molt for male snow crabs (<i>Chionoecetes opilio</i>)
K:36 Ref. D	Xucai, Xu <i>et al.</i>	Change-in-ratio and index-removal methods for population assessment and their application to snow crab (<i>Chionoecetes opilio</i>)
K:37	A. Temming and B. Temming	Economic overfishing and increase of fishing effort in the North Sea brown shrimp fishery
K:38		Preliminary report of the Study Group on Cephalopod Biology, Kiel, 21-22 September 1992
K:39	B. Berenboim <i>et al.</i>	Results of Norwegian and Russian investigations of shrimp (<i>Pandalus borealis</i>) in the Barents Sea and Svalbard area in 1991
K:40	R. Guerra <i>et al.</i>	<i>Loligo vulgaris</i> and <i>Loligo forbesi</i> (Cephalopoda, Loliginidae): their present status in the Galician fisheries
K:41		Withdrawn
K:42	K.J. Collins <i>et al.</i>	Lobster (<i>Homarus gammarus</i>) behaviour and movement in Poole Bay, Dorset, UK
K:43	E.K. Free <i>et al.</i>	Lobster (<i>Homarus gammarus</i>) fecundity and maturity in England and Wales
K:44	S.H. Mortensen	The health status of commercially exploited native flat oysters (<i>Ostrea edulis</i>) in Norway
K:45	R. Dijkema	Spatfall and recruitment of mussels (<i>Mytilus edulis</i>) and cockles (<i>Cerastoderma edule</i>) on different locations along the European coast
K:46		Withdrawn
K:47	J. Freire and E. Gonzales-Gurriaran	Functional maturity in the velvet swimming crab <i>Necora puber</i> : a morphometric analysis
K:48 Ref. E	R. Dijkema	The risk of provoking toxic dinoflagellate blooms in the Dutch coastal waters through immersion of imported bivalves, originating from red tide areas

BIOLOGICAL OCEANOGRAPHY COMMITTEE

Chairman: Dr K. Richardson

Rapporteur: Dr M. Heath

Committee Business

Business was conducted in two sessions during the afternoons of 24 and 26 September.

To begin the proceedings, the Chairman drew attention to a number of matters which had to be considered during the meeting.

First was a proposal to hold a Symposium on "Changes in the North Sea Ecosystem and their Causes: Århus 1975 Revisited" in 1995. Views on this suggestion were invited, bearing in mind that the NSTF had a similar proposal for 1994. Written indications of support had already been received from a number of members.

Second, views were invited on a proposal to publish information on rare fish species in the *ICES Journal of Marine Science*. Three written indications of support had already been received.

Attention was drawn to the role of the Committee Chairman in a Steering Group set up to identify research needs in the Baltic. The members of the Committee were asked to identify any specific points which should be raised.

Views were sought on guidelines for the duration of office of Working Group Chairmen. There were presently no firm rules on this matter, but 3-4 years had been traditional. In view of the recent practice for Working Groups to meet in alternate years, members were asked to consider whether a term of 3-4 meetings might not be more appropriate.

Members were reminded that the Inter-Committee Recruitment Group (IRG) would be meeting during the Statutory Meeting to consider especially the issue of Cod and Climate Change. A report would be presented at the final session.

Members were asked to consider candidate themes for Open Lectures, Theme Sessions, and Mini-Symposia at future Statutory Meetings. A suggestion for a Theme Session on "The impact of gelatinous zooplankton predators on coastal and shelf ecosystems" was accepted as being suitable for putting forward to the Consultative Committee.

The Chairman reminded members of the competition for the Best Poster Presentation Award, the Best Paper Presentation Award, and the Young Scientist Award at

the Statutory Meeting, and appointed a sub-group of members to judge the presentations during Committee sessions.

The Chairman requested views on the future role of the Committee in ICES. In particular, should the Committee take on the role of an interdisciplinary link between advice sectors (e.g., pollution/fisheries/environment)? A view was expressed that sectorization of advice and consequent competition for funds was not conducive to progress, and the Committee could play a useful "brokering" role. Other views were that interactions in the environment were receiving increasing attention, but interpretation relied heavily on a few nationally funded field survey data sets (e.g., Continuous Plankton Recorder). ICES could play a useful role in coordinating international time series surveys.

One of the scientific contributions (Doc. L:35) constituted an informal report from the Study Group on Gulf III Plankton Sampler Efficiency. It was reported that more detailed measurements had now resolved some apparent inconsistencies between different methods of flow determination, and that the volume filtration rate of the sampler could now be reasonably well documented. Further work was still required on the implications of clogging for flow calibrations, but it appeared that serious considerations should be given to discarding the Gulf III in favour of an alternative sampler without a conical nose cone. The Committee Chairman asked a sub-group of members to consider future terms of reference for the Study Group, and prepare a draft recommendation before the end of the Statutory Meeting.

Election of Chairman

Election of a new Committee Chairman was held at 16.30 hrs on 26 September. Four candidates stood for election. One was eliminated on the first round of voting, and Dr M. Reeve (USA) was elected by a majority on the second round.

Working and Study Group Reports

Study Group on the Dynamics of Algal Blooms (Doc. L:4)

The Committee Chairman pointed out that the title that the Study Group had used for itself was not the official name (Study Group on the Dynamics of Algal Blooms) as established in a Council Resolution in 1991.

The Study Group met in Vigo (Spain) from 7-9 April 1992. The Study Group Chairman outlined the structure of the IOC programme on Harmful Algal Blooms which identified the three work areas of Ecology and Oceanography, Taxonomy and Genetics, and Toxicology and Toxin Chemistry. Likely ICES activities conformed to the first two of these areas.

The main conclusion of the Study Group was that a population dynamics approach was likely to be the most profitable means of understanding the occurrence and intensity of blooms. The major difficulty was in the separation of gains to the population due to growth from losses due to grazing, dispersal, and encystment.

The Study Group proposed that three pilot studies should be initiated as forerunners to a major initiative. The criterion for choosing study areas was documentary evidence of regular and predictable annual occurrence of blooms of particular species of algae. The three areas chosen were 1) Gulf of Maine, 2) Skagerrak/Kattegat, and 3) Iberian coast. The Study Group stressed the absolute requirement for active involvement of oceanographers in the studies, and stressed that, wherever possible, the studies should be international cooperative efforts.

The recommendations and terms of reference for a further meeting were approved by Committee members.

Study Group on Zooplankton Production (Doc. L:5)

The first meeting of the Study Group was in Bergen from 23-26 March 1992.

The attention of the Study Group was broadly divided between reviewing experimental measurement methods and reviewing sampling technologies. The roles of each of these aspects in the underlying concepts and issues in zooplankton research were also examined.

The Study Group proposed a continuing programme of work including another meeting in the spring of 1993 to review progress and rationale for seagoing and laboratory workshops and production of a standard methodological manual for zooplankton investigation. In addition, the Study Group proposed that a Symposium on zooplankton should be held in Plymouth (UK) in 1994.

The Study Group report was well received by the Committee and was viewed to be most timely. In response to questions about SCOR and IOC interests in the proposed zooplankton manual, it was agreed to recommend that ICES should now formally invite these two bodies to be involved in the project.

Working Group on Recruitment Processes (Doc. L:6)

The Working Group met in Fuengirola (Spain) from 23-26 June 1992.

Intersessional work on the preparation of a synthesis of cod life histories in different ecosystems had been reviewed at the meeting and was nearing completion. Publication in an *ICES Cooperative Research Report* was envisaged by the end of 1992.

Results from the larval otolith intercalibration exercise had been published in the *ICES Journal of Marine Science* since the last Statutory Meeting, and a workshop on larval fish otolith microstructure analysis had been held in Norway in November 1991. These activities had been reviewed by the Working Group, and further initiatives on the linkage between otolith growth and body growth were proposed. A detailed programme of intersessional work aimed at developing and testing models of otolith and body growth was outlined to the meeting.

The Working Group expressed regret that the excellent initiative shown by the ICES/IOC Study Group on Models of Recruitment Processes, which had met in Paris in 1990, appeared not to have been sustained by ICES. The importance of underpinning theoretical development was stressed, and to this end, the Working Group proposed that ICES approve the formation of a Study Group to examine methods of spatial and temporal integration both of data and in models. The need for such a Group was demonstrated by examples illustrating the nature of the problem, which was essentially "how do we link processes at the encounter scale of an individual fish to those occurring at the mesoscale in shelf seas?", or, in modelling terms, "how do we represent sub-grid scale processes at the grid scale in model systems?"

The Committee approved the proposal for formation of a Study Group and also approved the request for another meeting of the Working Group on Recruitment Processes in 1994.

Inter-Committee Recruitment Group (Doc. L:7)

The Chairman of the IRG briefed the meeting on the deliberations of the IRG, but as these were not yet complete, he could not give a definitive statement. However, the IRG had been considering at length the issue of how the Cod and Climate Change programme should evolve over the next few years. Draft terms of reference for a proposed Working Group on Cod and Climate Change were outlined to the meeting.

Study Group on Seabird/Fish Interactions (Doc. L:8)

The Study Group had been formed at the 1991 Statutory Meeting and had been asked to prepare a report by correspondence. The Chairman expressed regret that ICES had not been willing to sanction a meeting since it had proved extremely difficult indeed for the new Group to function without first having had the opportunity to meet. Nevertheless, a report had been prepared, but it was stressed that this was of a preliminary nature.

A main conclusion of the correspondence that had taken place was that the Group should, in the first instance, be examining the interaction between birds and fish as a preliminary to looking at the interaction between birds and fisheries.

There was discussion on the need to find another Co-Chairman for the Group, given that one of the incumbents would be joining the ICES Secretariat and therefore would be unable to continue in that capacity. There was a strong feeling that it would be necessary to have a fish-orientated scientist as replacement Co-Chairman.

There was strong support in the Committee for the Group and agreement with a proposal to hold a meeting in Copenhagen in 1993.

Study Group on FISHBASE (Doc. L:10)

The Chairman of the Study Group on FISHBASE brought the Committee up to date on developments in the last 12 months. The system was now in an advanced state of development, including data on approximately 6,200 fish species worldwide, including all commercial species in the North Atlantic, Mediterranean, and North American waters, all cultured species, and all game species derived from the literature and from a variety of national data bases.

The aims of the project were listed as providing a computerized encyclopedia of fish and a data and analytical tool intended to 1) avoid duplication of data collection, 2) identify research gaps, 3) encourage model-driven data collection, and 4) document biodiversity and preserve information.

The Study Group requested that ICES assessment Working Groups be encouraged to use FISHBASE as a repository for biological information on their stocks and to identify new data sets for inclusion. The Study Group would be willing to collaborate with Working Groups to produce stock synopses; the cod stock summaries being produced by the Working Group on Recruitment Processes were mentioned as a potential candidate.

The Study Group proposed continuing for a further year and to present FISHBASE in the Theme Session on

"Computers in Fishery Research" at the 1993 Statutory Meeting.

Benthos Ecology Working Group (Doc. L:11)

A comprehensive report of the many and varied activities of the Working Group was presented to the meeting. The Group had been asked for advice from a variety of bodies during the year and had been able to assist on each occasion.

The North Sea Benthos Survey work, which had been a main activity of the Group in recent years, was now completed. The Group had discussed a number of new initiative areas at its meeting in Bergen (4-8 May 1992), in particular the effects of disturbance on benthic communities and the implications of global climate change for the benthos and links with fish stocks. The Group proposed examining these and other issues at a further meeting in Kiel in 1993.

The Committee approved and applauded the planned and recent activities of the Working Group and expressed its pleasure at the smooth transition to new chairmanship in the last year.

Scientific Contributions

Phytoplankton

Four phytoplankton papers were presented at Committee sessions, although a number of others were presented in the Theme Session on "Environmental Factors and Ecological Changes". Seasonal variations in algal speciation and size composition were documented in Faroese waters (Doc. L:3) and the southern Baltic (Doc. L:15). In both cases, the authors attempted to relate the observed patterns to physical and nutrient conditions, but in neither case was the effect of grazing considered. Doc. L:19 examined year-to-year variations in the timing of the spring bloom in the southern Baltic and concluded that in months following a mild winter, primary (and secondary) production began earlier and proceeded at a higher level than following cold winters. The reason given was the earlier and deeper development of the summer thermocline. Doc. L:42 dealt with characterization of toxin types in relation to taxonomy of *Alexandrium* species of dinoflagellates. The conclusion was that HPLC toxin profiles were not fixed; on the one hand, taxonomically different species were found to have indistinguishable toxin complements, but the profile for one individual species was found to change in response to culturing conditions.

Zooplankton

The interaction between mesoscale physics and zooplankton processes was well demonstrated by a detailed

paper (Doc. L:20) showing a correlation between cyclical variations in pycnocline depth and metabolic activity of zooplankton along a transect running westwards from the African Coast into the central North Atlantic Gyre. The wave length of the variations indicated that they could be attributed to Rossby waves with a wave length of approximately 900 km.

Three papers dealt with the distribution and abundance of macro-zooplankton (mysids and euphausiids). Doc. L:18 presented results of an attempt to employ a scanning sonar system for detection and counting of euphausiids. The system was well able to detect the organisms, and it was planned to use the equipment to study net avoidance by krill.

Doc. L:16 documented variations in the distributions of euphausiids sampled during the International Young Fish Survey in the Skagerrak/Kattegat area between 1984 and 1992. There were some marked changes in distribution, especially in relation to the occurrence of euphausiids in the Kattegat, which may be related to circulation changes over the period and may be reflected in the success of juvenile fish which feed heavily on these macro-zooplankton.

One further paper on mysids in the Baltic was available as a manuscript, but was not presented.

Benthos

Only one contribution on benthic research was presented (Doc. L:14) dealing with meiobenthos biomass in the Gdansk Basin. The author set out to establish whether a seasonal cycle in meiobenthos biomass occurred in the area, and concluded that, on the basis of sampling every two weeks for one year, there was no evidence to support a pronounced seasonality. Various reasons for this were discussed during the presentation and the follow-up discussion.

Larval Fish

Five papers concerning larval fish were presented. One (Doc. L:41) was available to the Committee as a manuscript and was presented to the Mariculture Committee. Doc. L:33 dealt with the relationship between biochemi-

cal measurements of condition (RNA/DNA) and starvation of larval herring in field and laboratory situations. The author of Doc. L:26 presented a comprehensive review of vital rates and physiological data for marine and freshwater larval fish, concluding that there were characteristic differences between the two which were consistent with recruitment being primarily determined during the juvenile stage in freshwater species and during the larval stage in marine species. Doc. L:37 attempted to show that metamorphosis may be a critical period in the early life of fish, analogous to first feeding.

Predation on larvae was dealt with in only one paper (Doc. L:32) which was a modelling study designed to determine the size dependence of vulnerability to predation. The conclusion was that size dependence of vulnerability was dependent upon the prey and predator species in each case. Thus, small larvae were not always more vulnerable than large ones.

Fish and Trophic Interactions

Doc. L:17 contained a spectral analysis of a 130-year time series of cod catch data, and showed the presence of dominant 11- and 18-year cycles corresponding to sunspot and nodal tidal cycles. The results were yet further evidence of large-scale physical forcing of ecosystems, although the mechanism involved was not at all clear.

Doc. L:25 reported on an attempt to conduct a static mass balance analysis of the North Sea food web using the ECOPATH system. The exercise had provided considerable insight into the state of understanding of the North Sea, highlighting inadequacies in knowledge of consumption of invertebrate prey by fish, and drawing attention to apparent inconsistencies in the parameterization of ingestion and consumption rates in present multi-species assessments.

Seabirds

Only one paper on seabirds was available to the Committee (Doc. L:39), but was not presented to the meeting.

DOCUMENTS

L:1		Report of Activities, 1991
L:2		Withdrawn
L:3	E. Gaard, B. Hansen, and	Ecological studies of phytoplankton in a Faroese fjord
Ref. C	M. Poulsen	

L:4 Ref. C		Report of the ICES Study Group on the Dynamics of Algal Blooms in Coastal Waters, Vigo, Spain, 7-9 April 1992
L:5		Report of the Study Group on Zooplankton Production, Bergen, 23-26 March 1992
L:6		Report of the Working Group on Recruitment Processes, Fuengirola, Spain, 23-26 June 1992
L:7 Ref. C, E, G, H, K		Report of the Inter-Committee Recruitment Group
L:8 Ref. G+H		Report of the Study Group on Seabird-Fish Interactions
L:9 Ref. Pub		Report of the Editor of the ICES Identification Leaflets for Plankton for 1992
L:10	R. Froese	1992 Progress Report on FISHBASE
L:11		Report of the Benthos Ecology Working Group, Bergen, Norway, 4-8 May 1992
L:12 Sess. U	H. Renk <i>et al.</i>	Some factors regulating primary production in the southern Baltic over the period of the last decade
L:13		Withdrawn
L:14	A. Drgas	Meiobenthos biomass fluctuations in the Gdansk Basin (southern Baltic) during a one-year study
L:15	J.M. Bralawska	Cyclic seasonal fluctuations of the phytoplankton biomass and composition in the Gdansk Basin in 1987-1988
L:16	L. Ulmestrand and O. Hagström	Abundance and distribution of Euphausiids (krill) in Skagerrak and Kattegat in February 1984-1992
L:17	T. Wyatt <i>et al.</i>	Cod stock-recruitment problems, the nodal tide, and sunspot cycles
L:18 Ref. B	E. Ona and T. Knutsen	Detection and counting of individual free-swimming krill using a 2 MHz scanning sonar
L:19	S. Schulz <i>et al.</i>	A comparison of biological data from 1976-1991 and 1991 - the influence of a warm winter?
L:20	S. Hernandez Leon <i>et al.</i>	Large scale and mesoscale patterns of metabolic activity of epipelagic micro and mesoplankton in the northeastern central Atlantic at 21°N
L:21 Sess. V	L. Postel <i>et al.</i>	Zooplankton oxygen consumption and nutrient release in relation to species composition, animals' size and environmental conditions in the Baltic Sea during May and August
L:22 Poster	J. Aristegui <i>et al.</i>	Carbon, oxygen and nitrogen metabolism of microplankton during a spring bloom in the Baltic Sea
L:23 Poster	C. Almeida <i>et al.</i>	Measurement of Aspartate Transcarbamylase (ATC) as an index of zooplankton growth during May 1990 and May 1991 in the Baltic Sea

L:24 Poster	S. Hernandez-Leon <i>et al.</i>	Estimation of mesozooplankton egestion rate using a simple device for measuring accumulative fluorescence of faecal pellets
L:25	V. Christensen	A model of trophic interactions in the North Sea in 1981, the year of the stomach
L:26	E.D. Houde	Are marine and freshwater fish larvae different?
L:27		Withdrawn
L:28 Sess. V	K. Richardson and A. Christoffersen	<i>Phaeocystis</i> blooms along the Danish west coast in 1991 and 1992
L:29	G. Shvetsova <i>et al.</i>	Distribution, abundance and annual production of <i>Mysys mixta</i> Lilljeborg in eastern and southeastern Baltic
L:30 Poster	V. Christensen and D. Pauly	ECOPATH II - A system for construction of steady-state models and network analysis
L:31 Sess. V	G. Liebeszeit	Neurotoxins in North Sea coastal waters - outline of planned research
L:32	J.H. Cowan Jr. <i>et al.</i>	Size-dependent vulnerability of marine fish larvae to predation: an individual-based numerical experiment
L:33	C. Clemmesen	The effect of food availability, age or size on the RNA/DNA ratio of laboratory-reared individually measured herring larvae
L:34 Sess. V	J.-P. Ducrotoy and B. Elkaim	Spatio-temporal changes in the distribution of macrobenthic communities in a megatidal estuary
L:35 Ref. H	D. Schnack	Comparative measurements of flow profile across the mouth opening of a Gulf III type sampler
L:36		Withdrawn
L:37	K. Thorisson	Is metamorphosis a critical stage in the early life of marine fishes?
L:38 Sess. V	K. Sherman	The changing states and health of a large marine ecosystem
L:39 Ref. H	I.V. Borkin <i>et al.</i>	Results from an aerial survey for marine birds, done in August-September 1991, as a link in the trophic web of the Barents Sea ecosystem and interrelation between their distribution and distribution of pelagic fish
L:40	S.S. Drobysheva <i>et al.</i>	Dynamics of abundance of the Barents Sea euphausiids in the 1980s
L:41 Ref. F	C.A. Fernandez-Pato <i>et al.</i>	Larval survival: evaluation and statistical analysis for its determination in fish culture
L:42	J.M. Franco <i>et al.</i>	The toxin profile of <i>Alexandrium lusitanicum</i> Balech from the Atlantic coast of the Iberian Peninsula

ANADROMOUS AND CATADROMOUS FISH COMMITTEE

Chairman: Mr A. Isaksson
Rapporteur: Mr D.A. Dunkley

Administrative Matters

The Committee met in two short sessions on 24 and 26 September and a longer session on 28 September.

During the first session, the Rapporteur was appointed and the agenda adopted. The Chairman reported that the General Secretary had announced in the General Assembly that there would be a competition for the Best Paper Presentation Award. The Chairman said that judges would be appointed to nominate which of the papers presented should be put forward. The Chairman reported that Docs. M:10, M:16, M:21, and M:27 had been withdrawn. Docs. M:29 and M:32 were to be presented at Theme Session O.

The Chairman presented the Report of Activities, 1991 (Doc. M:1), the List of Publications Related to the Interests of the Anadromous and Catadromous Fish Committee, 1991 (Doc. M:2), and the ICES Compilation of Microtags, Finclips and External Tags (Doc. M:9).

It was noted that none of the papers presented at this year's meeting could be classified as relating to the Special Topic "Evidence of changes in relationships between salmonid species and their environment".

The Chairman noted that two reports had been accepted for publication since the last meeting: the report of the Workshop on Scale Reading for Baltic Salmon edited by E. Ikonen *et al.*, and the report of the Workshop on Identification of Fish Farm Escapees edited by L.P. Hansen. Both would be published in the *ICES Cooperative Research Report* series.

The Chairman reported that an ICES Dialogue Meeting, co-sponsored by NASCO and IBSFC, would be held in 1993. He introduced Dr M. Windsor, Secretary of NASCO, who outlined the plans. There would be three sets of contributions to the meeting: the scientific viewpoint with speakers nominated by ICES and the managers' and users' viewpoints with speakers nominated by NASCO and IBSFC. Dr Windsor said that the Dialogue Meeting would be held immediately prior to the annual NASCO meeting, which would be held in Edinburgh in June 1993, and would form a Special Session of the Council of NASCO for 1½ days during 7-8 June. It was suggested in the Committee that the native groups in North America had a growing voice in the use of the resource and might be represented. The Committee felt that, of the user groups mentioned, the salmon ranching

interests in the North Atlantic applied only in Iceland and might be omitted. Dr Windsor felt that both of these suggestions were useful and indicated that he would pass them on to the organizing committee.

Dr P. Hutchinson (NASCO) reported on the 9th Annual Meeting of NASCO held in Washington, DC from 9-12 June 1992. Representatives of Canada, Denmark (in respect of the Faroe Islands and Greenland), EC, Finland, Iceland, Norway, Russia, Sweden, and the USA attended. ICES was represented by the General Secretary, the Fishery Secretary, and the Chairman of ACFM, who presented the scientific advice.

Further action was taken by NASCO to control fishing in international waters by vessels registered in countries which were not signatories to the NASCO Convention. A Protocol was agreed extending the prohibition on fishing beyond areas of fisheries jurisdiction contained in the NASCO treaty to non-contracting Parties who sign the Protocol.

The Council also considered reviews on tagging programmes, sea-ranching and its impacts on wild stocks, the economic value of wild stocks, and carcass tagging as a technique to reduce illegal harvests and improve catch statistics. The Council was also considering the adoption of minimum standards for catch statistics. A new Standing Scientific Committee was established to assist the Council and Commissions in formulating their request to ICES for scientific advice.

The North-East Atlantic Commission adopted a regulatory measure for the Faroese fishery in 1993 amounting to 550 t. The West Greenland Commission was unable to agree a regulatory measure for the 1992 fishery. The North American Commission agreed protocols to govern introductions and transfers in the Commission area.

It was noted that the International Baltic Sea Fishery Commission had met since the last meeting of the Anadromous and Catadromous Fish Committee. It was suggested that a report from that Commission could be presented at the next meeting of the Committee.

Working/Study Group Reports

The report of the Working Group on North Atlantic Salmon (Doc. Assess:15) and the reports of the Study Groups on North American Salmon Fisheries (Doc. M:3) and the Norwegian Sea and Faroes Salmon Fishery (Doc. M:4) were presented by the Working Group

Chairman, Dr K. Friedland. During its meeting, the Working Group had considered reports prepared by the two Study Groups and the Workshop on Salmon Assessment Methodology.

The total catch of Atlantic salmon reported for all fisheries (4,031 t) and for homewater fisheries (3,491 t) had continued to decline in 1991. Catches in many countries were among the lowest on record. The Working Group analyzed both fishery-dependent and independent sources of information and concluded that the decline in catch was beyond expectations due to changes in management alone and that the data suggested reduced abundance of wild salmon populations.

The total nominal catch in the Faroes fishery in the 1990/91 season was 202 t, including 13 t caught by a research vessel. The fishery was marked by high catch-per-unit-effort during November and December followed by low values for the remainder of the season.

The total nominal catch at West Greenland was 437 t in 1991. The landings during the first two weeks of the fishery were among the lowest values observed since the statistics had been recorded. The results of classifying salmon to continent of origin in 1991 indicated that the North American proportion was 65 %, and the European proportion was 35 %.

The Working Group had continued development of continental run-reconstruction models of North American and European stocks to estimate exploitation in commercial fisheries. Results of a run-reconstruction model of North American stocks suggested exploitation at West Greenland had averaged 37 % since 1983.

The total nominal catch for Canada in 1991 was 679 t. The recreational fisheries harvested 20 %, commercial fisheries 76 %, and the native food fisheries 4 % of the total landings by weight. The fishery in the United States consisted of recreational landings of 238 salmon which was 63 % lower than the previous year.

The major recommendations made by the Working Group were as follows:

- a) If there was a requirement by ICES for the Study Group on North American Salmon Fisheries to meet in 1993, the Working Group encouraged national agencies to: consider the adoption of graphic methods to depict measures of central tendency, trends, etc., investigate stock-recruitment relationships for naturally spawning fish in the Penobscot and Saint John Rivers, and to examine forecast models for MSW salmon in an attempt to explain observed recent decreases in the numbers of MSW salmon and increases in the

numbers of 1SW salmon returning to some Canadian rivers.

- b) The Working Group concluded that the Neural Network analysis may offer an alternative to the discriminant analysis of separating stocks of North American and European salmon at West Greenland. The Neural Network methodology should undergo further testing using simulation data sets in parallel with discriminant function analysis.
- c) The Working Group noted recent declines in marine survival of Atlantic salmon. No data indicating the causes of reduced survival were presented, although it was apparent that several investigations were under way. The Working Group encouraged these investigations.

The Working Group made considerable progress in its efforts to analyze and present time series of data so as to identify trends descriptive of the status of stocks. Additional data sets which had not previously been examined were presented.

The report of the Baltic Salmon and Trout Assessment Working Group (Doc. Assess:10) was presented by the Chairman, Mr V. Pruuki. Whereas the rivers flowing into the Baltic Sea and Gulf of Bothnia had previously produced 7-10 million smolts annually, natural smolt production in recent years had declined to less than 0.5 million, largely as a result of the damming of rivers. Between 4 and 6 million artificially reared smolts were released annually to help compensate for the loss of wild smolt production.

The management aim of the International Baltic Sea Fishery Commission (IBSFC) was to ensure that exploitation of salmon was regulated "to safeguard wild stocks". However, the stated aim of the IBSFC was difficult to achieve as a) wild and reared salmon appeared together in the Baltic Sea catches, b) the proportion of wild salmon in the whole stock was only 10-20 %, and c) there were differences in the migration patterns and timings of different stocks.

In an attempt to achieve the IBSFC aim, the Working Group had made a number of recommendations including that a) any TAC should be expressed in numbers, b) the TAC for the Main Basin and Gulf of Bothnia offshore fishery should be 486,000 fish to double escapement to northern rivers, c) the summer closure of the fishery should be shifted to earlier in the year to decrease fishing pressure when spawners entered the Gulf of Bothnia, d) coastal fisheries in Sub-divisions 29-31 should have closed periods at the beginning of the fishing season when the proportion of wild spawners caught was highest, and e) closed areas should be intro-

duced in the mouths of rivers during the entire season to reduce the catch of wild spawners.

Catches in the Gulf of Finland had increased in recent years. There had been no major changes in smolt production, with less than 5% of the total being of wild origin. A TAC of 109,000 fish had been recommended for 1993.

Concern was expressed by the Chairman of the Working Group that the Group's recommendations had not been well received by ACFM, the decisions made by the IBSFC had not corresponded to the advice given by ACFM, and the status of stocks in the Baltic was worse now than 10 years ago.

The report of the Workshop on Salmon Assessment Methodology (Doc. M:8) was presented by the Chairman, Mr J. Browne. Participants at the Workshop were drawn from the Working Group on North Atlantic Salmon and the Baltic Salmon and Trout Assessment Working Group. The terms of reference of the Workshop were to standardize the nomenclature used to describe the ages of Baltic and North Atlantic salmon and to review, exchange, and report on assessment methodologies.

The Workshop concluded that because of the differences in the timings of fishing between the Baltic and the Atlantic, the currently-used nomenclatures satisfied the ageing requirements adequately and no change could be recommended.

The models examined were derived for specific purposes in each of the Commission areas and depended on the specific questions being asked, the manner in which the data were collected, and the quality of the data. The main models considered were the VPA analyses and life history models used in the Baltic, run-reconstruction models used in the Northeast and Northwest Atlantic, and the harvest estimation models, constraints models, and estimates of target spawning requirements used in the Northwest Atlantic. Each model type had advantages and disadvantages, and the ability to apply each model was highly dependent on the data available for analysis.

It was recommended that a further Workshop should be considered when further developments or refinements took place or if a specific topic or theme warranted review.

Scientific Contributions

An overview of the status of Atlantic salmon stocks in Europe was based on landings from throughout the European part of their range (Doc. M:25). It was felt that there were inaccuracies in the report and that much more data were available than had been accessed for

this paper. Details were given of the recovery of coded-wire tags at West Greenland (Doc. M:30). There appeared to be no difference in the distribution in West Greenland salmon fishery areas of salmon from different countries. This was different from the results obtained in most years, but similar to those obtained in 1988.

A number of papers from Finland relating to Baltic salmon were presented. A report on the status of salmon in the River Simojoki, Finland (Doc. M:11) indicated that spawning stocks had declined and survival of the stock was endangered. Logging activities on the river were held to be largely responsible. An investigation into the effects of coastal trapnet fisheries in the Gulf of Bothnia (Doc. M:15) indicated that in these fisheries, fishing mortality and the catchability of fish were high. Catches had increased six-fold in the period 1980-1991. It was noted that wild salmon now formed a small proportion of the stocks available for exploitation in the Baltic. Where fishing effort increased to enable exploitation of hatchery-origin salmon, it may exert an unacceptably high level of exploitation on the remaining wild stocks. This was supported by the results from electrofishing surveys to estimate the density of salmon parr in the River Tornionjoki, Finland (Doc. M:14). Only about 10% of the river's potential production was being realized. There was a recommendation (Doc. M:20) that individual transferrable quotas should be used in the Finnish TAC for salmon.

Fish from estuary and coastal fisheries in Newfoundland were examined to determine whether sexual dimorphism in the maxilla could be used to separate the sexes of salmon (Doc. M:13). A discriminant analysis utilizing fork length and maxilla length classified 72% of the fish examined to the correct sex category. This level was felt to be too low for the technique to be considered as a useful method for the sexual classification of salmon caught in estuaries and coastal waters. The relationship between fecundity and egg size in Baltic salmon was examined (Doc. M:19). Fecundity (ml of roe) was correlated positively with total length, but no correlation was found between egg size and length or between egg size and fecundity. Doc. M:28 demonstrated that year-to-year variation in weight in Baltic salmon depended on the length of the feeding season and food supply.

Selection experiments in Iceland (Doc. M:5) showed that there were significant differences in return rates and growth rates between different stocks, different families, and different half-sib groups. Genetic correlations showed that return rate and growth in the sea for grilse were heritable traits showing considerable genetic variation. The experiment reported in Doc. M:6 gave estimates of the mortality of two sea-winter salmon not maturing as grilse between 57-65%. The use of grilse rather than two sea-winter stocks in ranching operations

was advocated. The effects of starvation on the maturation of 1+ Arctic charr was reported in Doc. M:7. Starvation during February-March reduced maturation in both males and females in the subsequent autumn, but females were affected for a longer period. In Doc. M:18, the return rates of Baltic salmon released as sexually immature smolts and previously mature male smolts were compared. Returns from releases of sexually immature smolts were higher than the returns of previously mature male smolts. The Committee noted that this differed from observations made in the southern area of the range of Atlantic salmon, such as in southern France, where 100% of the male smolts may have matured as parr. Samples of salmon caught north of the Faroes were examined (Doc. M:31) and 25-45% of the fish examined in different samples were identified as being of farmed origin. Farmed fish were significantly smaller than wild fish caught at the same time. Most of the farmed fish were believed to be of Norwegian origin, but fish from Scotland, Ireland, and the Faroe Islands were also believed to be present in the fishery area. The effects of the presence of these fish on stock assessments and status of wild stocks were discussed.

An analysis of gene frequency distribution in two species of shad from Portugal (Doc. M:17) indicated that the degree of genetic polymorphism in European *Alosa* species could be higher than was expected from previous investigations. It was found that the temperatures experienced by striped bass egg and larval cohorts had a profound effect on survival, larval growth rate, and potential to recruit (Doc. M:22). Difficulties in modelling the relative importance of density-dependent growth on the survival of striped bass larvae were discussed in Doc. M:23. The results of a mark-recapture experiment on larval striped bass were presented in Doc. M:24. Recaptures provided estimates of growth and mortality rates, abundance, recruitment potential, and dispersal patterns. A hypothetical mark-recapture experiment for larval cod was also considered.

A paper describing catches of glass eels off the coast of Asturias in northern Spain for the period 1952-1992 was presented (Doc. M:12). From 1952-1972, landings fluctuated with no real trend. Between 1972 and 1979, landings increased sharply, but since 1979, catches had declined, reaching values similar to those recorded prior to 1972. The catch recorded in 1990 was the lowest on record and while the 1991 catch was higher, the level was still low compared with previous years. The use of a questionnaire sent to fishermen to estimate catches of

yellow eels in the estuaries of the River Loire and the River Vilaine in France was examined in Doc. M:26.

Other Business

It was noted that a Study Group on eels was already in existence under the auspices of EIFAC. It was felt that it was not necessary for another such Study Group to be instituted by ICES.

The Committee agreed that the theme for the 1993 meeting should be "The effects of environmental and oceanographic factors on the production of Atlantic salmon (*Salmo salar* L) and any observed links to productivity in the marine environment".

The Committee supported a proposal for an ICES Mini-Symposium on "The influence of large-scale environmental processes on the migration, distribution, and abundance of Atlantic fish stocks and their implication for management" to be held in 1994 or 1995.

Recommendations

The Committee recommended that the report of the Workshop on Salmon Assessment Methodology should be published in the *ICES Cooperative Research Report* series.

The Committee recommended that a Study Group on Stock Identification Protocols for Finfish and Shellfish Stocks under the Chairmanship of Dr K. Friedland (USA) should be established to:

- a) review, describe, and evaluate established methodologies to discriminate/define stocks of finfish and shellfish;
- b) describe protocols for the application of stock definition and classification data, as they may vary by species, fisheries, and life history characteristics;
- c) report to the Demersal, Pelagic, Baltic Fish, Anadromous and Catadromous Fish, and Shellfish Committees at the 1992 Statutory Meeting.

In closing the Meeting, the Chairman thanked all the speakers and the members of the Committee for their contributions.

DOCUMENTS

M:1		Report of Activities, 1991
M:2		List of publications related to the interests of the Anadromous and Catadromous Fish Committee, 1991
M:3		Report of the Study Group on the North American Salmon Fisheries, St. John's, Newfoundland, 17-21 February 1992
M:4		Report of the Study Group on the Norwegian Sea and Faroes Salmon Fishery, Dublin, 28 February - 1 March 1992
M:5	J. Jonasson	Selection experiments in salmon ranching variation in return rate and growth rate of different salmon stocks and families within stocks
M:6	J. Jonasson	Ocean mortality of ranched Atlantic salmon during the second year in the sea. Smolts released in 1988 and 1989
M:7	J.O. Pálsson and S.M. Einarsson	The effect of starvation on early maturation of Arctic char (<i>Salvelinus alpinus</i> L.)
M:8		Report of the Workshop on Salmon Assessment Methodology, Dublin, 2-4 March 1992
M:9		ICES compilation of microtag, finclip and external tag releases in 1991
M:10		Withdrawn
M:11	E. Jutila	Report on the management, catches and smolt production of the salmon stock in the Simojoki River
M:12	J. Lara	Evolution of glass-eel catches (<i>Anguilla anguilla</i> L.) off Asturias (Cantabrian Sea, Northern Spain), 1952-1992
M:13	E. Prévost <i>et al.</i>	Essai d'utilisation du dimorphisme sexuel de la mâchoire supérieure pour déterminer le sexe de saumons (<i>Salmo salar</i>) capturés en milieu estuarien ou côtier
M:14	A. Romakkaniemi	The monitoring of the salmon parr production with electro-fishing in the River Tornionjoki, northern Finland - problems with a large river system and low parr densities
M:15	S. Kuikka	Development and dynamics of Finnish salmon trapnet fisheries in the Gulf of Bothnia
M:16		Withdrawn
M:17	P. Alexandrino <i>et al.</i>	Preliminary results on the genetic differentiation between the two species of shad (<i>Alosa alosa</i> L. and <i>A. fallax</i> Lacèpede) occurring in Portugal
M:18	H. Lundqvist <i>et al.</i>	Return rates and biomass production of river released early mature Baltic salmon males: Where do we stand today?
M:19	P. Magonski	Fecundity and egg size in Baltic salmon

M:20	P. Mickwitz	Could the use of individual transferable quotas make a difference for the Finnish salmon fishery?
M:21		Withdrawn
M:22 Ref. L	E.S. Rutherford and E.D. Houde	The influence of temperature on cohort-specific growth, survival, and recruitment of larval striped bass, <i>Morone saxatilis</i> , in Chesapeake Bay, USA
M:23 Ref. D+L	E.S. Rutherford	Possible density-dependent survival of striped bass, <i>Morone saxatilis</i> , investigated by applying the Shepherd and Cushing (1980) model
M:24 Ref. G+H+L	D.H. Secor and E.D. Houde	Larval mark-release experiments: potential for research on dynamics and recruitment in anadromous and marine fish stocks
M:25	S.J. de Groot and M.J. Heessen	An overview of the status of the Atlantic salmon in Europe
M:26 Ref. D	O. Schaan	Estimation methods of eel (<i>Anguilla anguilla</i> L. 1758) catches and linked variances: an application for fisheries within two French estuaries, Loire and Vilaine Rivers, in 1990
M:27		Withdrawn
M:28	A. Mitans <i>et al.</i>	Year-to-year variation in growth of Baltic salmon in the sea
M:29 Sess. O	E. Hahlbeck	Eel fishery and eel catches in the coastal area of Mecklenburg-Vorpommern (German, Baltic Sea) and the actual distribution of the swim-bladder nematode (<i>Anguillicola crassus</i>) in the European eel (<i>Anguilla anguilla</i>)
M:30	I.C. Russell <i>et al.</i>	Recoveries of coded wire microtags from salmon caught at West Greenland in 1991
M:31 Ref. F	J.A. Jacobsen <i>et al.</i>	Occurrence of farmed salmon in the Norwegian Sea
M:32 Sess. O	T.A. Bakke and K. MacKenzie	Comparative susceptibility of native Scottish and Norwegian stocks of Atlantic salmon, <i>Salmo salar</i> L., to <i>Gyrodactylus salaris</i> Malmberg: laboratory experiments
Assess:10 Ref. M		Report of the Baltic Salmon and Trout Assessment Working Group, Copenhagen, 24-31 March 1992
Assess:15 Ref. M		Report of the Working Group on North Atlantic Salmon, Dublin, Ireland, 5-12 March 1992

MARINE MAMMALS COMMITTEE

Chairman: Mr A. Bjørge
Rapporteur: Dr R.V. Miller

The Marine Mammals Committee held one session on 24 September and two sessions on 28 September. It reviewed reports from relevant Study and Working Groups. The Committee also discussed the information provided in the scientific contributions presented at the meeting.

The Chairman thanked members of the Committee for their national contributions to the Report of Activities, and he reminded the authors of the urgency in meeting the deadline for submitting these national contributions. In order to standardize the national contributions to the Publications of Interest to the Marine Mammals Committee, the Chairman would, in due time, send to the Committee members a guide for authors.

North Atlantic Pilot Whales

The Chairman summarized the report of the Study Group on Pilot Whales (Doc. N:3) and drew particular attention to the recommendations in the report. The Study Group concluded that there was enough information to permit an assessment to be seriously attempted in the near future, given adequate analysis and consideration of material now in hand. The Study Group, however, underlined that more field work may be needed before an assessment could be validated, and that the conduct of such an assessment would depend on the presence of certain critical expertise. The Marine Mammals Committee endorsed the recommendations made by the Study Group on further research.

The Committee noted that a new abundance estimate for long-finned pilot whales in the Northeast Atlantic had been submitted to and discussed by the IWC Scientific Committee in June 1992, and that other progress had been made to meet some of the research needs identified by the Study Group.

In light of this progress and the request to ICES from the new North Atlantic Marine Mammal Commission (NAMMCO), the Committee agreed that it would be possible for ICES to begin the process of conducting an assessment of the status of this species in the North Atlantic.

The Committee noted that the term "assessment" depended on the management context in which the scientific advice was to be used. ICES had recognized this in the new form of advice which was being reviewed at this meeting (Doc. Assess:20) where the role of ICES was defined as "to provide the biological information

and advice necessary for managers to achieve the objectives they choose". Relevant here was also the work of the International Whaling Commission which had developed a risk-sensitive management framework which required certain types of information from an assessment and a statement of the specific management goals set by the Commission.

In light of the recent estimate of the overall abundance of long-finned pilot whales in the Northeast Atlantic and also taking into account the evidence of a complex social structure of the pilot whale population in this area and the still not-fully-understood dynamics by which new pods were established, different management objectives may be related to different levels of risks for unforeseen impacts on the pilot whale population.

To be useful, therefore, any assessment of long-finned pilot whales would have to be developed with specific management objectives in mind. However, such objectives can often only be specified in the context of the available biological information. Thus, the development of an assessment should be seen as a process whereby the available biological information would first be assembled and synthesized to identify critical information gaps. Thereafter, this information would be conveyed to the managers who must then specify their management objectives and specify the degree of risk they would be willing to assume in order to achieve their goals.

The Committee noted that relevant expertise on stock assessment existed within ICES. However, the process of providing scientific advice useful for the management of cetaceans had been addressed by the Scientific Committee of the IWC in recent years. That experience had identified several critical aspects of the interaction between the nature of scientific advice and the likelihood of meeting management goals. Access to this experience would be valuable to ICES in developing scientific advice on long-finned pilot whales. The Committee, therefore, felt it appropriate to invite experts involved in the work of the IWC Scientific Committee on management procedures and pilot whale biology to participate in an assessment of long-finned pilot whales.

In addition, the participation of NAMMCO scientists in the development of an assessment would facilitate the scientific dialogue with NAMMCO.

Any ICES assessment of long-finned pilot whales could be evaluated by ACFM and the Marine Mammals Com-

mittee. The advice to be provided for NAMMCO could be generated by ACFM upon its evaluation of the assessment, following the usual ICES procedure for generating and providing scientific and management advice.

The Committee proposed the following terms of reference for an ICES assessment of long-finned pilot whales. Items 1-4 would be undertaken by a Study Group as a first step and item 5 after a dialogue with the relevant management authority whereby the different management objectives would be outlined. The proposed terms of reference were to:

- 1) identify and assemble relevant data for developing an assessment of the status of long-finned pilot whales in the North Atlantic;
- 2) review existing analyses and identify needed additional analyses of these data;
- 3) identify key information gaps and the nature of the risk associated with management actions in the light of those gaps;
- 4) identify critical long-term information needs to minimize risks associated with management actions;
- 5) conduct an assessment on the status of long-finned pilot whales in the North Atlantic, identifying risks associated with alternative management actions, in a form compatible with the advice currently being generated by ACFM, including accounting for multispecies interactions.

The Study Group on Pilot Whales had successfully addressed its terms of reference during its 1991 meeting. The above terms of reference were of a substantially more technical and focused nature than those addressed by the Study Group initially, and implied that additional expertise would be required. Specifically, the analytic and stock assessment expertise on the Group may need to be expanded.

Seals and Small Cetaceans in European Seas

Dr P. Thompson presented the report of the Study Group on Seals and Small Cetaceans in European Seas. At its meeting in Cromarty, Scotland, 2-5 March 1992, the Study Group had reviewed the status and health of populations of seals, harbour porpoise, and bottlenose dolphin within its geographical area, and identified populations where the status gave reason for some concerns. Further, the Study Group discussed by-catches, food availability, and methods for selecting, collecting, and archiving data on marine mammals.

The Study Group identified several research needs and made three recommendations concerning further research:

- a) Specimens from seal populations outside the Baltic and Wadden Seas should be examined to determine the incidence of parodontitis and alveolar exostosis, which were believed to be associated with high contaminant levels.
- b) An integrated survey of the distribution and abundance of small cetaceans in the North Sea should be conducted along the lines of a recent proposal to the European Commission's NOR-SPA programme. In the meantime, further research on the proportion of the time that small cetaceans spend at the surface and on their viability from the air was needed.
- c) Records should be kept of marine mammal carcasses found in ghost nets and recovered as part of national collection and disposal programmes.

This Study Group also recommended that it hold a further meeting and that an ICES Workshop on the Distribution and Sources of Pathogens in Marine Mammals should be held in Cambridge from 22-26 March 1993.

The Committee endorsed these recommendations of the Study Group with minor amendments.

Harp and Hooded Seals

Mr F. Kapel presented the report of the Joint ICES/NAFO Working Group on Harp and Hooded Seals, Copenhagen, 14-18 October 1991 (Doc. Assess:5). It was noted that there were unresolved problems related to methods whereby field observations and abundance estimates were made. Mr Kapel reported that a Workshop addressing these problems would be held in Archangel, Russia from 5-12 October 1992.

Mass Mortality of Marine Mammals

Dr O. Stenman informed the Committee that high numbers of dead ringed seals had been recorded in the Gulf of Finland during winter 1991/1992 and spring 1992. *Post mortem* examinations had not yet revealed the cause of death. Any further development of mass mortality of ringed seals would be closely monitored in Finland.

Joint NAFO/ICES Symposium on the Role of Marine Mammals in the Ecosystem

The Northwest Atlantic Fisheries Organization (NAFO) had announced a Symposium on "The Role of Marine Mammals in the Ecosystem" to be held from 6-8 Sep-

tember 1995 in Dartmouth, NS, Canada. ICES had received a request to provide support for this Symposium by appointing a Co-Convenor.

The Committee expressed its interest in ecological studies and the ongoing process within ICES to develop new terms of reference for providing advice in a multi-species context (Doc. Assess:20). The Committee recommended that ICES join with NAFO in organizing and carrying out the above-mentioned scientific Symposium addressing the role of marine mammals in exploited ecosystems. Under the assumption that specific terms of reference for the Symposium had not yet been developed, the Committee suggested the following items for purposes of discussion:

- 1) identify environmental, spatial, and temporal aspects of ecological processes in the North Atlantic of importance to marine mammals and the ecosystems in which they occur;
- 2) identify evidence for changes in these processes of significance to marine mammals and their prey and competitors;
- 3) identify conceptual models to describe the effects of these changes, and evaluate the information available or required to implement such models;
- 4) define research needs to further our understanding of marine mammals in their ecosystem, including theoretical developments, assembly of existing data, collection of new data, construction of integrative data bases, and data analysis.

The Committee proposed that Mr J. Sigurjónsson be nominated as the ICES Co-Convenor of the Symposium.

Future Interdisciplinary Research

The Committee noted the ongoing and proposed research in ICES Member Countries on the distribution and ecological role of large marine predators (Iceland:

Doc. N:24; Norway: Docs. N:5, N:8, and N:19; UK: Doc. N:16; and USA: Docs. N:12 and N:23). The Committee also noted the interest in cooperation among organizations on further advances in this research. Relevant organizations for cooperation in the ICES area may be ICCAT, IWC, NAFO, and NAMMCO.

The Committee encouraged the further development of inter-organizational cooperation and international multi-disciplinary work, and made special reference to the proposed research programme on "The Distribution and Ecological Role of Large Marine Predators in the North Temperate Atlantic" presented in Doc. N:23.

Committee Recommendations

- 1) The Study Group on Seals and Small Cetaceans in European Seas should meet in 1993.
- 2) An ICES Workshop on the Distribution and Sources of Pathogens in Marine Mammals should be held in 1993.
- 3) International cooperation on a transboundary sighting survey of small cetaceans in the North Sea should be supported.
- 4) A joint ICES/NAFO Symposium on the Role of Marine Mammals in the Ecosystem should be held in 1995.

Scientific Contributions

Population studies, abundance, distribution, and strandings: Docs. N:7, N:9, N:10, N:11, N:12, N:13, N:14 (not presented), N:16 (Poster), N:18, and N:21.

Ecology, foraging behaviour, and parasites: Docs. N:5, N:8, N:15, N:19, N:20 (Theme Session O), N:22 (Poster), N:23, and N:24.

Pollution and incidental mortality: Docs. N:6 and N:17.

DOCUMENTS

N:1	Report of Activities, 1991
N:2	Publications of interest to the Marine Mammals Committee, 1991
N:3	Report of the Study Group on Pilot Whales, Montreal, 3-4 December 1991
N:4	ICES Study Group on Seals and Small Cetaceans in Northern European Seas, Cromarty, Scotland, 2-5 March 1992

N:5	K.T. Nilssen <i>et al.</i>	Preliminary data on feeding and condition of Barents Sea harp seals (<i>Phoca groenlandica</i>) throughout the year
N:6 Ref. E	C.R. Joiris <i>et al.</i>	Do older cetaceans die from mercury contamination?
N:7	P.J.H. Reijnders <i>et al.</i>	Recolonization of the Dutch Wadden Sea by the grey seal, <i>Halichoerus grypus</i>
N:8 Ref. G+H	T. Haug <i>et al.</i>	A research proposal to evaluate the ecological importance of minke whales <i>Balaenoptera acutorostrata</i> in the Northeast Atlantic
N:9	O. Cendrero and G. Garcia-Castrillo	Variations des échouages de mammifères marins sur la côte du nord de l'Espagne entre 1981 et 1990
N:10 Ref. D	N. Øien and T. Øritsland	Using mark-recapture methods to estimate pup production of harp seals (<i>Phoca groenlandica</i>) in the Greenland Sea
N:11	T. Similä and I. Christensen	Seasonal distribution and abundance of killer whales around Lofoten and Vesterålen Islands, northern Norway
N:12 Ref. C	G.T. Waring <i>et al.</i>	Cetaceans associated with Gulf Stream features off the northeastern USA shelf
N:13	G. G-Castrillo Riesgo <i>et al.</i>	Les mammifères marins du nord de l'Espagne en 1991
N:14	G. G-Castrillo Riesgo and P. Güemes C.	The marine mammals sighted during "Cetacea-91"
N:15	P.M. Thompson <i>et al.</i>	Seasonal and between-year differences in harbour seal <i>Phoca vitulina</i> foraging activity
N:16 Poster	S. Lens and A. Lopez	Marine mammals stranded on the Galician coast (NW Spain) in 1991
N:17 Ref. B	M. Klinowska <i>et al.</i>	Progress in the development of efficient warning devices to prevent the entrapment of cetaceans (dolphins, porpoises and whales) in fishing nets
N:18	O. Stenman	La chasse aux phoques gris, l'abondance et la protection de l'espèce en Finlande dans les années 1970 et 1980
N:19	M. Olsen and A. Bjørge	Diet of the harbour seal, <i>Phoca vitulina</i> , in the Hvaler area in 1990 and 1991, compared to the abundance of fish in the area
N:20 Sess. O	T. Jensen and K. Andersen	The sculpin (<i>Myoxocephalus scorpius</i>) as an intermediate host and transmitter of the seal worm in two areas from the Norwegian coast
N:21	D. Bloch and L. Lastein	Biometrical segregation of long-finned pilot whales off eastern and western North Atlantic
N:22 Ref. G Poster	S. des Clers <i>et al.</i>	Interactions between common seals and local fish populations in the Hvaler area, Oslofjord
N:23 Ref. H	T. Smith and J.G. Casey	The distribution and ecological role of large marine predators in the north temperate Atlantic: A proposal for coordinated study

N:24	J. Sigurjónsson and G.A. Vikingson	Investigations on the ecological role of cetaceans in Icelandic and adjacent waters
Assess:5		
Ref. N		Report of the Joint ICES/NAFO Working Group on Harp and Hooded Seals, Copenhagen, 14-18 October 1991

REPORTS OF MINI-SYMPOSIUM AND THEME SESSIONS

MINI-SYMPOSIUM ON ECOSYSTEM MODELLING AS A TOOL TO PREDICT POLLUTION-ASSOCIATED RISKS FOR THE MARINE ENVIRONMENT

Convener and Rapporteur: Dr J.W. Everts

The Mini-Symposium on ecotoxicological modelling was held in accordance with a recommendation made by the Marine Environmental Quality Committee in 1990 and can be seen as a follow-up of the successful Mini-Symposium on "Models of Recruitment Processes Relevant to the Formulation of Research Strategies" held in 1991.

The Convener opened the Mini-Symposium with a short introduction on pitfalls for modellers and their clients. Although the results may look beautiful, models often fail to give the information the client needed or (which was more serious) they may only be accurate for the specific situation in which they had been developed. This was illustrated with a few examples. It was also indicated that in the ideal situation, modelling was used as a tool to predict the field situation. Predictions should be validated in the field as often as needed until a satisfactory predictability could be acquired. In practice, however, this was seldom done either because the prediction concerned an extrapolation over time and space which could not be validated for practical reasons or the client was content to have a poorly validated (cheap) model.

Dr W. Silvert (Doc. Mini:4) highlighted the care decision makers should take in using a single model which covered extreme environmental pollution problems such as offshore oil exploitation and fish farming in estuaries. He indicated that a flexible system of many models each applicable for a specific situation should be propagated using a decision support system. Such a system had been developed for managing pollution risks from aquaculture. An important feature of the system was that it could be understood by its users no matter how complex the problem it described.

Dr J. Everts (Doc. Mini:5) presented a simple model to predict the risk of a complex system: that of bioaccumulation in top predators. The model was a further refinement of a risk assessment technique used in the Netherlands to derive chemical quality criteria for surface water and soil. The latter was based on the application of a probabilistic correction factor for laboratory-based toxicity data from representatives of different taxonomic groups (algae, invertebrates, fish). The method accepted a small hypothetical risk for 5% of the species. In order to assure that animals of high concern, such as fish-eating birds and mammals did not belong to the not-fully-protected group, the author had developed an extra correction factor for the bioaccumulation of chemicals

through the food web. For a few persistent and highly accumulating chemicals, the results of its application showed a substantial reduction in the resulting quality criteria.

Mr J. Schobben (Doc. Mini:6) showed how this approach may be integrated into a considerably more complex model: the AMOEBA. The latter was a combination of environmental indicator variables, each of which was a key representative of a specific ecosystem compartment. In modelling the anthropogenic factors that affected the indicators decision makers may be able to select the measurements that were most effective and relevant in political terms. The full set of indicating state parameters presented in a rosette visualized all political tools directly connected to an improvement in the environment. An example was given for the effect of chemical pollutants. The author also presented a technique he developed for the assessment of the risk of a given concentration for the species in an ecosystem compartment. Upon questions from the audience, he stressed that the same technique could be applied for an anthropogenic disturbing factor and that natural (background) fluctuations were taken into account. Doubt was also expressed about the validity of the undisturbed reference: the 1930 situation. Schobben indicated that whenever possible, an actually existing reference would be used. For many parameters, however, such references did not exist. In that case, historical data would have to be relied upon.

This was illustrated by Mr M. Scholten (Doc. Mini:3) who presented the full model instrumentarium into which AMOEBA would be integrated. It consisted of an ecological (REFLEX), a toxicological (REFECT), and a biological (REFOOD) sub-model, each of which would be fed by its specific data base (MARIECOL, MARI-TOX, and MARIBIOL), respectively. In using frequency distributions of the variables involved, the authors chose a probabilistic approach. Although the model provided tools to integrate the effect of human impact in general, the examples given were limited to effects of chemicals. It should be noted that the model was directed towards AMOEBA variables, i.e., species. Requiring a thorough autecological knowledge, this implied a different approach than the one presented by Dr Everts.

The second part of the Mini-Symposium was opened by Mr U. Hommen (Doc. Mini:10) who presented three models: one using individual data to predict interactions

in laboratory microcosms; the second a compartment model for the analysis of outdoor microcosms, and the third a model which predicted effects of toxicants in natural lakes. The microcosm model concerned the interaction between three species, an alga and two branchiopod grazers. Although the author showed some reserve towards the results, the model gave a more-than-fair prediction of the medium-term (50 days) dynamics of the system after exposure to a contaminant. The model was fully deterministic, extrapolating population dynamics from properties of individuals, measured in the laboratory. A different approach was used for a more complex system, an outdoor microcosm consisting of five zooplankton species and phytoplankton (total). The authors used a compartment model with the species, total phytoplankton, and nutrients as the state variables, driven by light, temperature, and concentration of toxicant. The dynamics observed corresponded well with the simulation. Finally, Mr Hommen presented a model for wild pelagic communities, using Monte Carlo simulation, defining threshold values for state variables of the system. This allowed for a risk assessment (in which risk = probability of reaching a threshold). The simulation could also be followed by a regression analysis indicating the steering variables of the system. Because validation (specifically of the effects of toxicants) of such a model was practically impossible, the author doubted whether sufficiently predictable models for the response of natural ecosystems to toxicants would ever be obtained.

Mr M. de Vries (Doc. Mini:8) presented a more optimistic view. The author had developed a model to predict bioaccumulation of a toxicant (in his example PCB-153) in a natural water-based food web. The model was composed of a carbon flux model and a bioaccumulation model. The former quantified a food web structure, while the latter described the pathway of contaminants through this food web. The model showed that "accumulation levels in the food web were related to bottom quality and chemical characteristics of contaminants and could be expected to decrease if sediment quality was improved". Because this conclusion could have been derived without using the quite complicated model, it was wondered whether the model provided a useful instrument for managers.

Dr A. Ross (Doc. Mini:7) presented the process of the development of a strategic simulation model into a

quantitatively testable model for the assessment of the effects of enrichment on sea loch ecosystems. The authors concluded that the ecosystems they described (sea lochs) appeared to be highly sensitive to factors that effected the planktonic grazer's activity. It should be stressed that this was an example of a conclusion that may be of primary importance for ecotoxicological risk assessment. Instead of combining data on all possible effects of a toxicant in a complex ecosystem into a model that was extremely difficult to validate, the knowledge of such key processors would direct the modeller to not only the compounds that had a potential to disturb this process, but also to variables which could be used to validate his predictions. If Dr Ross's conclusion that "the total primary production is controlled for most of the year by grazing pressure, which in turn is modified by carnivory" holds for other (specifically the more turbid) marine waters as well, the implications for further research on primary production would be important.

Ms C. Lindblad (Doc. Mini:1) showed that a simulation using detailed knowledge about processes within a community may lead to far-reaching conclusions. For the *Festuca versicosus* community, she described that an exposure to a toxicant would, according to the model, give rise to considerable losses in Fucus biomass, after an "incubation period" of about two years. It was pointed out, however, that conclusions from a 10-year prediction based on a 10-day study, no matter how detailed, should be regarded with utmost care, because validation was practically impossible. The virtue of the model, on the other hand, was that it opened the manager's eyes to the existence of the high risks of the exposure to chemicals of an extremely valuable community.

Dr M. Reed (Doc. Mini:9) presented the Natural Resource Damage Assessment Models instrumentarium. The attractiveness of these models was two-fold. First, it translated disturbing events, such as oil spills or aquaculture, into financial terms using economical, ecological, toxicological, physicochemical, and sociological knowledge. Second, it had been proven to stand in court after a thorough scrutiny by all interested parties (environmental organizations as well as industry). Although the presentation provoked some reserve concerning its scientific base, it clearly demonstrated that even our limited knowledge of ecological and toxicological mechanisms may lead to acceptable extrapolations.

DOCUMENTS

Mini:1 C. Lindblad and U. Kautsky Modelling disturbance in Baltic shallow ecosystems

Mini:2 Withdrawn

Mini:3	M.G.Th. Scholten and H.P.M. Schobben	Probabilistic methods for ecotoxicological risk assessment
Mini:4	W. Silvert	Many risks, many models: addressing the variety of problems that pollution can cause
Mini:5	J.W. Everts <i>et al.</i>	Assessing the risk of biomagnification: a physiological approach
Mini:6	J.H.M. Schobben	Risk-analysis for the marine environment in the Netherlands
Mini:7	A. Ross <i>et al.</i>	Ecosystem models of Scottish sea lochs for assessing the impact of nutrient enrichment
Mini:8	M.B. de Vries <i>et al.</i>	Foodweb analysis and bioaccumulation modelling in freshwater ecosystems
Mini:9	M. Reed and D. French	Modelling economic damages to natural resources from spills of oil and other hazardous substances
Mini:10	U. Hommen <i>et al.</i>	Simulation models to predict ecological risk of toxicants in freshwater systems

THEME SESSION ON DISEASES AND PARASITES IN WILD FISH (O)

Convener: Dr V. Dethlefsen
Rapporteur: Dr A.H. McVicar

Dr V. Dethlefsen convened the Theme Session which had its origins at the meeting of the Programme Planning Group in June 1992. The substantial number of research papers relating to parasites and diseases of wild fish being presented at the Statutory meeting and their distribution in several Committees had prompted the suggestion to group these for specialist consideration and general discussion. The Session was divided into three topic areas, namely fish diseases in relation to pollution, parasites of fish, and *Ichthyophonus* in herring. Dr A.H. McVicar was appointed Rapporteur.

Fish Diseases in Relation to Pollution

The problem of sampling design of fish disease studies, statistical analysis, and interpretation of fish disease prevalence data was discussed in Doc. E:9, which had formed the basis for discussion by the Working Group on Pathology and Diseases of Marine Organisms (WGPDMO) at its 1992 meeting. Extensive Dutch field-based and experimental mesocosm studies (Docs. E:10 and E:11) demonstrated the complexity of the relationship between disease, host, and the environment, with some diseases exhibiting good correlation with anthropogenic disturbance and others not. The results of field studies raised many questions, the answer to some of which were being sought through the experimental systems. The problems of introducing adequate controls in experimental systems for statistical analysis were noted, particularly regarding the level of contamination and particle size of control substances. Smaller scale and shorter-term experiments in England (Doc. E:35) failed to show significant disease changes in fish on contaminated sediments even though aspects of the immune system (reported elsewhere in Doc. E:14) in the same fish showed significant changes. The compounding problems of capture and confinement stress in such experiments were considerable, but difficult to solve. The value of the multidisciplinary research programme in linking biological, biochemical, and chemical approaches to environmental research (as encouraged by ICES) was also highlighted by the report (Doc. E:27) of studies in the Wadden Sea. Seven sub-project studies considered disease epidemiology, pathology including cellular mechanisms, fish biology, and environmental contamination. Results from different disciplines were not always compatible, which may be due to undetermined factors, but lysosomal stability was recommended as a useful tool for a routine monitoring programme. Discussion focused on the differences in sensitivity of methods and the need to eliminate alternative explanations for observed differences in results or

for correlations between data sets. These aspects of the WGPDMO report (Doc. F:2) relevant to wild fish disease were summarized. Problems were envisaged in pooling results from different monitoring programmes because of the difficulties in fully standardizing data.

Parasites of Fish

Changes in trends in parasitic infection and particularly increases in parasite burden and alterations in species dominance occurring in Baltic herring at the same time as significant decreases in mean weight (Doc. J:43) did not necessarily indicate a direct link between the two. The possible role of food composition, changes in the immune status of the fish, environmental components, or other unknown factors could not be determined, although capture methods did not have a significant effect. The dangers of translocating parasites by introducing live fish from other areas was stressed (Doc. M:32) by the demonstration that two Scottish salmon stocks were equally susceptible to *Gyrodactylus salaris* as were western Norwegian stocks. Differences in the degree of susceptibility in individual fish indicated genetic involvement of which by selective breeding from survivors offered hope of restocking affected waters. Because of the long-lived and non-migratory characteristics of sculpin (*Myoxocephalus scorpii*) on the Norwegian coast, this fish provided a local accumulation of seal worm and was an important source of this nematode to seals, directly by the occasional consumption of sculpins by seals or indirectly through other fish preying on sculpins.

Ichthyophonus Infection in Herring

In an *ad hoc* presentation, Dr J. Thulin (Sweden) gave information on the historical background to the special meeting on *Ichthyophonus* in herring held in Lysekil, Sweden in November 1991. Dead herring infected with the disease had been apparent in the Kattegat area, leading to media attention, industry concern, and scientific questions about the impact on herring stocks. Standardized sampling, diagnostics, and recording methods were recommended to the WGPDMO and other ICES Working Groups. Results of studies performed up to March 1992 had been included in the WGPDMO Report (Doc. F:2). Later data (Docs. F:7, H:27 and *ad hoc* information presented) showed the disease still to be present in the Western Baltic, Kattegat, some areas of the Norwegian coast, and in the northern North Sea east of Shetland, and infection, with emaciation, was reported in Estonian waters. Problems were signalled in obtaining

accurate data on the prevalence of *Ichthyophonus* in herring stocks because of overestimation in bottom trawl catches due to selective catching of diseased fish, and underestimation in commercial catches due to possible abnormal behaviour (non shoaling) of affected fish and patchiness of infection. Accurate data on disease prevalence and information on disease dynamics (the latter by an experimental approach) was essential for the calculation of disease-induced mortality in the natural population. Parallel studies, using standard stock assessment methods, had not shown evidence of significant popula-

tion decline in Western Baltic herring stocks. There was no evidence of any association of the epidemic with pollution, and the relationship with stock size and other factors should be investigated. The multidisciplinary approach involving disease and stock assessment specialists, as proposed for the second special meeting to be held in January 1993, was encouraged. Sampling of the stomach contents of the main predator species of herring could indicate whether they were selectively feeding on infected herring and thus affecting population impact assessment.

DOCUMENTS

E:9 Sess. O	A.D. Vethaak <i>et al.</i>	Notes on sampling design, statistical analysis and interpretation of fish disease prevalence data submitted to ICES
E:10 Sess. O	A.D. Vethaak	Epidemiology of diseases in flounder (<i>Platichthys flesus</i>) in Dutch coastal waters, with special reference to environmental stress factors
E:11 Sess. O	A.D. Vethaak	Large-scale mesocosm study of the effects of marine pollution on the health status of fish: general methods and <i>interim</i> report on epidemiology
E:14	A. Pulsford <i>et al.</i>	Effects of environmental stress on dab <i>Limanda limanda</i> immune system
E:27 Sess. O	W. Wahl <i>et al.</i>	Fish diseases in the Wadden Sea
E:28 Sess. O	A. Köhler and H.J. Pluta	Liver pathology and central detoxification in biotransformation systems in flounder (<i>Platichthys flesus</i> L.) in the German Wadden Sea
E:35 Sess. O	D. Bucke and P.F. Dixon	Serological and histopathological studies on fish exposed <i>in vitro</i> to contaminated harbour sludge
F:2 Sess. O		Report of the Working Group on Pathology and Diseases of Marine Organisms, Copenhagen, 2-5 March 1992
F:7 Sess. O	T. Lang	Results of macroscopical examination of the occurrence of <i>Ichthyophonus</i> spp. in herring (<i>Clupea harengus</i>)
H:27 Sess. O	B. Hjeltne and D.W. Skagen	<i>Ichthyophonus hoferi</i> disease in the herring in Norwegian waters
J:43 Sess. O	A. Turovsky <i>et al.</i>	The parasitic infestation and growth of clupeoids in the North-Eastern Baltic
M:32 Sess. O	T.A. Bakke and K. MacKenzie	Comparative susceptibility of native Scottish and Norwegian stocks of Atlantic salmon, <i>Salmo salar</i> L., to <i>Gyrodactylus salaris</i> Malmberg: laboratory experiments

THEME SESSION ON FISH GROWTH (P)

Convener: Mr T. Jakobsen
Rapporteur: Mr B. Sjöstrand

The Convener welcomed the approximately 40 participants and noted that four of the 14 papers assigned to the session had been withdrawn, i.e., nearly 30% of the contributions. This narrowed the field covered in the session.

The first paper presented (Doc. H:34) by Broekhuizen *et al.* dealt with a model of individual fish growth. The model was intended as a basis for a fish population module of the EC "European Seas Ecosystem Model" (ERSEM). In contrast to the von Bertalanffy growth equation, the model was capable of describing decreased growth owing to starvation followed by rapid increase in growth when feeding conditions were improved. It was discussed whether it was necessary that the model fish "remembered" its past states of health (degrees of starvation) before the patterns found in the data could be reproduced in the model.

Gutvik *et al.* (Doc. G:3) used discriminant function analysis (DFA) on a number of measurements of otoliths and other body parts of witch flounder. The aim of the study was to quantify and conceptualize the multiplicity of growth. It was argued that DFA provided a novel and objective tool in age validation. In the otolith-based DFA, weight measurements provided the greatest contributions to age discrimination. In the body-based DFA, the greatest discrimination was provided by skeleton weight and head length. The apparent overall misclassification of age was about 20% in both DFA approaches.

In the paper by Laevastu (Doc. G:5) it is discussed, on the basis of data from walleye pollock and Pacific cod, how size-selective fishing may effect growth rates and the consequences that could have for the fish stocks. Because faster growing fish, maturing at an earlier age, were subjected to higher spawning stress mortality, the older population of a stock would contain more slow-than fast-growing fish. Some studies indicated that late-maturing spawners produced larger eggs and faster growing larvae; thus size-selective fishing could lead to faster growing specimens in future generations. The rather short-term series of data precluded a stringent statistical testing of the hypothesis.

Ross and Nelson (Doc. G:7) had investigated the relationship between stock abundance (from trawl surveys) and mean length at age 2 and 3 in yellowtail flounder and haddock in the Georges Bank region. The correlation was highest for high levels of abundance, supporting the hypotheses that growth was most clearly density-

dependent when inter-specific competition was high. Temperature appeared to exert only a modest influence on the growth rate of these species. During the discussion, it was suggested that an alternative explanation for the observed variation in growth might have been size-selective predation.

The paper by da Silva (Doc. G:23) was given only a brief presentation since the author was not present. The MULTIFAN method was used to split length distributions of juvenile spiny dogfish into age groups. The resulting values of mean length at age were similar to those derived from direct ageing techniques.

Five papers were presented on growth in the Baltic region. The first by Baranova (Doc. J:29) dealt with cod. Length and weight of cod varied considerably between years and areas. It was concluded that growth was determined by food supply, year-class abundance, and stock size.

Growth of herring in the Gulf of Riga was investigated in the paper by Kornilovs *et al.* (Doc. J:24). A decrease in mean weight at age beginning in the mid-1980s had been observed. The decrease was seen most clearly on older herring. The authors concluded that this was because of a decrease in abundance of the largest copepod (*Limnocalanus*). In the following discussion, it was pointed out that the observed variation in mean weight at age might have been caused by variable degrees of mixing of stock components during the spawning period.

Aro *et al.* (Doc. J:4) had studied growth rates of herring in the northern Baltic based on data from research vessel surveys in 1975-1991. Mean size at age of older (4+) herring had decreased since 1984, at least in the northern Baltic proper (Sub-division 29) and the Gulf of Finland (Sub-division 32). It was suggested that reduced cod predation had been the main cause for the increase in herring stock abundance, and thus in reduced growth due to intra-specific competition.

Parmanne (Doc. J:42) analyzed changes in mean size at age in Finnish commercial catches. The observations confirmed those of Aro *et al.* showing decreased growth rates on older age groups in Sub-divisions 29 and 32. Depending on the area, herring growth correlated positively with herring catch and cod biomass, and negatively with sprat stock biomass. No significant correlations with temperature or salinity were observed.

In the final paper by Sjöstrand (Doc. J:21), it was noted that the mean size of Baltic herring had decreased substantially during the 1980s. Back-calculation of growth based on scales gave no indication of a reduction in growth rates during this period. A possible explanation was that the proportion of slow-growing herring in the stock had increased. This may have been caused by reduced predation on the northern slow-growing component of the herring stock when the cod stock declined.

In conclusion, the Convener pointed out that the contributions had covered many aspects of the growth problem. They demonstrated that reasons for observed changes in fish growth were complex and that simple relationships were rarely found. The Baltic appeared to be an interesting area for growth studies because of the low number of species in the ecosystem. Before closing the session, the Convener thanked the authors, presenters, and the participants for the interest they had shown.

DOCUMENTS

G:3 Sess. P	O.K. Gutvik <i>et al.</i>	Growth is many a splendid thing: analyses in witch flounder (<i>Glyptocephalus cynoglossus</i>), patterns and implications
G:5 Sess. P	T. Laevastu	Interactions of size-selective fishing with variations in growth rates and effects on fish stocks
G:7 Sess. P	M.R. Ross and G.A. Nelson	The influence of stock abundance and water temperature upon growth dynamics of haddock and yellowtail flounder on Georges Bank
G:23 Sess. P	H. Marques da Silva	Growth of juvenile spiny dogfish (<i>Squalus acanthias</i>) in the NW Atlantic, with particular reference to the effect of density-dependence
J:4 Sess. P	E. Aro <i>et al.</i>	Changes in the growth rate of Baltic herring. Why some specimens are starving in the northern Baltic
J:21 Sess. P	B. Sjöstrand	Changes in length at age in Baltic herring, studied by back-calculation from scales
J:24 Sess. P	G. Kornilovs <i>et al.</i>	The analysis of mean weight-at-age changes of Baltic herring in the Gulf of Riga
J:29 Sess. P+U	T. Baranova	On the growth of eastern Baltic cod
J:42 Sess. P+U	R. Parmanne	Changes in the growth of herring in the northern Baltic Sea in 1970-1991

POSTER THEME SESSION ON TECHNICAL MEASURES FOR FISHERY MANAGEMENT: THE SCIENCE BEHIND THE RULES (Q)

Convener: Mr D.N. MacLennan

The posters were on display throughout the Statutory Meeting. From 11.30 - 13.00 hrs on Friday 25 September, the authors or others familiar with the relevant work attended the posters to answer questions from viewers.

The following posters were particularly relevant to the subject matter of the Session:

B:31 "Using the twin trawl to measure cod-end selectivity" (J.H.B. Robertson). By having the experimental and small-mesh codends on the two halves of the twin trawl, the selectivity was measured without using a cover, thus avoiding any obstruction of the meshes.

B:32 "A new design of cod-end cover for mesh selection experiments" (J. Main and G. Sangster). The new cover had hoops to hold the netting away from the codend which reduced blinding of the codend meshes. Experiments with the new cover gave higher 50% retention lengths for haddock compared to the conventional cover without hoops.

B:40 "Investigation of the principles of fish behaviour underlying mesh selection" (C.W. Glass and S. Gosden). The reaction of haddock and mackerel to netting panels was studied in an aquarium tank. The mesh size was big enough to let the fish pass through, but they did not necessarily escape. The chance of the fish escaping through the mesh depended on the twine visibility and the response of the fish to feeding cues.

The following posters were of more general interest and covered many different aspects of fishery science:

K:28 Seasonality of egg-bearing shrimp (*Crangon crangon* L.) in coastal waters of the German Bight" (Th. Neudecker *et al.*). An annual cycle was observed in the number of shrimp which was minimum in September/October and maximum in the spring/summer. It was suggested that predators such as 0-group whiting were responsible for this variation.

L:30 "ECOPATH II - a system for construction of steady-state models and network analysis" (V. Christensen and D. Pauly). The ECOPATH program could be run on a PC and was freely available to potential users as public domain software.

E:47 "Development of a geographic information system for the Baltic drainage area" (E.L. Poutanen, Y. Sucksdorff, and S. Langaas). This poster described related digital data sets relevant to the study of environmental issues in the region.

L:22 "Carbon, oxygen and nitrogen metabolism of microplankton during a spring bloom in the Baltic Sea" (J. Aristegui, W. Kaiser, and M.F. Montero).

N:16 "Marine mammals stranded on the Galician coast (NW Spain) in 1991" (S. Lens and A. Lopez). Nine species of cetaceans were observed, and possible causes of mortalities were discussed.

N:22 "Interactions between common seals and local fish populations in the Hvaler area (Oslofjord)" (S. des Clers, K. Andersen, A. Bjørge, J. Prime, T. Jensen, M. Olsen, and S. Tveite). Predation on fish and population dynamics of sealworm transmission were considered.

L:24 "Estimation of mesozooplankton egestion rate using a simple device for measuring accumulative fluorescent of faecal pellets" (A. Portillo-Hahnfield, S. Hernandez-Leon, and L. Postel). Preliminary results of measurements in the Baltic Sea using copepods were given as an example.

H:15 "Acoustic survey of deep-water fish (*Coryphaenoides rupestris*, *Argentina silus*) of the Skagerrak" (O.A. Bergstad, J. Gordon, and J. Dalen). Studies of greater silver smelt (*Argentina silus*) and roundnose grenadier (*Coryphaenoides rupestris*) found at 200-700 m depth were reported.

L:23 "Measurement of Aspartate Transcarbamylase (ATC) as an index of zooplankton growth during May 1990 and May 1991 in the Baltic Sea" (C. Almeida, L. Portel, A. Portillo-Hahnfield, U. Mikkut, and S. Hernandez-Leon). Studies of three size-classes at three depths in relation to the thermocline and halocline were reported.

H:23 "Biomass assessment of the Bay of Biscay anchovy, *Engraulis encrasicolus* L., using the DEPM in 1991" (L. Motos and A. Uriarte). An estimate of the spawning stock from a survey of egg production using the DEP model was presented.

ACFM THEME SESSION ON THE FORM OF ACFM ADVICE (R)

Convenor: Mr A. Maucorps
Rapporteur: Dr R. Grainger

Opening

The Convenor opened the meeting and explained the background to this Theme Session. The ICES scientific community outside ACFM had so far not had a chance to formally comment on the new form of ACFM advice. Therefore, ACFM had suggested devoting the ACFM Theme Session entirely to this topic. ACFM did not see the new form of advice as a final protocol, but as a basis for development in the light of discussions such as those at this Theme Session.

The New Form of ACFM Advice and its Development

Dr F. Serchuk, ACFM Chairman, presented Doc. Assess:20 which reviewed the new form of ACFM advice and its historical background. He noted that ACFM had adopted a new form of advice in 1991 and that the fishery commissions had been presented with this and their comments had been invited. Most had responded favourably. ICES was now being given the opportunity to evaluate it, and he invited constructive criticism.

Dr Serchuk started by dispelling some myths. ACFM had not withdrawn from its responsibility to provide management advice. Firm recommendations would be made for stocks which were approaching or below the minimum biologically acceptable level (MBAL). This had been the case this year for cod and salmon in the Baltic Sea and for Icelandic cod. For stocks above the MBAL, the consequences and risks associated with each management option would be explained as clearly as possible. ACFM had similarly not abandoned its principle that the form of advice needed to be based on a solid foundation. The form of advice was the substance of the advice and was based on scientific principles; it should not be confused with the format of the advice which was the way in which the advice was presented.

Dr Serchuk outlined the historical development of the form of ACFM advice and the reasons behind the need to develop a new form of advice. ACFM had always recognized that it was the responsibility of managers to set management objectives. ACFM had been criticized in the past when it had tried to judge what reduction in catch would have been acceptable to managers and had consequently recommended arbitrary reductions in fishing mortality (usually of 20%). In the previous form of advice, ACFM had recognized the difficulty in selecting one option in the situation where the stock in question was well above the MBAL. In such cases, ACFM stated

a preference for one particular option, rather than make a recommendation. However, the distinction between "preferences" and "recommendations" had never been appreciated by managers.

ACFM had recently re-arranged the assessment Working Groups to facilitate the introduction of multispecies assessments. In the multispecies context, it would be even more difficult to state a preference (let alone a recommendation) for any one of a number of scenarios which allowed all stocks to remain above their MBALs.

Discussion

The Chairman noted that he planned to devote most of the discussion period to the question of whether the new form of advice was appropriate and adequate for present needs. Following that, he would also like to consider the form of advice in relation to the future needs of fishery management, such as the need for advice on the large number of stocks for which analytical assessments were not available, advice in terms of effort rather than fishing mortality, and fishing fleet management advice (rather than fish stock management advice).

One speaker expressed opposition to the fact that firm recommendations would only be made when a stock was approaching or below the MBAL. The North Sea herring was currently well above the MBAL, having recovered from a very depleted state. He attributed the successful management of that recovery to ACFM advice which had stated a single preference or recommendation for an annual TAC. He contrasted such advice with that provided this year for 1993 which presented many options (including several options for different fleet components), all of which showed similar levels of spawning stock biomass in the autumn of 1993. He asked how managers were expected to select a particular option, and he felt sure that in such a situation, the option with the highest TAC would be selected. He agreed that it was the function of managers to decide management objectives, but objectives had rarely been set, and until that was done, biologists should decide on an objective. In the past, he felt that ACFM had been too "arrogant", but with the new form of advice, he felt that the Committee had gone to the other extreme.

This view was supported by a speaker very familiar with the management of Icelandic stocks. For most Icelandic stocks and some stocks elsewhere (e.g., North Sea herring), the old form of advice had provided the basis for successful management as managers had allow-

ed biologists to determine policy. In contrast, managers had never accepted scientific recommendations for the Icelandic cod stock and had always said that there was a need to take account of economic considerations, and this had resulted in disaster. In his view, the major problem was to get managers to agree to a set policy.

One participant suggested that this could only come about through close cooperation between scientists and managers in the long term.

Another speaker saw the new form of advice as a vast improvement over the old version. He pointed out that it had been stated at several ICES Dialogue Meetings that objectives should be set by managers, not scientists. In the absence of defined objectives, ACFM had no basis to select particular options for most stocks. He believed that the new form of advice was entirely logical.

Two speakers pointed out that this was the fundamental problem with the old form of advice. It was impossible for ACFM members to agree on a single preference on a common scientific basis. Further, if the basis for a preference could not be explained, it was difficult for managers to accept it. Firm recommendations would be reserved for situations where the basis of the choice was clear, and this would give them added weight.

One speaker said that the EC Commission had no problem with the new form of advice. Concerning this year's advice for North Sea herring, he was very impressed with the options on a fleet basis and saw this as a great advance over the previous options for an aggregation of fleets. It was preferable, in his view, to have options presented with good documentation of the implications of each instead of being restricted to single "woolly" phrases in the management advice.

It was also stated that the International Baltic Sea Fishery Commission was satisfied with the new form of advice and was now making more use of the advice.

Another view was that the scientific advice generally accounted for only a very small proportion of the information used by managers in the very complex decision-making process; hence, it was not surprising that advice sometimes seemed to be ignored. He did not believe that scientists could justify constraining the whole process unless the resource was in severe danger. Further, it was unlikely that managers would ever be able to provide clear objectives because these were also obscured.

One major shortcoming in the new form of advice, which had also been encountered in the advisory process in Australia, was the absence of any operational way to include uncertainty. Uncertainty could be interpreted in a wide variety of ways depending on what the manager wanted. It was not possible to talk about risk in a one-year context; it was only useful in a multi-year context.

It was noted that many stocks had been managed fairly successfully without defined objectives. The MBAL concept was a substantial change from the previous system which had provided most advice in terms of fishing mortality. He agreed with the use of the MBAL concept, but felt that its major fault was the difficulty in determining the related state of exploitation because the MBAL could not be related to fishing mortality.

One view was that the MBAL concept provided no help with choosing long-term advice. Advice in recent years had been dominated by TAC considerations and it was time to get back to long-term advice in terms of fishing mortality, which was a more robust measure. There were only two valid reference points, F_{\max} and $F_{\text{extinction}}$.

This point was taken up by other speakers who agreed with it. It was stated that expressing advice in relation to the MBAL was a direct invitation for managers to aim for MBAL as soon as possible. The word "acceptable" could be misinterpreted in terms of exploitation. It would be preferable to define the MBAL as the level of stock at which fishing must cease. The view of these speakers was that ACFM should give direct guidance as to which options should be used by the managers.

The last point expressed was from an Australian viewpoint. Economists, industrialists, bureaucrats, and scientists all influenced managers, and the scientists were usually seen as being conservative. Scientists, however, were usually seen as the only honest ones with no vested interests and the ones with the longest memories. The best way to make the scientific arguments explicit would be to incorporate risk into the advice in a quantitative and rigorous way, but this was not easy.

Closing

The Convener thanked Dr Serchuk and all of the participants for a lively and useful debate which provided plenty of items for ACFM to consider in its continuing development of the form of advice. Time had not permitted consideration of the items relating to the future developments of the form of advice, but this could be the topic for next year's Theme Session.

DOCUMENTS

Assess:20	F. Serchuk and R. Grainger	Development of the basis and form of ICES fisheries management advice: historical background (1976-1990) and the new form of advice (1991-?)
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ACMP THEME SESSION ON ICES STRATEGY FOR ENVIRONMENTAL WORK (S)

Convener: Mr D. de G. Griffith

Rapporteur: Dr J.F. Pawlak

The Session was held on Tuesday 28 September from 09.00 - 10.30 hrs. The Convener opened the Session and noted that the following papers were relevant: Poll:8 by ACMP, Del:12 by the Chairman of the Consultative Committee, Del:15 by the Environment Secretary, Del:16 which was action on the future of ACMP agreed by the Council, and Del:17 which was the draft report of the Consultative Committee on enhancing the environmental programme of ICES and the composition of ACMP. This last-mentioned document recorded the full endorsement of Del:12 by the Consultative Committee. The Chairman stated that there had been a great deal of interest in the subject of the environmental work of ICES, and ways to enhance this work had been discussed for a long time. He expressed the wish that the meeting would catch the enthusiasm of the Delegates and others involved in this subject for carrying through the changes now agreed.

Presentations

The Chairman of ACMP, Dr G. Topping, provided an introduction to the subject. He stated that ACMP had been requested to consider the topic of enhancing the environmental work of ICES at its meeting in June 1992. In doing so, ACMP had taken a broad view of the subject, beginning with a review of the ICES Convention. Article 1(a) of the Convention specified that ICES should promote and encourage research and investigations of the sea, especially its living resources. Article 4 specified that ICES should maintain relations with other international organizations and provide scientific information and advice when requested. ACMP's paper (Poll:8) provided proposals on how ICES could shift from too much advisory work back to research. He pointed out that 1) there was a need for ICES to coordinate research and investigations on environmental topics that were of concern to all Member Countries, 2) a review should be done of the advisory work in relation to the scientific work, and 3) there should be a review of the role and position of ACMP and its Working Groups.

The Convener informed the meeting about the decisions taken by the Council the previous day with respect to the restructuring of the Advisory Committee on Marine Pollution. He noted that this topic had been discussed by the Delegates since 1988 and thus had been a considered decision. The Delegates had agreed to approach the restructuring of the ICES environmental advisory programme in two stages. The first stage was to reconstitute ACMP on the basis of national representation in a parallel manner to ACFM, which had been estab-

lished in 1977. There would be three categories of members on the new Committee which had been renamed the "Advisory Committee on the Marine Environment" (ACME). The three categories were: 1) national nominees appointed by the Council: each Member Country could nominate one member and one alternate member; 2) *ex officio* members, i.e., the Chairmen of the relevant Subject/Area Committees, which would be the same Committees that were presently represented; and 3) invited experts who would be individual scientists invited, if necessary, to attend meetings of ACME (at Council expense) which would guarantee ACME the flexibility to have the expertise to do its job. Under the second stage, the new Committee would consider its long-term perspective in terms of issues and goals, and the ways to meet them, including an identification of the Working/Study Groups which should report to ACME. The ACME proposals concerning its long-term goals and how to achieve them would be reported to the Bureau in mid-1993 for ultimate handling at the 1993 Statutory Meeting.

The Convener pointed out that these changes required a change in Rule 26^A of the ICES Rules of Procedure. He noted again that these changes were the result of a lengthy period of discussion and reflected a new way forward for the ICES environmental programme. The changes would take effect from the beginning of the next Council year (1 November 1992).

Dr J.M. Bowers presented the ACMP views on a strategy for environmental work within ICES. He pointed out that the demands from the customers had greatly exceeded the demands from ICES for scientific advice, and the number of customers had also increased. This had created an increasing amount of work for ACMP and its Working Groups, and resulted in more communication problems. He stated that a strategy for the environmental work had to be developed within ICES and, thereafter, organizational realignments would have to be made to match this strategy. A long-term strategy would serve to reinforce the role of ICES as an independent scientific body, confirm the original aim of serving all Member Countries, and increase the level of participation in ICES Working and Study Groups. He advocated that scientific advice should be at the strategic, conceptual, and generic level, and should not be detailed or area-specific.

Dr K. Richardson presented a view of the interdisciplinary issues in marine science by analogy to terrestrial science, particularly forestry/agriculture, which was

some decades ahead of marine science in terms of dealing with the issues of multiple uses of the area/resources and the effects of these uses on individual classes of biota and ecosystems. Among the effects of fishing on the environment, she noted the effects of fishing on the bottom fauna, interactions with seabirds and mammals, and the release of nutrients from the sediments by bottom gear. The coordination of studies of these effects represented an obvious niche for ICES, which should collect data on the effects of fisheries on the environment so that these effects could be quantified. ICES should serve as a non-political source of advice and information on quantifying the interactions between fisheries and the environment.

Dr T. Osborn pointed out the importance of the use of data bases in the work of ICES. The data bases operated by the ICES Secretariat represented valuable sources of information that could be used to better understand the marine environment. An example of this was an analysis of nutrient data in the Secretariat's oceanographic data bank in which a unique plot was produced to show the relationship of phosphate concentrations in the southern North Sea in 1935/1936 versus 1991. This analysis had been published in the 1992 ACMP report. He noted that ICES had the data and necessary expertise to make good use of the data bank and felt that this was an excellent commitment of resources. His second point concerned multi-disciplinary participation in the Council's scientific work, as exemplified by the work on harmful algal blooms. This work required the cooperation of scientists from a broad range of disciplines, including physical oceanography, marine biology, marine chemistry, and fish and shellfish. Finally, in terms of fisheries/environment interactions, he noted the importance of cod and climate change. This work would have to build on an oceanography/fisheries interaction and could be used to merge the two sides of ICES.

Dr V. Dethlefsen made a plea for more interdisciplinary work in ICES, and pointed out that it was important that individual scientists be willing to work with scientists from other scientific disciplines. In terms of the changes in ACMP, he felt that the Committee had not responded to changes that were happening outside ICES, particularly in the regulatory commissions to which ACMP was providing advice. These commissions had adopted the precautionary principle in their work, which specified that action could be taken to reduce inputs to the marine environment without requiring proof of effects. He felt that it would be very useful if the new ACME reviewed the precautionary principle to develop scientific means by which this concept could be applied to the protection of the marine environment.

Discussion

The relationship between ICES and the new Paris Commission was raised. One participant commented that the present relationship in the co-sponsorship of the North Sea Task Force should be avoided, because it required ICES to contribute work and also approve the final product. In reply, it was stated that, although the negotiations between ICES and the new Paris Commission were only at a very early stage, Commission representatives had indicated a preference for a relationship similar to that between ICES and the Oslo and Paris Commissions in the North Sea Task Force (but without co-sponsorship) because it had produced, from their standpoint, a more satisfactory dialogue and incorporation of scientific advice into the overall work.

In terms of the precautionary principle, one speaker admitted that this was a very difficult concept from the scientific standpoint. Nonetheless, even though ICES may formulate the very best scientific advice on the very best scientific data base, if it was not expressed in a way that was usable to the customer, it would in fact not be put into practice. Thus, without compromising the scientific quality of its advice, ACME would have to learn to express itself in such a way that the information and advice could be easily understood by the customers so that it could actually be used for management purposes. This point was also stressed by other speakers, adding that more quantification was needed in the work of the new ACME.

In a discussion of the composition of the new ACME, one speaker stated that ACME should have the expertise and competence to evaluate Working Group reports relative to their correctness and appropriateness in responding to requests from the customers. Another speaker stated that it was not the best scientists that were needed on ACME, but rather people who could turn scientific information into advice. Good experts were needed on the Working Groups because that was where the basic science was done to serve as the basis for advice.

The meeting discussed whether the advice of the new ACME should be of a generic or more regional nature. It was pointed out that advice from ACFM was, by necessity, of a regionalized and specific nature. On the environmental side, some speakers welcomed ACME taking on problems of a more generic nature that were more scientifically interesting, but others pointed out that was also necessary to give regional advice to be able to respond to the customers. This advice did not, however, need to be as specific as it had been in the past, and there should be a much greater linkage between the fisheries and the environmental issues. It was felt that ICES should be as flexible as possible regard-

ing generic versus specific advice, and consider each issue as it came.

In closing, the Convener responded to a question as to why there had been this change by stating that, within ICES itself, there had been a perceived necessity for

evolution and change. These changes in ACMP provided the evolutionary means for the further development of one important aspect of the environmental work within ICES. He thanked the participants for their valuable contributions.

DOCUMENTS

Poll:8 Sess. S		Enhancing the interdisciplinary role of ICES: Strategic considerations
Del:12 Ref. A	C.C.E. Hopkins	The future of ACMP: its role and composition
Del:15 Ref. A	Environment Officer	Enhancing the interdisciplinary role of ICES: a complementary document to C.M.1992/Del:11
Del:16		Future of ACMP - Bureau recommendation
Del:17		Extract from the draft report of the 1992 meeting of the Consultative Committee. Enhancing the interdisciplinary role of ICES

JOINT ACFM/ACMP THEME SESSION ON INTERDISCIPLINARY ADVANCES (T)

Chairman: Mr D. de G. Griffith

Rapporteur: Dr R.S. Bailey

The final Theme Session was held from 11.00 - 12.30 hrs on Tuesday 29 September. The programme contained one paper and two reports and ample time was available for discussion. The good attendance and lively discussion attested to the interest in this area of the Council's work.

The first paper, presented by Prof. R.J.H. Beverton (Doc. G:75), addressed the need to encompass concepts not traditionally considered in fishery management, including conservation issues and maintenance of biodiversity. In the light of a new UN convention in the Environment Programme and the public perception that many fishing practices were unacceptable, he stressed the need for a re-evaluation of the criteria for rational harvesting of marine resources. As a sustainable level of fishing that was compatible with conservation principles and the maintenance of diversity, he proposed that the advice given to fishery managers might be based on that level of exploitation giving 95% of the maximum (F_{95}) on a yield (as distinct from a yield-per-recruit) curve. The additional benefits of such a measure would be to obviate the need for continual fine-tuning and the precipitate and often drastic changes in TACs and effort that were the norm at present levels of exploitation.

The ideas outlined in Prof. Beverton's paper were generally welcomed as a stimulating and encouraging contribution to the formulation of scientific thinking on fisheries management. A number of other speakers also suggested that the principle of management by TACs embodied in the statement made some years ago by the United Nations Law of the Sea Conference was now outmoded and that managers generally recognized the ACFM view that other methods were required, notably direct reductions in fishing effort. The problem faced by managers, however, was not how to identify an appropriate target, but how to move away from the present position.

It was also suggested by one speaker that present levels of exploitation may not be so far away from the optimum when food-web interactions were taken into account. Along the same lines, a number of speakers returned to the need to take spawning biomass levels, as well as exploitation rates, into account when giving advice. In reply, Prof. Beverton explained that his thinking was based on the need to find a simpler way of managing resources in what was a highly complex and uncertain system. His proposal could be encapsulated in the idea that other factors, either natural or anthropogenic, would become less important if fishing intensity

were reduced. He stressed, nevertheless, that monitoring and periodic reviews would still be necessary because of the inevitability of technological drift. These reviews, however, should look at a whole range of indicators as well as simply numbers and biomass, and they should take into account the longer historic picture.

There was also discussion on how to address risk and uncertainty in giving advice. The problem raised was that estimation errors caused by measurement error and/or different methodologies could produce noise from which the real signals were difficult to discriminate.

In the discussion, it was stressed that the meaning and importance of biodiversity had not yet been adequately defined and explored. Biological diversity may include genetic as well as species diversity, but it should not be concluded that diversity was simply related to abundance. Indeed, one speaker indicated that it would be highly premature to use the concept of biodiversity in giving advice because the general experience was that recovery of diversity was often seen to occur.

The report of the Study Group on Ecosystem Effects of Fishing Activities (Doc. G:11) was presented by the Chairman, Mr H. Gislason. Since the subject matter was complex and diverse, he concentrated on the main findings and conclusions and in particular stressed the difficulties of assigning cause to the many changes that had taken place in the North Sea. The essential problem was that fisheries had effects against a background of natural variability which, in many cases, was the main forcing function. As a result, long-term predictability was poor except in the case of slow-growing components of the community. Also, in the light of the ICES multispecies modelling studies, it was clear that changes caused by man's activities could be counter-intuitive.

An important aspect of the work of this Group was the quantification of damage to the sea-bed and benthic communities. With existing scales of measurement, it was impossible to estimate precisely what proportion of the sea-bed was impacted by fishing gear. As a result, it was also impossible to determine whether fishing left natural refuges or how fish reacted to localized fishing activities. It was pointed out, however, that some species of vulnerable benthic organisms appeared to have maintained reasonable levels of abundance. In discussing this aspect, the question was put whether the Study Group would recommend the establishment of closed areas. The Chairman explained that the Study Group had concluded that the main objective of closed areas

would be to establish a platform for scientific investigation of ecosystem effects since there was no way of knowing if there would be any tangible benefits to the ecosystem in the present state of understanding. He also stressed the absolute need for proper planning if the scientific efficacy of closed areas was to be assured.

In discussing the report, it was recognized that the main objective of providing information for the next ministerial conference on the North Sea had been achieved. However, it would be premature to attempt to use it as the basis for management advice because there were still great uncertainties in the interpretation of the data and there was as yet no conceptual framework for formulating advice.

The report of the Steering Group on Fisheries/Environmental Management Objectives and Supporting Research Programmes in the Baltic Sea (Doc. J:11) was presented by the Chairman, Dr Z.S. Karnicki. Working in close collaboration with managers, ICES had been able to provide a framework for defining the scientific requirements for the restitution of the Baltic marine environment. The three phases identified were: the cleaning up/acute phase, the preventative phase, and the sustainability phase. While the monitoring requirements

for the first phase were clear, it was apparent that more research was needed before action could be taken to prevent the recurrence of the current situation. Coordinators had been appointed for each of the main research activities needed. In discussion, this report was enthusiastically received and it was stressed that ICES should not hesitate in becoming more active in taking the environment into account in giving its advice.

An important point of discussion, which was also relevant to the other papers presented, was the recognition that the effects of anthropogenic activities other than fishing may be just as great or greater than those caused by fishing activities.

From the papers presented and the ensuing discussion, there could be little doubt that public perceptions of the management of the seas were changing, and changing in such a way that a new set of values was being created to supplant the purely economic precepts that had conditioned decision-making in recent years. It should never be forgotten, however, that recognition of these new values in the management process (e.g., restitution of areas or communities affected by man's activities, or counterbalancing economic with wildlife conservation objectives) had a cost.

DOCUMENTS

G:11 Sess. T		Report of the Study Group on Ecosystem Effects of Fishing Activities, Copenhagen, 7-14 April 1992
G:75 Sess. T	R.J.H. Beverton	Rational harvesting and the conservation ethic
J:11 Sess. T		Report of the Steering Group on Fisheries/Environmental Management Objectives and Supporting Research Programmes in the Baltic Sea, Copenhagen, 1-2 June 1992

THEME SESSION ON LONG-TERM CHANGES AND MONITORING IN THE BALTIC (U)

PART 1: LONG-TERM CHANGES IN THE BALTIC SEA

Convener: Dr Z.S. Karnicki

Rapporteur: Dr A. Künitzer

Introduction

The papers presented had not been originally submitted by authors for a Theme Session, but it had been decided by the Programme Planning Group in May, because of a sufficient number of papers submitted on this topic to have a special Theme Session on "Long-Term Changes in the Baltic Sea". Apart from the report of a Steering Group, all presentations dealt with scientific investigations. The papers considered long-term changes in temperature, salinity, oxygen, nutrients, primary production, and fish growth.

Steering Group Report

The report of the Steering Group on Fisheries/Environmental Management Objectives and Supporting Research Programmes in the Baltic Sea was presented. The Steering Group, which met for the first time in June 1992, had three tasks: identify major management objectives, identify areas of inadequate scientific knowledge, and develop proposals for research programmes. Prior to the meeting of the Steering Group, ICES had asked most of the Baltic research institutes for recommendations/suggestions for future research projects to be carried out on an international level. The Steering Group had recognized that it was important to set 5-10-year research needs and had defined three time perspectives: 1) a cleaning-up/acute phase, 2) a preventative phase, and 3) a sustainability phase. Within the cleaning-up phase, unknown data produced by Russia, Estonia, Latvia, Lithuania, Poland, and the former GDR should be collected. Further, a need for more consistent sampling and measurement strategies had been identified. Major areas for the preventative phase should be fish stock management, persistent organic substances, eutrophication, and natural water inflow. Research needs in the sustainability phase, which covered the time perspective of several decades or longer, were not considered by the Steering Group. The next step in the work of the Steering Group would be the development of appropriate research programmes.

During the discussion, several comments/additions were given to the work of the Steering Group. Prof. Hempel reported on parallel activities in the European Community and strongly recommended combining both activities. The EC's DG XII and the European Science

Foundation had taken initiatives for polar and marine research and had identified the fields for future research. These had been published in a brochure entitled "The Oceans and the Poles". During the next few years, near-shore activities would be promoted. The EC intended to support research in the Baltic Sea and was waiting for proposals. A limited number of workshops would be financed. The Institut für Ostseeforschung, Warnemünde, had already applied for three workshops. Prof. Hempel asked ICES to support the EC initiative by bringing in its expertise and to avoid the development of parallel activities.

A further comment was critical of the Steering Group in that no concrete medium-term management objectives had been identified.

ICES was informed that the International Baltic Sea Fishery Commission, which was a member of the HELCOM Implementation Task Force and of which the Baltic Republics had been members since August 1992, would like to have closer cooperation with ICES in the future, including the work of the Steering Group.

The Baltic Fish Committee had already identified a research project on cod recruitment which should be investigated on an international basis.

Scientific Contributions

Doc. C:9 described the long-term variation in temperature, salinity, and oxygen in the Gdansk Deep since 1950. During the last five years, a lowering of the halocline had been observed which resulted in better oxygen conditions in the near-bottom waters.

Comments given to that paper stated that there had also been a lowering of the halocline in the Gotland Deep, and consequently oxygen conditions in the deep waters were the best since 1977. In general, the oxygen situation in the eastern Baltic was improving.

Doc. E:17 proposed the application of an oxygen deficiency index defined by the oxygen deficit between the surface layer and the bottom instead of the use of oxygen concentrations immediately above the bottom. The comparison of both methods revealed the index method as being a more sensitive tool for detecting changes.

The new index method was recommended in the discussion since values from only the bottom layer might not be representative of the oxygen conditions in the whole water column.

It was stated that an increase in oxygen occurred in the surface layer because of enhanced primary production.

Doc. C:33 gave the results of a Master's thesis on the importance of nutrient import into the Kattegat from the Skagerrak and on the role of the Jutland Coastal Current. It was suggested that the nutrient inflow from the Skagerrak was not important for the nutrient budget of the Kattegat.

During the discussion, it was mentioned that the results of the SKAGEX experiment should be included in the study. The SKAGEX experiment had showed that the Jutland Coastal Current was not flowing into the Kattegat. This current could be interrupted by upwelling and its direction then diverted into the open North Sea.

Doc. L:12 showed, on the basis of long-term investigations, that the efficiency of primary production in the southern Baltic depended on concentrations of inorganic nitrogen and also, when the thermocline was present, on temperature. A relationship with phosphates could not be observed.

During the discussion, it was mentioned that the P/N ratio might be too scattered to fit a regression line and that nitrogen was very often below the limit of detection in the summer.

Doc. J:44 related the observed increase in weight-at-age and length-at age of sprat in the northern Baltic to improving feeding conditions due to the decrease in abundance of sprat and possibly eutrophication.

A question on the relationship between sprat and cod was raised. The stock size of sprat seemed to depend on recruitment and environmental factors, not on predators.

The investigation had been carried out on 2-year-old sprat. Other age classes showed the same tendency.

It was recommended that only changes in weight instead of changes in length be investigated.

The increase of stock size in the 1950s might be explained by temperature and salinity. Eggs had to be in warm water at the right time.

The assumed density dependence in growth was criticized. A change in feeding level might be an alternative explanation for the observed results. Further, it should be taken into account that only part of the sprat population in the Baltic had been investigated. In the case of herring, the slowest-growing herring in each cohort which were formerly eaten by cod could survive during the decline of the cod stock.

Doc. J:42 described the increase in the mean weight of different age classes of herring and the change in condition factor in the northern Baltic Sea since 1970.

Recommendations

The Steering Group should continue its work and seek close collaboration with the EC and European Science Foundation which in the future may result in a joint research programme for the Baltic funded by the EC or from other sources.

Long-term changes in oxygen conditions may be identified by application of an index which was described in Doc. E:17.

PART 2: MONITORING IN THE BALTIC SEA

Convener: Dr N.P. Rühl
Rapporteur: Dr E.-L. Poutanen

The Session was held on Saturday 26 September from 11.30 - 13.00 hrs. The Convener opened the second part of the Theme Session by introducing the present status of the revision of the Baltic Monitoring Programme (BMP). He especially pointed out the decision made by the Second Meeting of the Environment Committee of the Helsinki Commission that the BMP would consist of a mandatory part, performed by all Contracting Parties, and a baseline part, where laboratories would participate according to their experience. The baseline part was aimed at being more problem-oriented and more flexible.

The Convener, furthermore, thanked ICES for having devoted this Session to Baltic monitoring in order to generate scientific ideas and proposals on priority research items, baseline studies, gaps in knowledge, etc.

Six papers were included in the Theme Session, two on baseline studies in the Baltic which were already planned and would be coordinated by ICES, two on present and future environmental monitoring programmes, and two which discussed research in connection with monitoring programmes.

The report of the Steering Group for the Coordination of the Baseline Study on Contaminants in Baltic Sea Sediments (Doc. E:3) was presented by the Chairman of the Group. The report provided the plan for the Sediment Baseline Study which would take place in 1993. The Sediment Baseline Study would aim at giving a description of the distribution of contaminants in Baltic Sea sediments and at providing time representative data which could serve as a reference point for future temporal trend monitoring. A set of primary stations, each representing a net sedimentation basin, and a set of secondary stations surrounding the primary stations had been identified. Furthermore, a selection of methods and parameters had been proposed. In this context, the Chairman stressed that, at this stage, the planning and especially the financing of the measurements of organic contaminants seemed to be extremely difficult.

In the discussion, it was pointed out that the sediment baseline study was a good example of how a "baseline" study could support the existing monitoring programme.

The report of the Working Group on the Baltic Marine Environment (Doc. E:4) was presented by the Chairman of the Group, and emphasis was placed on the future plans of the Group. In particular, a draft Study Programme on Joint Flux Studies in the Baltic Sea was introduced. The Chairman especially noted that the previous assessments prepared in the framework of the Helsinki Commission had shown that, e.g., filtering characteristics of the coastal areas were not yet made known. Furthermore, realistic data on atmospheric and land-based inputs had been missing. Due to the present political/economic situation around the Baltic Sea, a big international expedition was not being proposed, but rather that the appropriate input areas be studied, piece by piece. The Chairman also pointed out that if a serious environmental problem were to occur in the Baltic Sea, the Group was prepared to initiate a study on that.

The third paper (Doc. E:40) presented a review of the marine portion of the Swedish national monitoring programme, which was at present under review and devel-

opment. Proposed organizational changes, objectives of the revised marine monitoring programme, and the proposed programme content were highlighted. Due to difficulties in following time series, a substantial increase in the frequency of observations had been proposed.

Doc. E:38 introduced several gaps in knowledge in connection with the scientific interpretation of nutrient data from the Baltic Monitoring Programme. Most of these gaps were emphasized for the first time in the General Conclusions of the Second Periodic Assessment of the State of the Marine Environment of the Baltic Sea 1984-1988. Research needs introduced in this document were found to be relevant also for the research areas mentioned in the report of the Steering Group on Fisheries/Environmental Management Objectives and Supporting Research Programme in the Baltic (Doc. J:11).

Doc. E:44 "Research and monitoring of contaminants in the Baltic Sea - two sides of one coin?" discussed some aspects of the present state of contaminant monitoring in Baltic waters. It was stated that both the amount of available data and their quality were still inadequate to answer key questions regarding temporal trends and to make reliable mass balance estimates. It was suggested that, in order to compensate for influences in contaminant levels caused by fluctuating input patterns and changes in the biogeochemical background conditions, the sampling frequency would have to be increased. Support by research on critical processes was also needed.

The last presentation in the Theme Session (Doc. E:46) described the ongoing monitoring programmes and assessment activities within the framework of the Helsinki Commission. For the development of monitoring and assessment strategies, several points were suggested, e.g., the revised monitoring programme should move more towards biological processes and be effects-orientated, the list of parameters in the guidelines should be revised, the quality of data should be improved, and monitoring programmes for coastal waters should be elaborated.

DOCUMENTS

C:9 Sess. U	T. Wojewodzki and A. Grelowski	Long-term changes of temperature, salinity and oxygen in the Gdansk Deep
C:33 Sess. U	J. Heilmann	The fate of organically fixed nutrients off the Danish west coast - are they transported into the Kattegat?
E:3 Sess. U		Report of the Steering Group for the Coordination of the Baseline Study of Contaminants in Baltic Sea Sediments, Lysekil, Sweden, 16-17 March 1992

E:4 Sess. U		Report of the Working Group on the Baltic Marine Environment, Lys- ekil, Sweden, 18-20 March 1992
E:17 Sess. U	G. Weichert	Oxygen in the western Baltic Sea: a trend analysis
E:38 Sess. U	D. Nehring	Research in connection with the scientific interpretation of nutrient data from the Baltic Monitoring Programme
E:40 Sess. U	S. Carlberg <i>et al.</i>	Swedish marine environmental monitoring - today and tomorrow
E:44 Sess. U	L. Brüggemann	Research and monitoring of contaminants in the Baltic Sea - two sides of one coin?
E:46	J. Andruliewicz	Developing monitoring and assessment strategy in the Baltic Sea
J:11 Sess. T		Report of the Steering Group on Fisheries/Environmental Management Objectives and Supporting Research Programmes in the Baltic Sea, Copenhagen, 1-2 June 1992
J:42 Sess. P+U	R. Parmanne	Changes in the growth of herring in the northern Baltic Sea in 1970- 1991
J:44 Sess. U	R. Aps	Growth of sprat in the northern Baltic
L:12 Sess. U	H. Renk <i>et al.</i>	Some factors regulating primary production in the southern Baltic over the period of the last decade

THEME SESSION ON ENVIRONMENTAL FACTORS AND ECOLOGICAL CHANGES (V)

Convener: Dr K. Richardson

Rapporteur: Ms J. Støttrup

The Session was opened at 09.00 hrs on 25 September 1992 by the Convenor, Dr K. Richardson (Denmark). Ms J. Støttrup (Denmark) acted as Rapporteur.

The first two papers presented (Docs. E:42 and G:80) dealt with the ecology and macrofaunal abundance of the Dogger Bank in the North Sea. The uniqueness of this area with respect to both hydrography and ecology was emphasized in both presentations and in the subsequent discussion.

The report of the Study Group on the Biological Significance of Contaminants in Marine Sediments (Doc. Poll:7) was presented by the Study Group Chairman. There was a good discussion following this presentation which concerned the lack of communication/cooperation between the benthic ecologists and chemists/geochemists within the ICES community. Others emphasized that it was important to include more than benthic ecology in any analysis of ecosystem health and that the necessary long-term goal was to identify both whether or not an ecosystem was stressed and the potential stressor.

Doc. L:34 provided a natural follow-on from this discussion and dealt with the distribution of macrobenthos in an estuary and interactions between the different benthic communities.

The report of the Working Group on Environmental Assessment and Monitoring Strategies (Doc. Poll:9) was presented by the Working Group Chairman. In the discussion, it was pointed out that sampling frequency was often a limiting factor in monitoring programmes and that there may be significant benefit in incorporating ships of opportunity in monitoring programmes. With respect to the use of mathematical modelling in monitoring programmes, it was emphasized that there was a need to define the tasks to be solved by the modelling in order to be able to select the most appropriate type of model. It was pointed out that there was an informal but productive cooperation between this Working Group and the Benthic Ecology Working Group, and the question of whether or not ICES should take steps to foster communication/cooperation between the different Working Groups dealing with environmental issues was raised.

Doc. E:43 was presented by the author and dealt with cadmium concentrations in phytoplankton and zooplankton in the Arctic and North Atlantic Oceans. The author had found a significant linear relationship between cadmium concentration in the seawater and the phytoplank-

ton. In the discussion, it was suggested that the relationship may actually not be linear, but that there may be greater uptake by phytoplankton at high ambient cadmium concentrations than at low concentrations. If, in fact, this was the case, it could have serious consequences for the flow of cadmium within the food chain.

Doc. L:31 dealt with plans for studying the production of algal toxins in North Sea coastal waters. The discussion of this working plan was limited and the Chairman lamented the fact that this paper had been placed in the Theme Session rather than in the Biological Oceanography Committee where there had been another paper on algal toxins. The two papers together might have generated quite a constructive discussion.

The next paper (Doc. L:28) dealt with another aspect of algal blooms - *Phaeocystis* along the Danish west coast. The conclusion of this paper was that it may be wind rather than nutrient conditions that controlled whether or not a coastal bloom of this colonial flagellate took place. In the discussion, it was suggested that a similar mechanism (i.e., transport of a subsurface phytoplankton population to coastal regions) may be implicated in phytoplankton blooms occurring in the Skagerrak.

Doc. L:21 was presented by the first author and dealt with seasonal changes in the metabolic activity of mesozooplankton in the Baltic. In the discussion, it was suggested that such studies should be expanded to include microzooplankton, especially during the summer.

R. Sætre (Norway) presented Doc. H:16 for the authors. The paper suggested that the overwintering of herring could cause hypoxia in a fjord in Norway. In the discussion, there was surprise expressed that the herring could survive exposure to such low oxygen concentrations as measured in the study.

Doc. Poll:6, the report of the Working Group on Marine Sediments in Relation to Pollution, was presented by the Working Group Chairman. In the discussion, it was again emphasized that there was a need for more formal communication between this and other related Working Groups within ICES.

The report of the Marine Chemistry Working Group (Doc. Poll:2) was presented by Ms T. Nunes (Spain). There was considerable discussion about the problems related to the working relationship between the EC's BCR and ICES. It was lamented that there was not an

open forum within ICES where these problems could be discussed.

Doc. Poll:4, the report of the Working Group on Phytoplankton and the Management of their Effects, was briefly introduced by the Convener. There was no discussion of this report.

Doc. L:38 was presented by the first author and provided an overview of the status of the characterization of the health of large marine ecosystems. Emphasis was placed on how the health of the ecosystem could be defined.

The report of the Study Group on SKAGEX (Doc. C:1) was presented by the Chairman of the Group who made special reference to Annex 6 in the report which provided a list of the proposed papers to be produced from

SKAGEX data. L. Hernroth (Sweden) showed examples from the SKAGEX Atlas.

An observer, G. Lagzdins (Latvia) was asked to briefly present a review of the work going on at his laboratory on the distribution of the Baltic clam in the southern part of the Gulf of Riga.

Finally, Doc. Del:13, dealing with the progress in the work of the North Sea Task Force, was briefly introduced at the Theme Session. There was not sufficient time for discussion of this point. However, there was again expressed concern that there was not an open forum within ICES where North Sea Task Force activities could be discussed.

The Convenor thanked the contributors to the Theme Session and closed the meeting at 13.00 hrs.

DOCUMENTS

C:1 Sess. V		Report of the Meeting of the ICES Study Group on SKAGEX, Gdynia, Poland, 4-8 November 1991
E:42 Sess. V	I. Kröncke	The ecology of the Dogger Bank: the actual state of knowledge
E:43 Sess. V	C. Pohl	Correlations between cadmium concentrations in seawater and zooplankton organisms (Copepoda) of the Arctic and Atlantic Ocean
G:80	I. Kröncke and R. Knust	Seasonal variations in macrofaunal abundance on the Dogger Bank in relation to stomach content of dab (<i>Limanda limanda</i>)
H:16 Sess. V	A. Dommasnes <i>et al.</i>	Reduced oxygen concentrations in herring wintering areas
L:21 Sess. V	L. Postel <i>et al.</i>	Zooplankton oxygen consumption and nutrient release in relation to species composition, animals' size and environmental conditions in the Baltic Sea during May and August
L:28 Sess. V	K. Richardson and A. Christoffersen	<i>Phaeocystis</i> blooms along the Danish west coast in 1991 and 1992
L:31 Sess. V	G. Liebeszeit	Neurotoxins in North Sea coastal waters - outline of planned research
L:34 Sess. V	J.-P. Ducrotoy and B. Elkaim	Spatio-temporal changes in the distribution of macrobenthic communities in a megatidal estuary
L:38 Sess. V	K. Sherman	The changing states and health of a large marine ecosystem
Poll:2 Sess. V		Report of the Marine Chemistry Working Group, Tenerife, Canary Islands, Spain, 9-14 March 1992

Poll:4 Sess. V		Report of the Working Group on Phytoplankton and the Management of their Effects. Centre de Recherche en Ecologie Marine et Aquaculture de l'Homeau, France, 27-29 April 1992
Poll:6 Sess. V		Report of the Working Group on Marine Sediments in relation to Pollution, Copenhagen, 4-9 May 1992
Poll:7 Sess. V		Report of the Study Group on the Biological Significance of Contaminants in Marine Sediments, Copenhagen 11-14 May 1992
Poll:9 Sess. V		Report of the Working Group on Environmental Assessments and Monitoring Strategies, Halifax, Canada, 4-8 November 1991
Del:13	Environment Officer	North Sea Task Force progress report

RESOLUTIONS ADOPTED AT THE 80TH STATUTORY MEETING

RESOLUTIONS INVOLVING PUBLICATIONS

C.Res.1992/

- 1:1 The Report of the Study Group on Ecosystem Effects of Fishing Activities (Doc. C.M. 1992/G:11), edited by Mr H. Gislason (Denmark), will be published in the *ICES Cooperative Research Report* series, subject to final review by the ACME and ACFM Chairmen. The estimated number of pages is 150.
- 1:2 The report of the results of the Seventh Inter-calibration Exercise on the Analysis of Trace Metals in Biological Tissue (7/TM/BT) Part 2, edited by Dr S.S. Berman *et al.*, will be published in the *ICES Cooperative Research Report* series. The estimated number of pages is 100.
- 1:3 The report on the Assessment of Data from the Baseline Study on Contaminants in North Sea Sediments prepared by the ICES/NSTF/OSPARCOM *Ad Hoc* Working Group on Sediment Baseline Study Data Assessment (SEDMON), edited by Dr S. Rowlatt (UK) and Dr I. Davies (UK), will be published in the *ICES Cooperative Research Report* series, subject to final review by the Chairman of the Marine Environmental Quality Committee. The estimated number of pages is 200.
- 1:4 The papers presented at the Symposium on "Patchiness in the Baltic" held in Mariehamn in 1991, edited by Dr B.I. Dybern (Sweden), will be published as a set in the *ICES Cooperative Research Report* series.

- 1:5 The report on the "Chemicals Used in Mariculture" prepared by the Working Group on Environmental Impacts of Mariculture, edited by Prof. H. Rosenthal (Germany), will be published in the *ICES Cooperative Research Report* series, subject to final review by the Chairman of the Mariculture Committee. The estimated number of pages is 90.
- 1:6 The report on the "Potential for Culture of Species", edited by Dr J.E. Stewart (Canada) and Dr R.H. Cook (Canada), will be published in the *ICES Cooperative Research Report* series, subject to final review by the Chairman of the Mariculture Committee. The estimated number of pages is 70.
- 1:7 A report on Cod Life Histories, edited by Dr K. Brander (UK), will be published in the *ICES Cooperative Research Report* series, subject to final review by the Chairmen of the Biological Oceanography and Demersal Fish Committees. The estimated number of pages is 200.
- 1:8 The report of the Workshop on Salmon Assessment Methodology (Doc. C.M.1992/M:8), edited by Mr J. Browne (Ireland), will be published in the *ICES Cooperative Research Report* series, subject to final review by the Chairman of ACFM. The estimated number of pages is 80.

RESOLUTIONS INVOLVING SYMPOSIA

C.Res.1992/

- 2:1 A Symposium on "The Changes in the North Sea Ecosystem and their Causes: Århus 1975 Revisited" will be held in Århus, Denmark for 4 days in July 1995, with Prof. N. Daan (Netherlands) and Dr K. Richardson (Denmark) as Co-Conveners.
- A scientific Steering Group of 4-5 members will be established to assist the Co-Conveners in planning the Symposium. The members

will be chosen by the Co-Conveners in consultation with the Chairmen of the relevant Subject/Area Committees and the Chairman of the Consultative Committee.

- 2:2 A Symposium on "Zooplankton Production - Measurement and Role in Global Ecosystems Dynamics and Biogeochemical Cycles" will be held in Plymouth, England, UK from 15-18 August 1994, with Dr M. Reeve (USA) and Mr H.-R. Skjoldal (Norway) as Co-Conveners.

C.Res.1992/

2:2 A scientific Steering Group consisting of Dr
ctd. R. Harris (UK), Dr T. Kiørboe (Denmark),
Dr J. Gamble (UK), and Dr E.S. Poulet

(France) will be established to assist the Co-
Conveners in planning the Symposium.

IOC and SCOR will be invited to co-sponsor
the Symposium.

RESOLUTIONS INVOLVING MEETINGS OF COMMITTEES, GROUPS, AND WORKSHOPS CONCERNED MAINLY WITH INTERDISCIPLINARY SUBJECTS

C.Res.1992/

2:3 The Consultative Committee (Chairman:
Prof. C.C.E. Hopkins, Norway) will meet at
ICES Headquarters from 14-16 June 1993 at
Council expense to:

- a) approve, for the Bureau's consideration,
a draft programme of sessions for the
1993 Statutory Meeting,
- b) consider the following scientific and stra-
tegic matters related to improving the in-
terdisciplinary role of the Council and
improving the Statutory Meeting:
 - i) the remit, goals, and issues to be
handled by the Advisory Committee
on the Marine Environment and the
Advisory Committee on Fishery
Management;
 - ii) the handling of marine mammal is-
sues within the ICES structure;
 - iii) Subject/Area Committee structure;
 - iv) quality of Statutory Meeting papers;
 - v) improvements to the format and con-
duct of Statutory Meetings;
 - vi) other topics as may be decided by the
Committee.

2:4 The Study Group on Ecosystem Effects of
Fishing Activities (Chairman: Mr H. Gislason,
Denmark) will be renamed the Working
Group on Ecosystems Effects of Fishing Ac-
tivities and will work by correspondence dur-
ing 1993, with a view to meeting early in
1994, to:

- a) analyze existing data on discards and of-
fal to study temporal and spatial varia-
tions in the amounts that are produced by

different fisheries and their utilization by,
and effects on, different components of
the system;

- b) evaluate methods of assessing impacts of
groundfish fisheries on the benthic in-
fauna and epifauna with particular refer-
ence to P/B-related approaches;
- c) analyze existing survey data in terms of
appropriate summary parameters for spe-
cies assemblages, with a view to initiating
a study of biodiversity and changes in
community structure;
- d) consider the attributes that would be ap-
propriate to define indicator species for
the evaluation of long-term impacts of
fishing in order to initiate a review of
information on a variety of marine spe-
cies that meet these attributes;
- e) develop a design and planning framework
for establishing areas of appropriate size
that are closed to all fishing in order to
monitor the response of benthic commu-
nities in heavily fished areas and plan mon-
itoring activities and process studies that
could help understand the impacts of fish-
eries.

2:5

The Steering Group on Fisheries/Environmental
Management Objectives and Supporting
Research Programmes in the Baltic Sea
(Chairman: Dr Z.S. Karnicki, Poland) will
meet at ICES Headquarters from 17-18 June
1993 to develop further the proposals for
appropriate research programmes aimed at
providing the knowledge which was identified
by the Steering Group (Doc. C.M.1992/J:11)
as lacking, including detailed time schedules
and cost estimates where possible. The propo-
sals should cover the following areas:

- a) fisheries resources/management (Coordi-
nator: Mr B. Sjöstrand, Sweden);

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- 2:5 b) stable organic substances (Coordinator:
ctd. Dr R. Ferm, Sweden);
- c) eutrophication (Coordinator: Dr H.P.
Hansen, Germany);
- d) marine water inflow/exchange (Coordin-
ator: Mr H. Dahlin, Sweden).

The Coordinators should work through correspondence and/or, where possible, through occasional informal meetings to develop draft project proposals with necessary justification.

The members of the Steering Group include the Chairmen (or their designates) of the Baltic Fish, Marine Environmental Quality, Hydrography, and Biological Oceanography Committees, and ACFM and ACME, who, along with the scientific coordinators mentioned above, will attend at Council expense. The membership also includes scientific administrators who will attend at the expense of their own countries/organizations.

- 2:6 The Inter-Committee Recruitment Group (Chairman: Dr M.P. Sissenwine, USA) will meet during the 1993 Statutory Meeting at a time to be arranged by the Consultative Committee at its mid-term meeting to:

- a) review progress of the Working Group on Cod and Climate Change;
- b) consider opportunities to coordinate and enhance other research relevant to recruitment.

- 2:7 A Working Group on Cod and Climate Change will be established under the chairmanship of Dr K. Brander (UK) with expertise in biological oceanography, hydrography, and fisheries biology, and representatives of the Working Groups on Recruitment Proces-

ses and Shelf Seas Oceanography and will meet in Lowestoft, England, UK from 7-11 June 1993 to:

- a) review planning and progress of Cod and Climate Change research;
- b) taking account of Cod and Climate Change documents (Docs. C.M.1990/G:50 and C.M.1991/G:78) and ongoing planning of regional studies, identify elements that, if common to all regional studies, would serve as a unifying theme and enhance comparison;
- c) review recent advances in models of global and Atlantic climate variability, consider how results from these models might be used as boundary conditions for regional models, and plan a specialized workshop on the subject if such a workshop is necessary;
- d) examine possible ways of explicitly incorporating numerical population models of species of particular interest with spatially resolved ecosystem models, in which other species are represented by a relatively small number of aggregated functional groups;
- e) consider additional opportunities for regional studies and, if appropriate, initiate planning;
- f) make recommendations, with terms of reference, for future meetings of the Working Group and/or more specialized workshops, in order to advance the goals of the Cod and Climate Change programme.

The Working Group will report to the Inter-Committee Recruitment Group before the 1993 Statutory Meeting, with reference to the Biological Oceanography, Hydrography, and Demersal Fish Committees.

RESOLUTIONS INVOLVING MEETINGS OF COMMITTEES, GROUPS, AND WORKSHOPS CONCERNED MAINLY WITH FISHERY SUBJECTS

C.Res.1992/

- 2:8 The Advisory Committee on Fishery Management (Chairman: Dr F. Serchuk, USA) will meet at ICES Headquarters from 18-26 May

and from 26 October - 4 November 1993 at Council expense. At its May meeting, ACFM should consider its remit, goals, and issues to be handled, and report to the June 1993 meeting of the Consultative Committee.

2:8:1 The Working Group on *Nephrops* and *Pandalus* Stocks (Chairman: Dr N. Bailey, UK) will meet in Ostende, Belgium from 24 February - 4 March 1993 to:

- a) assess the status of those stocks of *Nephrops* in the ICES area where new methodology or new data justify a new assessment;
- b) identify by stock the data requirements, including biological parameters, for assessments;
- c) assess the status of stocks of *Pandalus borealis* in the North Sea, Skagerrak, and Kattegat, if possible taking account of varying predation mortality;
- d) investigate the scope for correction of effort data and the improvement of effort indices.

2:8:2 The Baltic Salmon and Trout Assessment Working Group (Chairman: Mr C. Eriksson, Sweden) will meet at ICES Headquarters from 31 March - 7 April 1993 to:

- a) review the methods and quality of the data employed for assigning catches to reared and wild stocks and, taking this into account, advise on the most appropriate procedure for assessing wild and reared Baltic salmon;
- b) resolve incompatibilities in data formats between Finnish and Swedish tagging data bases for salmon, and utilize these data bases to the greatest extent possible in the analysis of wild and reared stocks;
- c) assess the status of Baltic salmon stocks and provide catch options for 1994 within safe biological limits defined to safeguard wild Baltic salmon stocks;
- d) continue the development of models to describe the fishing interactions and stock dynamics in order to estimate the effects of management measures (including the possibility of using season- and area-disaggregated measures) on the wild and reared stocks separately;
- e) evaluate the utility of closed seasons at the beginning of the coastal fishery period

as a potential means of increasing the escapement of wild salmon stocks based on the Finnish and any other experience;

- f) compile information on the status of wild Baltic salmon stocks and describe the extent to which wild salmon are exploited in the various fisheries;
- g) compile and evaluate information on the variation in growth of Baltic salmon with time and area, and consider the effects of changes in food levels;
- h) continue to compile information on the status of sea trout and rainbow trout stocks in the Baltic;
- i) evaluate progress made by countries in introducing salmon catch recording and control systems operating in terms of numbers of fish and identify any problems, including any increase in discarding.

2:8:3 The Study Group on the North American Salmon Fisheries (Chairman: Dr P. Rago, USA) will meet in Woods Hole, MA, USA from 15-19 February 1993 to prepare the relevant data for presentation to the Working Group on North Atlantic Salmon at its meeting in March 1993.

2:8:4 The Study Group on the Norwegian Sea and Faroes Salmon Fishery will be renamed the Study Group on North-East Atlantic Salmon Fisheries (Chairman: Mr E.C.E. Potter, UK) and will meet at ICES Headquarters from 1-4 March 1993 to prepare the relevant data for presentation to the Working Group on North Atlantic Salmon at its meeting in March 1993. The national, run-reconstruction model should be re-run for the 1989 and 1990 smolt releases and a sensitivity analysis should be made.

2:8:5 The Working Group on North Atlantic Salmon (Chairman: Dr K. Friedland, USA) will meet at ICES Headquarters from 5-12 March 1993 to:

- a) with respect to Atlantic salmon in each Commission area, where relevant:
 - i) describe the events of the 1992 fisheries with respect to catches (including unreported catches), gear, effort, composition and origin of the catch

2:8:5
ctd.

- (including escapees and sea-ranched fish), and rates of exploitation;
- ii) describe the status of the stocks occurring in the Commission area, and where possible evaluate escapement against targets;
- iii) evaluate causes of the apparent reduced survival of salmon in recent years;
- iv) evaluate the by-catch and mortality of salmon in non-salmon directed fisheries;
- v) specify data deficiencies and research needs;
- b) evaluate the following management measures on the stocks and fisheries occurring in the respective Commission areas:
 - i) quota management measures and closures implemented in 1991 and 1992 in the Newfoundland and Labrador commercial salmon fisheries;
 - ii) regulations introduced into the Norwegian salmon fisheries in 1989;
 - iii) the effects of cessation of fishing activity at Faroes;
- c) with respect to the West Greenland Commission area:
 - i) describe which stocks make the greatest numerical contributions of salmon to the fishery and which stocks are most heavily exploited in the fishery;
 - ii) describe the relative importance to stocks of regulatory measures in the fishery and in homewaters;
 - iii) describe the relationship between the abundance of grilse and multi-sea-winter salmon in returns to homewaters and the effects of this on the management of the fishery;
 - iv) continue the development of a model which could be used in the setting of catch quotas in relation to stock abundance and provide worked examples with an assessment of risks relative to

the management objective of achieving adequate spawning biomass;

- v) estimate the pre-fishery abundance of non-maturing 1SW salmon at the time of the fishery;
- d) review biological indicators, if any, which would make it possible to assess trends in the abundance of salmon in the North-East Atlantic;
- e) with respect to the assessment of fisheries in each Commission area, evaluate the effects of the NASCO tag return incentive scheme;
- 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 1992.

2:8:6

The Working Group on the Assessment of Demersal Stocks in the Baltic (Chairman: Mr E. Aro, Finland) will meet at ICES Headquarters from 14-22 April 1993 to:

- a) evaluate the status of the cod stocks in the Baltic in relation to the advice given by ACFM in 1992 and identify any major changes;
- b) assess the status of and provide catch options for 1994 for the cod stock in the Kattegat and sole stocks in Division IIIa;
- c) update the description of the fisheries for demersal stocks in the Baltic Sea which was provided in 1992, including an evaluation of the impacts of the gill-net fishery;
- d) provide the data requested by the Working Group on Multispecies Assessments of Baltic Fish;
- e) perform assessments on as many flatfish stocks in the Baltic as is practicable with the available data, providing information in particular on the state of the flounder stocks, and initiate an evaluation of discard rates;
- f) evaluate the biological basis for the existing minimum legal mesh sizes for trawls and gill-nets and minimum legal landing sizes for flatfish in the Baltic, and advise

2:8:6
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on any appropriate modifications necessary to optimize the exploitation of flounder and to keep discarding to a minimum;

- g) advise on the implications for optimal exploitation of the cod stocks in the Baltic resulting from the transfer of fishing effort from trawling to bottom-set gill-netting;
- h) finalize plans for an investigation of the bottom-set gill-net fishery in the Baltic and the impact of lost bottom-set gill-nets on fish stocks, coordinate the research, and report on any results available.

2:8:7 The Herring Assessment Working Group for the Area South of 62°N (Chairman: Mr O. Hagström, Sweden) will meet at ICES Headquarters from 22 March - 2 April 1993 to:

- a) assess the status of and provide catch options (by fleet where possible) for 1994 and, where appropriate, 1995 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), and the herring stocks in Division VIa and Sub-area VII;
- b) assess the status of the sprat stocks in Sub-area IV and Divisions IIIa and VIIId,e;
- c) consider the Report of the Planning Group for Herring Surveys;
- d) provide data to the Working Group on the Assessment of Pelagic Stocks in the Baltic on the stock composition of herring catches in Division IIIa and adjacent areas of Sub-area IV in 1992;
- e) provide the data requested by the Multispecies Assessment Working Group;
- f) provide information on the sprat stocks, their age structure, their stock distributions, and their fisheries on an ICES standard rectangle basis, in order to allow the Working Group on Ecosystems Effects of Fishing Activities to evaluate the quantitative effects of industrial fisheries on the ecosystem.

2:8:8

The Working Group on Assessment of Pelagic Stocks in the Baltic (Chairman: Dr O. Rechlin, Germany) will meet at ICES Headquarters from 20-28 April 1992 to:

- a) assess the status of and provide catch options for 1994, and where possible for 1995, for the stock of spring-spawning herring in Division IIIa and Sub-divisions 22-24, and the stocks of herring in Sub-divisions 25-32 and sprat in Sub-divisions 22-32;
- b) provide the information requested by the Working Group on Multispecies Assessment of Baltic Fish;
- c) provide a description of by-catches of cod and young herring in the trawl fishery for sprat and the by-catch of cod in the trawl fishery for herring in the Baltic Sea, and, where data are lacking, plan how the data should be collected.

2:8:9

The Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine, and Anchovy (Chairman: Mr A. Eltink, Netherlands) will meet at ICES Headquarters from 22 June - 2 July 1993 to:

- a) assess the status of and provide catch options for 1994, and where possible for 1995, for the stocks of mackerel and horse mackerel in Sub-areas II-IX (defining stocks as appropriate), the sardine stock in Divisions VIIIc and IXa, and the anchovy stock in Sub-area VIII and Division IXa;
- b) provide data requested by the Multispecies Assessment Working Group.

2:8:10

The North-Western Working Group (Chairman: Dr S. Schopka, Iceland) will meet at ICES Headquarters from 3-11 May 1993 to:

- a) assess the status of and provide catch options for 1993 for East and West Greenland cod and for 1994 for Icelandic cod;
- b) assess the status of and provide catch options for 1994 and 1995 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;

2:8:10 ctd. c) describe as far as possible the technical and biological interactions and evaluate the likely effects;

d) update the information provided in 1992 on the stock identity, migration, spawning areas, and state of exploitation of the oceanic stock of *Sebastes mentella*, especially paying attention to the question of assessment based on acoustic and catch data representing the total exploitable stock taking into account the latest survey data;

e) describe, as far as possible, the fishery in waters beyond coastal state jurisdiction in ICES Sub-areas XII, especially catch statistics by species, fleet, and gear.

2:8:11 The Working Group on Multispecies Assessment of Baltic Fish (Chairman: Mr B. Sjöstrand, Sweden) will meet at ICES Headquarters from 17-26 August 1993 to:

a) continue to develop the MSVPAs for Sub-divisions 22-24 and 25-32 taking into account the comments from the Working Group on the Assessment of Pelagic Stocks in the Baltic, the Working Group on the Assessment of Demersal Stocks in the Baltic, and the Multispecies Assessment Working Group;

b) prepare the models and data for use in routine assessments;

c) rectify problems concerning the input data which were identified in the 1992 Working Group report;

d) evaluate the information on herring and sprat predation on cod eggs and larvae and the effects of cod predation and other factors on weights-at-age for herring, and describe the implications of incorporating these in the MSVPAs.

2:8:12 The Blue Whiting Assessment Working Group (Chairman: Mr J.A. Jacobsen, Faroe Islands) will meet in Tórshavn, Faroe Islands from 8-14 September 1993 to:

a) assess the status of and provide catch options for 1994 and 1995 for the Northern blue whiting stock;

b) update the information on spatial and temporal distributions of the stock and the fisheries on the Northern blue whiting;

c) try to resolve the biological problems which have hampered assessments, particularly of the Southern blue whiting stock;

d) prepare for transfer of the Group's work to area-based Working Groups.

2:8:13 The Arctic Fisheries Working Group (Chairman: Mr K. Sunnanå, Norway) will meet at ICES Headquarters from 24 August - 2 September 1993 to assess the status of and provide catch options for 1994 for the stocks of cod, haddock, saithe, redfish, and Greenland halibut in Sub-areas I and II, taking account of biological interactions between cod and capelin as far as possible.

2:8:14 The Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak (Chairman: Dr R.M. Cook, UK) will meet at ICES Headquarters from 7-15 October 1993 to:

a) assess the status of and provide catch options for 1994 for the stocks of cod, haddock, whiting, saithe, sole, and plaice in Sub-area IV, Division IIIa (excluding sole in Division IIIa and cod in the Kattegat), and Division VIIId (excluding haddock and saithe), taking into account as far as possible the technical interactions among the stocks due to the mixed-species fisheries;

b) provide data requested by the Multispecies Assessment Working Group.

2:8:15 The Working Group on the Assessment of Northern Shelf Demersal Stocks (Chairman: Mr P.A. Kunzlik, UK) will meet in Aberdeen, Scotland, UK from 22 June - 1 July 1993 to:

a) assess the status of and provide catch options for 1994 for the stocks of cod, haddock, whiting, saithe, megrim, and anglerfish in Sub-area VI, and cod, whiting, plaice, and sole in Division VIIa;

b) continue to compile the data necessary for assessing the stocks of blue ling, ling, and tusk in Sub-areas V, VI, and XIV.

2:8:16 The Working Group on the Assessment of Southern Shelf Demersal Stocks (Chairman: Mr B. Mesnil, France) will meet at ICES Headquarters from 6-15 September 1993 to:

- a) assess the status of and provide catch options for 1994, and if appropriate 1995, 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 possibilities and advise on 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) if possible, evaluate options for technical measures appropriate to the fisheries taking into account technical interactions between the component fleets and species.

2:8:17 The Industrial Fisheries Working Group will be renamed the Working Group on the Assessment of Norway Pout and Sandeel (Chairman: Mr D.W. Skagen, Norway) and will meet at ICES Headquarters from 6-12 October 1993 to:

- a) update the description of the historical development of the fleet units exploiting Norway pout and sandeel and the catches of these species and the by-catch species;
- b) quantify the species composition of by-catches taken in the fisheries for Norway pout and sandeel in the North Sea and adjacent waters;
- c) resolve the age compositions of the 1990 catches to allow the time series of catch-at-age data to be maintained;
- d) assess the status of Norway pout and sandeel in Sub-area IV and Divisions IIIa and VIa and advise on the need for any management measures, taking into account the outcome of the meeting of the Working Group on Methods of Fish Stock Assessment;
- e) provide the data requested by the Multispecies Assessment Working Group;

f) provide information on the industrial fish stocks (Norway pout and sandeel), their age structures, their stock distributions, and their fisheries on an ICES statistical rectangle basis, in order to allow the Working Group on Ecosystems Effects of Fishing Activities to quantitatively evaluate the effects of industrial fisheries in the ecosystem;

g) prepare for the transfer of the Group's work to area-based Working Groups in 1994.

2:8:18 The Atlanto-Scandian Herring and Capelin Working Group (Chairman: Mr H.í Jákupstovu, Faroe Islands) will meet at ICES Headquarters from 18-22 October 1993 to:

- a) assess the status of and provide catch options for 1994 and 1995 for the Norwegian spring-spawning herring stock, and review the status of the Icelandic summer-spawning herring stock;
- b) provide any new information on the present spatial and temporal distribution of Norwegian spring-spawning herring;
- c) assess the status of capelin in Sub-areas V and XIV and provide catch options for the winter 1993/1994 and summer/autumn 1994 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 1993/1994 and summer/autumn 1994 seasons;
- e) further consider how biological interactions can be incorporated into the assessments of capelin, herring, and cod stocks.

2:8:19 The Multispecies Assessment Working Group (Chairman: Dr J. Rice, Canada) will meet at ICES Headquarters from 23 November - 2 December 1993 to:

- a) continue the development of multispecies methods of assessment, and report on progress in development, testing, and distribution of updated software for multispecies, multi-fleet assessments;
- b) integrate the results of the 1991 Stomach Sampling Program and produce an updated MSVPA for the North Sea, including

2:8:19 further testing of the assumption of constant suitability;

- c) evaluate the statistical properties of stomach sampling schemes, and continue the statistical analysis of feeding data;
- d) initiate data preparation and model construction to apply retrospective multispecies assessment techniques to boreal systems, including variable predator growth and spatial overlap in predators and prey.

2:8:20 A Planning Group for the Development of Multispecies, Multifleet Assessment Tools will be established under the chairmanship of Mr P. Sparre (Denmark), with membership including selected members of the Multispecies Assessment Working Group, the Working Group on Long-Term Management Measures, and area-based assessment Working Groups, and will meet at ICES Headquarters from 29 January - 1 February 1993 to:

- a) plan and coordinate the development of new software packages to extend multispecies, multifleet assessment tools to area-based assessment Working Groups in "user-friendly" form;
- b) recommend appropriate fleet definitions, data formats, and analysis software to allow consistent catch and effort analysis for stocks which are the responsibility of area-based Working Groups;
- c) report to the Working Group on Methods of Fish Stock Assessment, the Multispecies Assessment Working Group, and the area-based Working Groups.

2:8:21 The Working Group on Methods of Fish Stock Assessment (Chairman: Dr G. Stefánsson, Iceland) will meet from 3-10 February 1993 at ICES Headquarters to:

- a) investigate the use of risk analysis, especially how it might be useful in addressing the definition of safe biological limits;
- b) investigate alternative assessment methods for short-lived species and advise on their usefulness;
- c) investigate the appropriate use of shrinkage in tuning and advise how it should be

implemented for assessment Working Groups;

- d) investigate, using retrospective analyses, which regression methods are most appropriate for recruitment estimation, with particular reference to North Sea herring and Icelandic capelin, and advise on how these recruitment estimates should be brought forward into the predictions;
- e) review the reports of the Workshop on the Analysis of Trawl Survey Data and the Planning Group for the Development of Multispecies, Multifleet Assessment Tools and indicate promising directions for future development.

2:8:22 The Working Group on Long-Term Management Measures (Chairman: Mr T.K. Stokes, UK) will meet at ICES Headquarters from 19-28 January 1993 to:

- a) consider how the data set being compiled by the STCF Working Group on Improvements of the Exploitation Pattern of North Sea Fish Stocks might be most appropriately utilized and how the data set should be expanded;
- b) advise on how the above-mentioned data set and associated models and MSVPA can be best integrated with the ICES assessment package (IFAP);
- c) consider how the economic data and economic analyses associated with the above-mentioned data set can best be maintained and developed through liaison with relevant scientific fora;
- d) review existing technical measures to reduce the level of exploitation of young fish and shellfish;
- e) consider the importance of and strategies for explicitly including spatial effects in multispecies/multifleet assessment models;
- f) consider, from a stock conservation perspective, whether technical interactions between species allow for the setting of TACs for groups of species and what complementary measures would be needed, and to what extent a constant TAC can be maintained unchanged for several years and under what assumptions;

- 2:8:22 g) consider future terms of reference for the
ctd. Working Group.

The Group will make its report available to the Working Group on Fishing Technology and Fish Behaviour.

- 2:9 The Working Group on Fishing Technology and Fish Behaviour (Chairman: Mr B. van Marlen, Netherlands) will meet in Gothenburg, Sweden from 19-20 April 1993 to:

- a) consider, in particular, the survival of fish caught by, or escaped from, fishing gear;
- b) evaluate the physical impact of fishing gear;
- c) consider and develop the conclusions of the work of the Sub-Group indicated below;
- d) consider the report of the Working Group on Long-Term Management Measures.

A Sub-Group of the Working Group under the chairmanship of Mr A.D. Wileman (Denmark) will work initially by correspondence and meet in Gothenburg, Sweden from 15-17 April 1993 to:

- a) describe information to be recorded during selectivity trials, and specify its format;
- b) review the recognized techniques for conducting selectivity experiments, including their application, advantages, and disadvantages, and make recommendations for further development and testing;
- c) review the recognized methods of analysis of selectivity data to be used for the techniques described in b) above and make recommendations for further development.

- 2:10 The Working Group on Fisheries Acoustics Science and Technology (Chairman: Mr E.J. Simmonds, UK) will meet in Gothenburg, Sweden from 21-22 April 1993 to:

- a) consider the progress in methodology in fisheries and zooplankton acoustics;

- b) review the progress of the Study Groups on Target Strength Methodology and Research Vessel Noise Measurement.

A joint session of this Working Group and the Working Group on Fishing Technology and Fish Behaviour will be held on 20 April 1993 under the chairmanship of Dr W. Karp (USA) to:

- a) consider the problems of near-bottom sampling in acoustic surveys and combined bottom trawling/acoustic surveys;
- b) consider the errors which may arise in near-bottom stock density estimates.

- 2:11 A Study Group on Target Strength Methodology will be established under the chairmanship of Mr E. Ona (Norway) and will meet in Gothenburg, Sweden on 19 April 1993 to prepare a report, with a view to publication in the *ICES Cooperative Research Report* series, on the methodology for target strength measurements with special reference to *in situ* techniques for fish and micro-nekton.

- 2:12 A Study Group on Research Vessel Noise Measurement will be established under the chairmanship of Mr R. Mitson (UK) and will meet in Gothenburg, Sweden on 19 April 1993 to specify and summarize available information on the essential noise requirements for research vessels with a view to recommending measuring procedures.

- 2:13 A Workshop on Sampling Strategies for Age and Maturity Data will be held at ICES Headquarters for 4 days in February 1994 under the chairmanship of Dr G. Stefánsson (Iceland) to:

- a) evaluate sampling strategies for age and maturity data with various levels of stratification by length (including purely random sampling), and advise on their usefulness;
- b) advise on how maturity-at-age data should be derived from length-stratified sample data;
- c) advise on the usefulness of applying smoothing to age/length keys.

- 2:14 The species coordinators for the 1991 Stomach Sampling Project (Chairman: Dr J.R.G. Hislop, UK) will meet in IJmuiden, Nether-

- 2:14 lands from 2-7 September 1993 at national expense to prepare the input data for the MSVPA for the North Sea.
- 2:15 The Study Group on Redfish Stocks (Chairman: Dr J. Magnusson, Iceland) will meet at ICES Headquarters from 12-14 May 1993 to:
- a) coordinate national research programmes on the oceanic type *Sebastes mentella* in the Irminger Sea and adjacent waters;
 - b) evaluate the results of the joint Icelandic-Russian acoustic survey conducted in 1992;
 - c) report to the Demersal Fish Committee.
- 2:16 The Study Group on Beam Trawl Surveys (Chairman: Dr R. Millner, UK) will meet in Cuxhaven, Germany from 20-22 April 1993 to:
- a) carry out a detailed evaluation of the data series;
 - b) compare the variation in catch rates of plaice and sole among years and areas;
 - c) evaluate the survey designs and prepare modifications, if necessary.
- 2:17 A Planning Group for Herring Surveys will be established under the chairmanship of Mr E.J. Simmonds (UK) to replace the Working Group on Herring Larval Surveys South of 62°N and the Planning Group for Acoustic Surveys in Sub-area IV and Division IIIa and will meet in Aberdeen, Scotland, UK from 2-5 February 1993 to:
- a) coordinate herring acoustics and larvae surveys in the North Sea and adjacent areas;
 - b) evaluate the reliability and usefulness of both survey methods;
 - c) submit a report to the Herring Assessment Working Group for the Area South of 62°N.
- 2:18 A Mackerel/Horse Mackerel Egg Production Workshop (Chairman: Mr A. Eltink, Netherlands) will meet in Aberdeen, Scotland, UK from 8-12 March 1993 to:
- a) complete the analysis of the annual egg production method applied to the western mackerel and western horse mackerel based on the 1992 egg survey data;
 - b) complete the analysis of the daily egg production method applied to the western mackerel, western horse mackerel, and southern horse mackerel based on the 1992 egg and trawl survey data;
 - c) evaluate the accuracy and precision of the estimates of the spawning stock size from both the annual and the daily egg production methods and advise on the preferred method;
 - d) prepare estimates of spawning stock size of western mackerel, western horse mackerel, and southern horse mackerel for the Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine, and Anchovy.
- 2:19 The Planning Group for Hydroacoustic Surveys in the Baltic (Chairman: Mr E. Götze, Germany) will meet at ICES Headquarters from 19-20 April 1993 to:
- a) evaluate the results of the 1992 hydroacoustic surveys and report the findings to the 1993 meeting of the Working Group on the Assessment of Pelagic Stocks in the Baltic;
 - b) finalize planning for the participating vessels and the areas to be covered by the different countries in 1993;
 - c) investigate the need for a workshop in 1994 on the hydroacoustic methodology used in the Baltic surveys.
- 2:20 A Study Group on the Biology of Baltic Flounder will be established under the chairmanship of Prof. B. Draganik (Poland) and will work by correspondence in 1993 to:
- a) provide a review of the knowledge on stock identification, migration, growth, natural mortality, and reproduction biology of Baltic flounder;
 - b) identify gaps in the knowledge which may hamper assessments, and specify research needs;

2:20 ctd. c) report to the Baltic Fish Committee in 1993.

2:21 A Study Group on the Evaluation of Baltic Fish Data will be established under the chairmanship of Dr T. Raid (Estonia) and will meet in Gdynia, Poland from 14-18 June 1993 to:

- a) identify, and if possible rectify, shortcomings in the Young Fish Survey Data Base;
- b) investigate the quality of catch statistics and biological sampling schemes used for assessment (e.g., market sampling, effort estimations, discards, survey results, and statistical methods);
- c) promote further comparative age readings.

2:22 The Study Group on Cephalopod Biology (Chairman: Dr U. Piatkowski, Germany) will be renamed the Study Group on the Life History and Assessment of Cephalopods and will meet in Dublin, Ireland from 2-5 October 1993 to:

- a) use existing biological knowledge to classify cephalopods into groups according to their life history, population dynamics, and geographical scale;
- b) make an inventory of relevant growth and assessment methods, evaluate their validity and application to species representative of the above groups, and plan future application leading to the development of harvesting strategies;
- c) review available knowledge on reproduction, distribution, and oceanography in relation to recruitment processes, and plan new research;
- d) review present inadequacies in the collection of cephalopod catch and fishery data in the ICES area, recommend necessary improvements, and explore alternative means of estimating abundance (e.g., using predator data);
- e) advise on the future orientation of ICES in respect to cephalopod studies.

2:23

The Study Group on Life Histories and Assessment Methods of *Nephrops* Stocks (Chairman: Dr N. Bailey, UK) will work by correspondence during 1993 to monitor whether its findings have been pursued by the Working Group on the Assessment of *Nephrops* and *Pandalus* Stocks, and will meet in Aberdeen, Scotland, UK for 4 days after the 1993 Statutory Meeting to:

- a) investigate other age-based assessment techniques, including alternative ways of splitting up the annual length distributions and also different computational approaches to splitting and VPA (e.g., Mohn and Savard, 1989);
- b) investigate the sensitivity of the age-based approaches to input parameter values;
- c) attempt to validate the results from age-based techniques using survey and other data;
- d) plan the development of methods of short-term forward prediction using the age-based approach;
- e) investigate the scope for correction of effort data and review whether most appropriate indices of effort are being used;
- f) report new estimates of biological input parameters which have an immediate bearing on the assessments.

2:24

The Study Group on Life Histories and Assessment Methods of *Pandalus* Stocks in the North Atlantic (Chairman: Mr S. Munch-Petersen, Denmark), having worked by correspondence in 1992, will meet in Reykjavik, Iceland from 6-11 September 1993 to:

- a) report on the status of *Pandalus* fisheries in the North Atlantic;
- b) describe the biology of *Pandalus* stocks and prepare an inventory of the biological data available for assessment purposes;
- c) report on the information available for estimating adult and recruit abundance, including the results of trawl surveys, catch-per-effort data, and stomach contents of predators;
- d) evaluate analytical and other assessment methods;

2:24 ctd. e) develop criteria and objectives for fishery management, and discuss appropriate management methods.

2:25 A Study Group on the Biology, Life History, and Assessment of *Majid* Crabs will be established under the chairmanship of Mr D. La-trouite (France) and will meet in Jersey, Channel Islands, UK from 19-21 May 1993 to:

- a) exchange and enhance knowledge of the similarities between *Majid* species with respect to stock structure, migration, growth, maturity, and natural mortality;
- b) report on available assessment methods and plan research on their application;
- c) report on existing fishery data and current and likely future management issues, and discuss biological reference points relevant to developing harvesting and management strategies;
- d) assess the scope for future international collaboration on the biology, life history, and assessment of *Majid* crabs, and recommend appropriate plans.

2:26 A Study Group on the Life History, Population Biology, and Assessment of *Crangon* will be established under the chairmanship of Dr T. Neudecker, Germany and will work by correspondence in 1993 to:

- a) exchange research experience and information on the following aspects: i) life history and population biology, ii) fishery trends, iii) recruitment variation and its causes, iv) multispecies interactions, v) fishery economics, and vi) sampling strategies;
- b) determine the future orientation of collaboration in *Crangon* within ICES in order to establish a perspective on assessing stocks and developing harvesting strategies.

2:27 A Study Group on Stock Identification Protocols for Finfish and Shellfish Stocks will be established under the chairmanship of Dr K. Friedland (USA) and will meet at ICES Headquarters from 16-19 August 1993 to:

- a) review, describe, and evaluate established methodologies to discriminate or define stocks of finfish and shellfish;
- b) describe protocols for the application of stock definition and classification data, as they may vary by species, fisheries, and life history characteristics;
- c) report to the Demersal Fish, Pelagic Fish, Baltic Fish, Anadromous and Catadromous Fish, and Shellfish Committees at the 1993 Statutory Meeting.

2:28 The Working Group on Recruitment Processes (Chairman: Dr M. Heath, UK) will work by correspondence in 1993, with a view to meeting in 1994, to:

- a) review ongoing work in connection with the cod and haddock checklist;
- b) assemble and analyze data on the data collected by Mr P. Munk (Denmark) and Mr J. Modin (Sweden) on the inter-species and inter-regional variability in growth of larval fish;
- c) critically review and refine the performance of the candidate set of growth models assembled by Dr J. Beyer (Denmark), including reference to Norwegian data on cod larvae;
- d) review progress in the development of the Beyer/Campana model of otolith growth model formation;
- e) review progress on interpreting temperature histories of larvae from otolith elemental and isotopic analysis;
- f) review results of studies examining relationships between larval size, growth, and mortality rates;
- g) consider the implications of the report of the Study Group on Methods of Spatial and Temporal Integration for the design and conduct of field investigations of recruitment processes.

A progress report on inter-sessional activities will be submitted to the 1993 Statutory Meeting.

2:29 The Study Group on Seabird/Fish Interactions (Chairman: Prof. G.L. Hunt, USA) will meet

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2:29 at ICES Headquarters from 6-10 September
ctd. 1993 to:

- a) describe and quantify the interaction between seabird, fish, and shellfish populations;
- b) document the amount, species, and age compositions of fish taken by seabirds in the North Sea, insofar as possible broken down by seasons, years, and area sub-divisions for use by the Multispecies Assessment Working Group;
- c) review the status of seabirds in relation to trophodynamics and energy budgets of marine ecosystems in the ICES area.

2:30 The Study Group on FISHBASE (Chairman: Dr R. Froese, Germany) will work by correspondence in 1993 to:

- a) identify more suitable data sets for inclusion in FISHBASE;
- b) collaborate with relevant Working Groups to produce more species synopses for the ICES area;
- c) prepare a presentation of FISHBASE for presentation at the 1993 Theme Session on "Computers in Fisheries Research".

2:31 The Study Group on Pilot Whales will be renamed the Study Group on Long-Finned Pilot Whales (Chairman to be appointed) and will meet at ICES Headquarters from 30 August - 3 September 1993 to:

- a) conduct an evaluation of the status of long-finned pilot whales in the North

Atlantic (i.e., population size and trends, population dynamics parameters), including the importance of behavioral factors and accounting for multispecies interactions;

- b) identify key information gaps and critical long-term information needs.

2:32 The Study Group on Seals and Small Cetaceans in European Seas (Chairman: Dr J. Harwood, UK) will meet in Cambridge, England, UK from 29 March - 2 April 1993 to:

- a) collate survey and sighting data and update information on the status of seals and small cetaceans in its area of responsibility;
- b) identify the problems related to obtaining reliable by-catch statistics for marine mammals from different fisheries and develop relevant standard protocols with associated reporting formats for use in these fisheries;
- c) provide information on the by-catches of marine mammals in the Baltic salmon drift-net fishery in the Baltic Sea;
- d) review information on small cetacean abundance from surveys directed at other target species, and develop a protocol for the systematic collection of cetacean sightings on such surveys;
- e) study the means of reducing or avoiding the capture of small cetaceans in fishing nets.

Fish capture specialists are invited to participate in this meeting.

RESOLUTIONS INVOLVING MEETINGS OF COMMITTEES, GROUPS, AND WORKSHOPS CONCERNED MAINLY WITH ENVIRONMENTAL SUBJECTS

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2:33 The Advisory Committee on the Marine Environment (Chairman: Dr K. Richardson, Denmark) will meet at ICES Headquarters from 1-11 June 1993 at Council expense. At this meeting, ACME should consider its remit, goals, and issues to be handled, and report to the June 1993 meeting of the Consultative Committee.

2:33:1 The Marine Chemistry Working Group (Chairman: Dr W. Cofino, Netherlands) will meet in Ottawa, Canada from 8-13 February 1993 to:

- a) report on the progress in the Fifth Inter-comparison Exercise on Nutrients in Sea Water;

2:33:1 b) report on the results of stage 3b of the chlorobiphenyl (CB) intercomparison exercise;

c) report on the results of stage 2 of the polycyclic aromatic hydrocarbon (PAH) intercomparison exercise;

d) complete planning for stage 3 of the polycyclic aromatic hydrocarbon (PAH) intercomparison exercise;

e) report on the progress in the evaluation of data held in the ICES data bank on trace metal concentrations in estuaries;

f) report on cooperative research in the field of metal speciation;

g) examine ICES/JMP (Joint Monitoring Programme) data, held in the ICES data bank, with respect to the possible relationship between trace metal concentrations and lipid content in biological tissues and prepare a report on the findings;

h) examine and report on the influence of variations in lipid concentrations on organic contaminant concentrations in tissues;

i) examine and report on the interactions of contaminants (inorganic and organic) with dissolved organic matter;

j) review the relevant sections of the WOCE Hydrographic Programme Observational Manual as a guide for procedures in the ICES area.

A representative of IOC will be invited to attend.

2:33:2 The Working Group on Marine Sediments in Relation to Pollution (Chairman: Dr S. Rowlatt, UK) will meet in Charlottenlund, Denmark from 31 March - 3 April 1993 to:

a) report on the progress in phase II of the ICES Intercomparison Exercise on the Analysis of Trace Metals in Suspended Particulate Matter;

b) finalize the technical annexes to the Joint Monitoring Group (JMG) guidelines on the use of sediments in marine monitoring

and prepare additional annexes on the interpretation of data, and survey design, taking account of advice from the Working Group on Statistical Aspects of Environmental Monitoring;

c) report on the use of lithium normalization in marine sediments in the ICES area;

d) report on the distribution of areas suitable for retrospective temporal trend monitoring in the Oslo and Paris Commissions (OSPARCOM) area;

e) report on the potential value of temporal trend monitoring in surface sediments, and the techniques involved, particularly with reference to sandy sediments in dispersive areas;

f) report on the use of sediments in national monitoring programmes;

g) report on further developments in sediment quality assessment procedures in the light of the report of the *Ad Hoc* Working Group on Monitoring on the JMG baseline sediment study;

h) produce guidelines for the use of certified reference materials in sediment studies;

i) evaluate and report on analytical methods for the determination of organic carbon in marine sediments;

j) report on the role and use of measurements of suspended particulate matter in marine monitoring programmes;

k) in conjunction with the Working Group on Biological Effects of Contaminants, discuss and prepare preliminary plans for an integrated study (possibly on the Dogger Bank) in which processes of pollutant transfer and effects will be examined, and develop a conceptual framework within which individual projects can be carried out.

2:33:3 The Working Group on Biological Effects of Contaminants (Chairman: Dr R. Addison, Canada) will meet in Charlottenlund, Denmark from 31 March - 2 April 1993 to:

a) report progress on intercomparisons of EROD measurements;

- 2:33:3 b) report on plans for the conduct of an intercomparison exercise on scope-for-growth measurements;
- c) in conjunction with the Working Group on Marine Sediments in Relation to Pollution, discuss and prepare preliminary plans for an integrated study (possibly on the Dogger Bank) in which processes of pollutant transfer and effects will be examined, and develop a conceptual framework within which individual projects can be carried out;
- d) continue the evaluation of the results of the Bremerhaven Workshop on Biological Effects Monitoring Methods and propose methods to be included in future biological effects monitoring programmes.

A representative of IOC will be invited to attend.

2:33:4 The Working Group on Marine Sediments in Relation to Pollution and the Working Group on Biological Effects of Contaminants will meet jointly under the chairmanship of Dr I. Davies (UK) in Charlottenlund, Denmark from 29-30 March 1993 to:

- a) develop a conceptual framework within which sedimentological and biological effects monitoring procedures can be coordinated and combined to provide a more comprehensive assessment of sediment quality; this work should include a review of the physical, chemical, and biological characteristics of sediments that may contribute to the interpretation of biological effects data and sediment contaminant data for assessing environmental quality;
- b) consider and report on what useful combined sedimentological and biological effects measurements should be employed to deal with the following areas: i) where little information on sediment chemistry is available, ii) where some basic information on sediment characteristics exists, and iii) where biological effects have been observed, but where chemical data are non-existent.

2:33:5 The Working Group on Environmental Assessment and Monitoring Strategies (Chairman: Mr S. Carlberg, Sweden) will meet at

ICES Headquarters from 22-26 February 1993 to:

- a) review the present NSTF Monitoring Master Plan (MMP) and the OSPAR-COM Joint Monitoring Programme (JMP) in order to give sound advice on the definition of monitoring activities to be carried out within the framework of the future Paris Commission;
- b) carry out a preliminary evaluation of Chapters 3, 4, and 5 of the sub-regional/holistic NSTF Quality Status Reports in order to identify strengths and weaknesses in the monitoring/assessment process and the information used in compiling the reports, highlight the major environmental concerns for each sub-region, and report to ACME in 1993;
- c) prepare guidelines for the evaluation of monitoring programmes;
- d) report on progress in the development of numerical models, Geographical Information Systems (GIS), and any other expert systems that are used to support monitoring, assessment, and the development of management advice;
- e) consider and report on the need for biological information (including indicators of environmental health, especially biological effects) for the preparation of environmental assessments and identify monitoring strategies to obtain this information.

2:33:6 The Working Group on Statistical Aspects of Trend Monitoring will be renamed the Working Group on Statistical Aspects of Environmental Monitoring (Chairman: Dr J.F. Uthe, Canada) and will meet at ICES Headquarters from 27-30 April 1993 to:

- a) further develop statistical aids for interpreting temporal trend data by refining current methods and their application to additional years of data on contaminants in fish muscle, fish liver, and mussels;
- b) further develop the statistical power studies, specifically to consider the power of the programme for contaminants in fish liver and mussels, extend the analysis of the fish muscle data, and contrast the ef-

2:33:6 ctd. effectiveness of using different tissue types for monitoring contaminants;

- c) review and report on the results of exploring the use of generalized additive models for combining covariate effects and non-linear temporal effects in the analysis of the temporal trend monitoring data;
- d) review and report on the use of the newly developed multivariate weighting method for the analysis of temporal trends in contaminant levels in fish tissue;
- e) review and report on the statistical analysis of phytoplankton bloom data.

2:33:7 The Working Group on Phytoplankton and the Management of their Effects (Chairman: Dr K. Jones, UK) will meet at ICES Headquarters from 28-30 April 1993 to:

- a) plan an intercomparison exercise for the proposed "standard" ^{14}C method for primary production monitoring, for use particularly in coastal areas;
- b) review existing data bases for primary production data and make detailed recommendations regarding the form that any new initiative to establish a data base should take (e.g., contact to other international organizations, types of data to be reported);
- c) review the range of algal bioassay techniques available and their applicability to environmental monitoring in coastal waters;
- d) collate national reports on harmful bloom events;
- e) meet with statisticians (from the Working Group on Statistical Aspects of Environmental Monitoring) and analyze existing data bases dealing with plankton biomass and/or activity with the aim of identifying changes over time.

A representative of IOC will be invited to attend.

2:34 The Working Group on Oceanic Hydrography (Chairman: Dr E. Buch, Denmark) will meet

in Aberdeen, Scotland, UK from 21-23 April 1993 to:

- a) review the updated list of, and results from, standard stations and sections;
- b) assess the state of oceanographic data quality and data processing, taking into account the present performance of instrumentation;
- c) prepare an overview of WOCE North Atlantic Hydrography Workshop, and review relevant ongoing hydrographic activities;
- d) synthesize the findings of an *ad hoc* group on the 1989-1991 high salinity anomaly;
- e) review progress on studies relating cod recruitment and climatic variation;
- f) consider the ICES role in planned experiments in the Eastern Boundary Current, and the North Atlantic Gyre Experiment;
- g) review the relevant sections of the WHP manual as a guide for hydrographic procedures in the ICES area.

2:35

The Working Group on Marine Data Management (Chairman: Dr L. Rickards, UK) will meet in Aberdeen, Scotland, UK from 22-24 April 1993 to:

- a) assess the state of oceanographic data quality and data processing, taking into account the present performance of instrumentation;
- b) examine oceanographic data flows in ICES Member Countries and make recommendations to improve the situation;
- c) consider ways of enhancing the utility of data archived at the ICES Service Hydrographique;
- d) review and report on available coastline and bathymetric data sets;
- e) further develop guidelines for the data management of ADCP and SeaSoar data;
- f) evaluate the utility of different software packages for data bases in oceanographic data management.

- 2:35 ctd. A joint session of this Working Group and the Working Group on Oceanic Hydrography will be held from 22-23 April 1993 to consider, in particular, term of reference a).
- 2:36 The Study Group on SKAGEX (Chairman: Dr B.I. Dybern, Sweden) will meet at a venue to be decided for 4 days in mid-1993 to:
- a) finalize the work with the computerized SKAGEX Atlas;
 - b) summarize the outcome of SKAGEX;
 - c) outline possible follow-up(s) of the SKAGEX activities.
- 2:37 The Working Group on Shelf Seas Oceanography (Chairman: Dr H. Dahlin, Sweden) will meet in Charleston, SC, USA from 10-13 February 1993 to:
- a) develop the programme for investigating the dynamics of algal blooms;
 - b) plan and propose field experiments and modelling to increase understanding of the physical/chemical factors that influence the development of algal blooms;
 - c) consider observational strategies leading to improved data evaluation and modelling validation in shelf seas research.
- A joint session of this Working Group and the Study Group on the Dynamics of Algal Blooms will be held from 10-11 February 1993.
- 2:38 The Study Group on Baltic Sea Modelling will be renamed the Study Group on Environmental Modelling of the Baltic Sea (Chairman: Dr F. Wulff, Sweden) and will meet at a venue to be decided for 3 days in spring 1993 to:
- a) determine the parameters that should be included in models that could support the work on coastal zone/open sea flux studies;
 - b) review existing environmental models of the Baltic Sea or its sub-regions;
- 2:39 A Steering Group on Quality Assurance of Chemical Measurements in the Baltic Sea will be established under the chairmanship of Dr U. Harms (Germany) and will meet in Gdynia, Poland from 16-19 March 1993 to:
- a) prepare final plans for the ICES/HELCOM Workshop on Quality Assurance of Chemical Analytical Procedures for the Baltic Monitoring Programme (Hamburg, 5-8 October 1993), including issues concerning the need for equipment and specific certified reference materials;
 - b) review and report on the existing capabilities of laboratories in the Baltic countries with regard to analyses of the types of contaminants and media to be covered in the Workshop;
 - c) review the sections of the BCR quality assurance manual in relation to the Guidelines for the Baltic Monitoring Programme and identify the relevant QA requirements for each BMP monitoring parameter.
- The Steering Group will meet with the Steering Group on Quality Assurance of Biological Measurements in the Baltic Sea during the first day of the meeting.
- 2:40 A Steering Group on Quality Assurance of Biological Measurements in the Baltic Sea will be established under the chairmanship of Dr L. Hernroth (Sweden) and will meet in Gdynia, Poland from 16-19 March 1993 to:
- a) agree on the overall aims of the Steering Group and coordinate them with those of the Steering Group on Quality Assurance of Chemical Measurements in the Baltic Sea;
 - b) draft a plan of action for the Steering Group, including the topics that should be covered, relevant activities, and a tentative timetable;
 - c) decide on ways to link the work of the Steering Group to that on the revision of the BMP Guidelines and to the relevant

2:40 working groups within HELCOM, EC,
ctd. Baltic Marine Biologists, and ICES;

- d) propose ways for funding the activities of the Steering Group.

The Steering Group will meet with the Steering Group on Quality Assurance of Chemical Measurements in the Baltic Sea during the first day of the meeting.

2:41 The Steering Group for the Coordination of a Baseline Study on Contaminants in Baltic Sediments (Chairman: Prof. M. Pertillä, Finland) will meet in Helsinki, Finland from 19-20 April 1993 (immediately preceding the meeting of the Working Group on the Baltic Marine Environment) to finalize the plans for this Baseline Study and ensure the appropriate coordination of the activities associated with this project.

2:42 The Working Group on the Baltic Marine Environment (Chairman: Dr H.-P. Hansen, Germany) will meet in Helsinki, Finland from 21-23 April 1993 to:

- a) finalize the plans for the Baseline Study of Contaminants in Baltic Sediments;
- b) review the work of the Steering Groups on Quality Assurance and draft plans for appropriate intercomparison work or other activities;
- c) review progress in the intersessional work on data collection according to the action plan (see Annex 7 of the WGBME report) and, including BMP results, attempt a first annual assessment of changes and acute events in the Baltic marine environment;
- d) revise and finalize the plans for a joint coastal zone/open sea flux study in the Gulf of Finland;
- e) develop a strategy and an action plan to detect, follow, and study major inflows of Atlantic water to the Baltic Sea area.

2:43 The Working Group on the Effects of Extraction of Marine Sediments on Fisheries (Chairman: Dr S.J. de Groot, Netherlands) will meet in St. Valery-sur-Somme, France from 12-15 May 1993 to:

- a) make recommendations regarding the content of environmental impact assessments which, according to the "Code of Practice for the Commercial Exploitation of Marine Minerals", may have to be carried out prior to extraction of such deposits;
- b) evaluate the results of environmental impact assessments related to marine aggregate extraction operations;
- c) review the status of marine aggregate extraction activities in ICES Member Countries and related environmental research;
- d) review the development of seabed resource mapping in ICES Member Countries;
- e) review the development and implementation of electronic surveillance systems ("black boxes") for monitoring the operation of dredging vessels.

The Chairman of the Benthos Ecology Working Group should attend future meetings of the Working Group on the Effects of Extraction of Marine Sediments on Fisheries to provide an exchange of information in overlapping fields of interest.

2:44 The Working Group on Introductions and Transfers of Marine Organisms (Chairman: Dr J.T. Carlton, USA) will meet in Aberdeen, Scotland, UK from 26-28 April 1993 to:

- a) consider and report on the proposed introduction of the American bay scallop (*Argopecten irradians*) to France;
- b) further consider and report on the release of the Japanese red alga *Porphyra yezoensis* on the Atlantic coast of the USA and its potential for spread into Canada and into southern waters;
- c) begin the preparation of a new *ICES Cooperative Research Report* entitled "A Code of Practice to Reduce the Risks of Adverse Effects Arising from the Introduction and Transfer of Marine Organisms: Guidelines and a Manual of Procedures";
- d) develop guidelines for research to evaluate the ecological effects of the release of

2:44
ctd.

genetically modified organisms in marine environments;

- e) consider and report on progress in ICES Member Countries on methods to reduce the risk of introductions of marine organisms in ships' ballast water and sediments;
- f) report on the current status of salmonid fish, algal, shellfish, and other introductions in and between ICES Member Countries.

2:45

The Working Group on Environmental Impacts of Mariculture will be renamed the Working Group on Environmental Interactions of Mariculture (Chairman: Prof. H. Rosenthal, Germany) to reflect a broadened interaction of mariculture with other human activities in coastal areas with extended terms of reference including:

- a) developing criteria and a standard system of monitoring and reporting;
- b) delineating the scope and nature of environmental interactions between mariculture and other uses of coastal marine sources;
- c) providing advice on approaches in such areas as improved site selection and through advances in husbandry to minimize conflicts between mariculture and other coastal zone activities;
- d) reviewing and evaluating national monitoring programs and preparing regular status reports on the impact of mariculture within ICES.

The Working Group will work by correspondence in 1993, with a view to meeting in 1994, to:

- a) update the catalogue of ongoing research programmes on environmental interaction issues related to mariculture;
- b) examine biological interactions between types of mariculture and other coastal zone issues;
- c) identify major long-term research priorities, particularly in the subject area of

resolving conflicts in use of the marine environment;

- d) assemble and compile, intersessionally, information on ongoing monitoring programmes in each country related to the assessment of the impacts and interactions of mariculture, with a view to its publication in the *ICES Cooperative Research Report* series;
- e) evaluate the potential environmental effects of new mariculture systems in ICES Member Countries;
- f) assemble and comment on the evidence for the interactions of complexed and/or particle-bound contaminants (e.g., antibiotics, antifoulants, parasiticides) from fish farms with marine flora and fauna, and the significance of these interactions within marine ecosystems;
- g) prepare guidelines on the ecotoxicological information necessary to permit assessment of the relative environmental impacts of the therapeutants.

2:46

A second Special Meeting on *Ichthyophonus* (Convener: Dr A. McVicar, UK) will be held in Aberdeen, Scotland, UK from 21-22 January 1993 to update and analyze information on the prevalence and impact of *Ichthyophonus* in different herring and other fish stocks and to estimate the extent of mortality on herring stocks.

2:47

The Working Group on Pathology and Diseases of Marine Organisms (Chairman: Dr A. McVicar, UK) will meet at ICES Headquarters from 15-18 March 1993 to:

- a) evaluate disease prevalence data in marine fish stocks and related data on contaminants in sediments as recommended by the Sub-Group indicated below;
- b) analyze national reports on new disease trends in wild fish, crustacean, and mollusc production;
- c) evaluate current research on mollusc diseases (e.g., epidemiology surveys, experimental pathology, diagnostic methods) to standardize approaches within ICES;

2:47
ctd. d) analyze national reports on new disease trends in mariculture, and provide advice on preventive control measures;

e) analyze and update information from studies in progress on disease interactions between farmed and wild fish populations.

f) analyze available data on changes in the resistance profiles of fish diseases to chemotherapeutants currently in use in mariculture, and recommend improvements in strategies for their use;

g) review available information on the efficacy of existing commercially available fish vaccines and the current status of vaccines under development;

h) consider the usefulness of the *ICES Identification Leaflets for Diseases and Parasites of Fish and Shellfish* and make recommendations on the continuation of this series and on its content.

A Sub-Group consisting of members of the Working Group on Pathology and Diseases of Marine Organisms will meet under the chairmanship of Dr J. Thulin (Sweden) at ICES Headquarters from 11-13 March 1993 to:

a) analyze disease prevalence data sets already submitted to ICES for species other than dab, including data for the Baltic area, using logistic regression analyses and histological confirmation results;

b) compare fish disease prevalence data with the results arising from the assessment of data on contaminants in sediments as far as possible.

2:48 The Working Group on Mass Rearing of Juvenile Marine Fish (Chairman: Dr B. Howell, UK) will meet in Bergen, Norway from 24-26 June 1993 to:

a) develop a protocol for standardized monitoring of egg and larval quality;

b) plan an inter-laboratory investigation of egg and larval quality;

c) prepare a protocol for hygienic procedures for rearing systems;

d) prepare a protocol for standard nutrition research;

e) prepare a report on standard inert reference diets;

f) consider the possibility of a workshop on advances in halibut culture in 1994.

2:49 The Working Group on Genetics (Chairman: Prof. W. Villwock) will meet in Älvkarleby, Sweden from 8-11 June 1993 to:

a) review and report on progress in research on biochemical markers and related techniques for species and stock discrimination (including distinguishing between wild and aquaculture species);

b) evaluate trends in advanced "gene technology", specifically:

i) genetic fingerprinting;

ii) provide a working definition of genetically modified organisms (GMO) and comment on their production, including progress of basic research and applied aspects and concerns related to possible risks to donor species and the environment;

c) review and report on development of genetic concepts for aquaculture species and environmental protection.

2:50 The Study Group on Pollution Affecting Shellfish in Aquaculture and Natural Populations (Chairman: Dr M. Héral, France) will be renamed the Study Group on Impacts Likely to Affect Shellfish in Aquaculture and Natural Populations, and will work by correspondence in 1993 to prepare for a Theme Session on this topic proposed to be held at the 1994 Statutory Meeting.

2:51 A Study Group on Methods of Spatial and Temporal Integration will be established under the chairmanship of Prof. E. Gurney (UK), and will meet in Glasgow, Scotland, UK from 14-18 June 1993 to:

a) consider and report on methods of statistically characterizing the temporal and spatial variability in populations of larval fish and their prey and predators;

2:51
ctd.

- b) consider and report on the feasibility of integrating temporally and spatially variable abundance and vital rates over population time and space scales;
- c) consider how sub-grid temporal and spatial variability in abundance and rates may be represented at the grid scale in marine ecosystem models;
- d) consider methods of determining the most appropriate temporal and spatial grid resolution for models of fish recruitment.

IOC and SCOR will be invited to co-sponsor this Study Group.

2:52

The ICES/IOC Study Group on the Dynamics of Algal Blooms (Chairman: Ms B. Reguera, Spain) will meet in Charleston, SC, USA from 8-11 February 1993 to:

- a) continue and, if possible, finalize discussions on a programme for investigating the dynamics of harmful algal blooms in the ICES area; methods to be used should be discussed and the timetables for the development of pilot studies outlined;
- b) describe algal population dynamics in relation to hydrodynamic processes;
- c) assess the utility of mesocosm experiments for the understanding of algal population dynamics;
- d) examine the cyst phase in the life histories of relevant, potentially harmful algae;
- e) coordinate work on algal blooms with the activities of the Programme of Harmful algal Blooms suggested by the Joint *Ad Hoc* IOC-FAO Intergovernmental Panel on Harmful Algal Blooms.

A joint session of this Study Group and the Working Group on Shelf Seas Oceanography will be held from 10-11 February 1993.

2:53

The Study Group on Zooplankton Production (Chairman: Mr H.-R. Skjoldal, Norway) will meet in Las Palmas, Canary Islands, Spain from 8-11 March 1993 to:

- a) continue the review of methods and new developments;
- b) review plans for Laboratory and Sea-Going Workshops on Standardization and Intercalibration of Methods;
- c) review plans and contributions to the Zooplankton Methodology manual;
- d) consider plans and contributions to the Symposium on Zooplankton Production in 1994.

2:54

The Study Group on GULF III Sampler Efficiency Calibrations (Chairman: Prof. D. Schnack, Germany) will meet in Aberdeen, Scotland, UK for one day during the period 2-5 February 1993 (in conjunction with the meeting of the Planning Group for Herring Surveys) to:

- a) define and initiate a standard calibration of the Gulf III samplers presently used;
- b) initiate the design of a new standard sampler according to the criteria given in the 1991 report of the Study Group;
- c) prepare a proposal for the application of new technology to measure the volume filtered;
- d) review new results on filtration efficiency and avoidance problems from tank and field tests.

2:55

The Benthos Ecology Working Group (Chairman: Dr P. Kingston, UK) will meet in Kiel, Germany from 3-8 May 1993 to:

- a) review and report on how benthic communities are affected by disturbance of the sea floor;
- b) review cooperative benthic studies area throughout the ICES area;
- c) review and report on existing benthos data bases and their compatibility and availability to benthic scientists, and investigate how they are related to initiatives in Europe and North America;
- d) produce an initial list of marine benthic indicator species within the ICES area potentially vulnerable to physical disturbances of the seabed;

C.Res.1992/

2:55 ctd. e) review the benthic implications of global climate change including their relation to fish stocks;

f) if possible, prepare material for use by the Working Group on Ecosystem Effects of Fishing Activities at its next meeting in 1994.

2:56 A Workshop on the Distribution and Sources of Pathogens in Marine Mammals (Chairman: Dr J. Harwood, UK) will be held in Cambridge, England, UK from 22-26 March 1993 to:

a) review the sources and potential effects of pathogens which might occur in marine

mammals and provide an inventory of natural and anthropogenic disease agents;

b) consider the role of contributory factors in disease outbreaks;

c) develop a protocol for the study of any future outbreaks among marine mammals;

d) consider the likely risks of future disease events and their likely consequences, in particular for endangered species and threatened populations;

e) assess the likely effects of climate change on these risks;

f) conduct a retrospective analysis of information collected during the 1988 phocid distemper epidemic as a case study of the approach developed during the Workshop.

RESOLUTIONS INVOLVING COOPERATION WITH OTHER ORGANIZATIONS

C.Res.1992/

3:1 ICES will sponsor a "Cod and Climate Change" (CCC) program of research as a North Atlantic component of the IOC/SCOR-sponsored International GLOBEC (I-GLOBEC). The purpose of the program will be to:

a) promote interdisciplinary research on the response of pan-Atlantic cod populations to climate variability and long-term change;

b) provide unifying themes for regional investigations of the relationship between cod and their environment;

c) enhance linkage between ICES and the broader marine science community.

The General Secretary will contact IOC and SCOR to formalize a relationship with I-GLOBEC as appropriate.

3:2 A 3-day meeting of an expert group, including at least representatives of ICES, FAO, and EUROSTAT, will be held at ICES Headquarters in late 1993 at the agencies' own expense to resolve discrepancies between databases on international catch statistics held by different agencies. The discrepancies will be identified and circulated to participants by EUROSTAT prior to the meeting.

3:3 ICES, as a member agency of the Coordinating Working Party (CWP) on Atlantic Fishery Statistics, endorses the proposal to rename it as the Coordinating Working Party (CWP) on Fishery Statistics, so as to encourage participation by users and agencies from outside the Atlantic (as observers) and facilitate consideration of the majority of the agenda items which are of global significance (e.g., high-seas fishery statistics).

3:4 An ICES/HELCOM Workshop on Quality Assurance of Chemical Analytical Procedures for the Baltic Monitoring Programme (Co-Chairmen: Dr G. Topping, UK and Dr U. Harms, Germany) will be held in Hamburg, Germany from 5-8 October 1993 to provide presentations and practical training in quality assurance of sampling and analytical procedures for measurements of nutrients, trace metals, and organochlorine compounds in marine media. Participation should be from scientists from all laboratories providing data for the Baltic Monitoring Programme.

3:5 ICES will cooperate with NAFO in organizing and carrying out a Symposium on "The Role of Marine Mammals in the Ecosystem" which will be held in Dartmouth, NS, Canada from 6-8 September 1995, with Mr J. Sigurjonsson (Iceland) as the ICES Co-Convenor.

OTHER RESOLUTIONS REQUIRING ACTION

C.Res.1992/

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| 4:1 | The STATLANT 27B reporting requirement for fishery statistics will be discontinued with effect from 1 January 1993. It is, however, essential that ICES Member Countries continue to collect catch and effort data and provide these to participants in ICES assessment Working Groups in the highly disaggregated form required for stock assessments. | | |
| 4:2 | The ICES Fishery Secretary will make proposals for any modifications to the STATLANT 27A reporting system, or for any additional reporting system which is considered necessary to accommodate the present needs of ICES (taking into account the cessation of STATLANT 27B reporting) and which will be reasonably assured of complete reporting by all ICES Member Countries. The views of national statistical offices should be taken into account. The proposals will be considered by the Coordinating Working Party (CWP) on Fishery Statistics at its <i>ad hoc</i> Inter-Agency Consultations during the 1993 Statutory Meeting as part of a review of the STATLANT reporting system for the ICES and NAFO areas. | 4:7 | A second phase of the Intercomparison Exercise on the Analysis of Trace Metals in Suspended Particulate Matter will be organized in 1993 under the coordination of Dr C. Pohl (Germany) and Dr L. Brüggmann (Germany). ICES will cover the cost of samples (DKK 10,000) and there will be no participation fee. |
| 4:3 | The International Sole Egg Survey in the North Sea (Divisions IVb and IVc) and English Channel (Divisions VIIId, VIIe) will be conducted in 1994 to provide a fishery-independent estimate of the spawning stock biomass to validate estimates obtained by VPA. | 4:8 | A Baseline Study of Contaminants in Baltic Sea Sediments will be conducted in 1993/1994, under the coordination of the Steering Group on the Coordination of the Baltic Sediment Baseline Study (Chairman: Prof. M. Perttilä, Finland), according to the plans presented in the report of the Group. As its contribution to this costly study, ICES will provide DKK 20,000 for the cost of the sample bottles to be used. |
| 4:4 | Stage 3b of the ICES/IOC/OSPARCOM Intercomparison Programme on the Analysis of Chlorobiphenyls in Marine Media will be organized in 1992 under the coordination of Dr J. de Boer (Netherlands). ICES will cover the costs of the samples (DKK 30,000) and the coordinators will also request a participation fee to cover the cost of their time. | 4:9 | A research programme will be conducted on Coastal Zone/Open Sea Fluxes in selected areas of the Baltic Sea, according to the scientific plans given in Annex 6 of the report of the Working Group on the Baltic Marine Environment, with coordination provided by the Steering Group on Coastal Zone/Open Sea Flux Studies in the Baltic (Chairman: Prof. M. Perttilä, Finland). The first region of the Baltic Sea to be covered by this study will be the Gulf of Finland. |
| 4:5 | The second phase of the Intercomparison Programme on the Analysis of Polycyclic Aromatic Hydrocarbons (PAHs) in Marine Media will be organized in 1992/1993, under the coordination of Mr F. Smedes (Netherlands), Mr R. Law (UK), and Dr W. Cofino (Netherlands). ICES will cover the cost of the samples (DKK 20,000) and the coordinators will also request a participation fee to cover the cost of their time. | 4:10 | The "Revised 1992 Code of Practice to Reduce the Risks of Adverse Effects Arising from Introductions and Transfers of Marine Species, Including the Release of Genetically Modified Organisms" (as set forth in ACMP 1992/7.3), after consultation with the respective EIFAC Working Group on Introduction of Aquatic Species, will be presented to the Council for adoption. |
| 4:6 | The Fifth ICES Intercomparison Exercise on the Analysis of Nutrients in Sea Water (5/ | 4:11 | ICES endorses the international transboundary survey of cetaceans in the North Sea, Skagerrak, Kattegat, and the English Channel planned for 1994. Member Countries bordering these areas are requested to enable their relevant institutions to participate fully in this survey. |

REPORT ON ADMINISTRATION FOR THE YEAR 1 NOVEMBER 1991 TO 31 OCTOBER 1992

1 THE COUNCIL AND ITS MEMBERS

1.1 Country Membership

The only official change in the membership of the Council since the 1991 Statutory Meeting was that the Russian Federation, in a diplomatic note to the Danish Ministry of Foreign Affairs dated 15 January 1992 (which was circulated to ICES Member Country Governments), announced that it would continue the membership of the former USSR and preserve all the rights and fulfil all the commitments of the USSR in ICES, including the financial obligations.

Following authorization by the Council at the 1991 Statutory Meeting, the General Secretary corresponded with and had personal discussions with various government representatives from Estonia, Latvia, and Lithuania regarding possible Council membership. A request for Council membership was received by the Secretariat from the Latvian Ministry of Foreign Affairs on 29 May 1992 and was forwarded to the Danish Ministry of Foreign Affairs for action. The Danish Ministry in turn sent copies of the application to all Member Country Governments inviting their ratification. As of 31 October 1992, the Secretariat had been informed that only seven Member Countries had ratified the application. According to Article 16, para. (4) of the Council's Convention, Latvia would become a Member Country on the date of deposit of its government's instrument of accession with the Government of Denmark after notification that at least three quarters of the present Member Countries had ratified Latvia's application for membership.

Although there had been expressions of intent by Estonia and Lithuania to also join ICES, no applications had been received from these countries by the Danish Ministry of Foreign Affairs or the Secretariat as of 31 October 1992.

1.2 Payment of National Contributions

As of 31 October 1992, all national contributions to the Budget and Supplementary Budget for Financial Year 1991/1992 had been received except those from Portugal (part) and Russia. All countries except Poland (part), Portugal, and Russia had paid their contributions for Financial Year 1992/1993.

In addition, Russia had also not paid its full contribution for Financial Year 1990/1991 (DKK 62,871 or 7% still lacking).

1.3 National Delegates

The following changes in national Delegates were announced as of 31 October 1992:

- a) Mr N.A. Nielsen was appointed to replace Dr P. Andersen as a Delegate of Denmark.
- b) Mr M. Chaussepied was appointed to replace Dr L. Laubier as a Delegate of France.
- c) Mr J. Jakobsson was appointed to replace Dr J. Magnusson as a Delegate of Iceland.
- d) Miss J. Doyle was appointed to replace Mr D. de G. Griffith as a Delegate of Ireland.
- e) Mr P.H.A. Hoogweg was appointed to replace Dr P.H. Draaisma as a Delegate of the Netherlands.
- f) Mr R. Vaage was appointed to replace Mr O. Nakken as a Delegate of Norway.
- h) Dr R.S. Bailey was appointed to replace Dr A.D. Hawkins as a Delegate of the UK, and was in turn replaced by Mr D.N. MacLennan.
- i) Dr M.P. Sissenwine was appointed to replace Dr M.F. Tillman as a Delegate of the USA.
- j) Mr M. Vitinsh and Mr N. Riekstins were appointed as Delegates of Latvia, contingent upon Latvia's accession to the Council's Convention.

Mr M. Lima Dias served as substitute Delegate of Portugal at the 1992 Statutory Meeting.

1.4 Chairmen of Committees

The Chairmen of the Fish Capture (Prof. K. Olsen, Norway), Marine Environmental Quality (Dr V. Dethlefsen, Germany), Demersal Fish (Prof. N. Daan, Netherlands), Baltic Fish (Dr W. Weber, Germany), and Biological Oceanography (Dr K. Richardson, Denmark) Committees completed their three-year terms on 31 October 1992. The following new Chairmen of those Committees were elected at the 1992 Statutory Meeting:

Fish Capture: Mr R. Fonteyne (Belgium)
Marine Environmental Quality: Mr S. Carlberg (Sweden)
Demersal Fish: Mr E. Aro (Finland)
Baltic Fish: Mr B. Sjöstrand (Sweden)
Biological Oceanography: Dr M. Reeve (USA)

1.5 Editors of ICES Publications

Mr S.J. Smith (Canada) accepted his appointment to a three-year term as Assistant Editor of the *ICES Journal of Marine Science* effective 1 November 1991.

1.6 Members of the Advisory Committees

ACFM

The following changes were made in the nationally nominated members, alternates, and the *ex officio* members of ACFM as of 31 October 1992:

- a) Mr W. Vanhee replaced Dr F. Redant as alternate member from Belgium.
- b) Dr G. Stefánsson replaced Dr S.A. Schopka as the member nominated by Iceland, and Dr Schopka replaced Dr O.K. Pálsson as alternate member.
- c) Mr J.W. Horwood replaced Dr R.S. Bailey as the member nominated by the United Kingdom, and Dr R.M. Cook replaced Dr J.G. Shepherd as alternate member.
- d) Mr O. Hagström (Sweden) replaced Mr E. Bakken (Norway) as Chairman of the Pelagic Fish Committee and *ex officio* member of ACFM.

ACMP

The two new coopted members of ACMP appointed by the Council at the 1991 Statutory Meeting, Dr P. Kingston (UK), replacing Dr J.E. Portmann (UK), and Dr J. Skei (Norway), replacing Prof. R. Wollast (Belgium), accepted their appointments and attended the 1992 meeting.

Dr T. Osborn (USA), replacing Dr H.J. Brosin (Germany) as Chairman of the Hydrography Committee, and Dr R.C.A. Bannister (UK), replacing Prof. C.C.E. Hopkins (Norway) as Chairman of the Shellfish Committee, joined ACMP as *ex officio* members.

Dr B. Bannink (Netherlands), appointed as a coopted member at the 1990 Statutory Meeting, resigned from ACMP in April 1992 due to health reasons.

At the 1992 Statutory Meeting, the Council decided to restructure and rename ACMP as of 1 November 1992. The new Committee would be named the Advisory Committee on the Marine Environment (ACME) and the membership would consist of national nominees appointed by the Council, Chairmen of five Subject/Area Committees as *ex officio* members, and invited experts as needed. After 1 November, the President

would appoint an interim Chairman from among the members nominated by Member Countries, and the new ACME, at its first meeting in June 1993, would elect its own Chairman who would be approved by the Council at the 1993 Statutory Meeting.

2 COOPERATION WITH OTHER INTERNATIONAL ORGANIZATIONS

The Council continued its active cooperation during the past year with various international organizations, including those to which it provides scientific information and advice in the areas of fisheries management (NEAFC, NASCO, IBSFC, and the Commission of the EC) and marine pollution (OSPARCOM and HELCOM). Meetings during the past year of various organizations at which ICES was represented are included in the list in Annex 1. Observer reports on some of those meetings are presented in Doc. C.M.1992/Gen:1. Attention is drawn to the following items.

2.1 UNESCO/IOC/SCOR

Under the terms of the ICES/IOC Memorandum of Understanding, IOC was invited to be represented by observers at meetings of a) the Marine Chemistry Working Group held in Tenerife, Canary Islands, Spain from 9-14 March 1992 (C.Res.1991/2:32:1), b) the Working Group on Biological Effects of Contaminants held at ICES Headquarters from 4-8 May 1992 (C.Res. 1991/2:32:6), and c) the Working Group on Phytoplankton and the Management of Their Effects held in La Rochelle, France from 27-29 April 1992 (C.Res. 1991/2:32:8). In addition, IOC asked for and received permission to be represented at the meeting of the Working Group on Marine Data Management held in Tórshavn, Faroe Islands from 23-25 April 1992 (C.Res. 1991/2:38).

IOC was invited to co-sponsor the newly established Study Group on the Dynamics of Algal Blooms which met in Vigo, Spain from 7-9 April 1992 (C.Res.1991/2:36). ICES was invited to participate in the IOC-FAO *Ad hoc* Intergovernmental Panel on Harmful Algal Blooms which met in Paris from 23-25 June 1992.

ICES co-sponsored, with IOC, WMO, and ICSU, an Ocean Climate Data Workshop which was held in Greenbelt, MD, USA from 18-21 February 1992 (C. Res.1991/3:1). The Oceanography Secretary participated in the Workshop.

The Joint Panel on Oceanographic Tables and Standards (JPOTS), organized by UNESCO, ICES, SCOR, and IAPSO in 1962, established an editorial panel in 1985, with the Oceanography Secretary as a member, to prepare an oceanographic data manual. This manual, en-

titled *Processing of Oceanographic Station Data*, was completed and published by UNESCO late in 1991.

ICES was invited by IOC to be represented on the Joint IOC/UNEP Intergovernmental Panel for the Global Investigation of Pollution in the Marine Environment (GIPME). The first meeting of the Panel was held in Paris from 4-7 March 1992 and ICES was represented by Dr J.M. Bowers (Canada) and Dr B.I. Dybern (Sweden). Dr Bowers also represented ICES at the XXII Session of the United Nations Agencies Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP) held in Vienna from 9-13 March 1992.

The General Secretary represented ICES at the 25th Session of the IOC Executive Council held in Paris from 10-18 March 1992. The Executive Council accepted the invitation of SCOR to co-sponsor GLOBEC, an international programme to understand the effects of physical processes on predator-prey interactions and population dynamics of zooplankton, and their relation to ocean ecosystems in the context of global climate systems and anthropogenic change. In light of considerable related activities being coordinated within ICES, and because the leadership of GLOBEC involves a number of ICES scientists, ICES requested and was accepted as a co-sponsor of GLOBEC. This co-sponsorship, together with the specific terms of the Council's involvement in this programme, were approved by the Council at the 1992 Statutory Meeting.

The Oceanography Secretary remained active in oceanographic data exchange activities under the auspices of the IOC Committee on International Oceanographic Data and Information Exchange (IODE).

Additional information relative to the Council's cooperation with IOC and SCOR can be found in Doc. C.M. 1992/Del:14.

2.2 Oslo and Paris Commissions (OSPARCOM) and North Sea Task Force

Activities related to a) data handling responsibilities for both the OSPARCOM Joint Monitoring Programme and the North Sea Task Force (NSTF) Monitoring Master Plan, b) provision of scientific advice to OSPARCOM, and c) preparation of the Quality Status Report (QSR) by the NSTF intensified during the past year and involved a high proportion of the time and effort of 3-4 Secretariat staff members as well as the Chairman of ACMP.

The Seventh Meeting of the NSTF was held in Antwerp, Belgium from 19-22 November 1991 at which ICES was represented by the Chairman of ACMP, Dr J.E. Portmann (NSTF Vice-Chairman), the Environment Secretary, the Oceanography Secretary, and Dr S.

Wilson. The Eighth Meeting was held in Mont Saint-Michel, France from 19-22 May 1992 with the same ICES representation as at the Seventh Meeting. The Ninth Meeting would be held in Bergen, Norway in early November 1992.

The Environment Secretary and Chairman of ACMP participated in the Third, Fourth, and Fifth Meetings of the NSTF Experts Steering Group (ESG) held in Antwerp, Belgium on 18 November 1991, London from 25-26 February 1992, and Mont Saint-Michel, France from 18-19 May 1992, respectively. The ICES Secretariat hosted the Sixth Meeting of the ESG from 20-22 October 1992. The function of the ESG is to coordinate the preparation of the holistic QSR.

NSTF work has intensified rapidly since the 1991 Statutory Meeting. Large quantities of monitoring data were submitted to the ICES Secretariat for use in the QSR prior to the deadline of 31 December 1991. Assessments were conducted on the following compiled data sets: a) contaminants in fish and shellfish, b) fish disease prevalence, c) lindane in sea water, d) contaminants in sediments, e) EROD measurements and oyster embryo bioassays, and f) nutrients. Most of the assessments were the first to ever be conducted on international data sets.

In addition to the above work done largely by Secretariat staff members, the Study Group on Seals and Small Cetaceans in European Seas which met in Cromarty, Scotland, UK from 2-5 March 1992 (C.Res. 1991/2:52), the Study Group on Ecosystem Effects of Fishing Activities which met at ICES Headquarters from 7-14 April 1992 (C.Res.1991/2:4), and the Benthos Ecology Working Group which met in Bergen, Norway from 4-8 May 1992 (C.Res.1991/2:46) prepared reports in response to requests for information by the NSTF. These reports were reviewed by ACMP and, where appropriate, by ACFM before their submission to the NSTF Secretary by the end of June 1992.

Final drafts of sub-regional assessments and drafts of the various chapters of the holistic QSR being prepared by various groups within the NSTF were nearing completion in the autumn of 1992. The Oceanography Secretary was a member of the Drafting Panel for Chapter 2 and as such participated in several meetings with experts of the Paris Commission's Working Group on Nutrients (London, 11-13 December 1991 and Plymouth, England, UK, 9-11 March 1992) and a meeting of the Chapter 2 Drafting Panel in London from 15-17 January 1992. The completed draft QSR is expected to be available in March 1993, with the final QSR expected to be available by July 1993. Additional information on progress in the work of the Task Force is contained in Doc. C.M.1992/Del:13.

Meetings convened by OSPARCOM since the 1991 Statutory Meeting at which ICES was represented include the following: a) *Ad Hoc* Working Group on Monitoring held at ICES Headquarters from 2-6 December 1991 (Environment Secretary, Dr S. Wilson, and Ms M. Sørensen), b) Joint Monitoring Group (JMG) held in Uppsala, Sweden from 20-24 January 1992 (Chairman of ACMP, Environment Secretary, and Dr S. Wilson), c) Standing Advisory Committee on Scientific Advice (SACSA), Technical Working Group (TWG), and Joint Meeting of SACSA and TWG all held in Dublin, Ireland from 23 March - 3 April 1992 (Chairman of ACMP), and d) Joint Meeting of OSPARCOM held in Paris from 17-19 September 1992 (General Secretary and Environment Secretary).

An ICES/NSTF/OSPARCOM *Ad Hoc* Working Group on Sediment Baseline Study Data Assessment met at ICES Headquarters from 27 April - 2 May 1992 (C. Res.1991/2:32:5). The NSTF was represented by its Secretary.

The General Secretary and Environment Secretary attended the Second Follow-Up Meeting of the Third North Sea Conference held in Copenhagen from 2-4 December 1991. The purpose of the meeting was to report on progress in a) implementing the provisions of the Declaration from the Third North Sea Conference and b) planning for the Fourth North Sea Conference to be held in Denmark in 1995.

The President, General Secretary, and Environment Secretary participated in a meeting at ICES Headquarters on 20 January 1992 with the Secretary of OSPARCOM and the Head of the Belgian Delegation to OSPARCOM concerning the future ICES role in the new Paris Commission (PARCOM) which will emerge from the revised Oslo and Paris Conventions. The principal item of discussion was a Memorandum of Understanding between ICES and the new PARCOM which is being drafted by OSPARCOM for consideration by ICES.

2.3 Helsinki Commission (HELCOM)

Two principal activities which the Council is conducting or coordinating for HELCOM are a study of contaminants in Baltic sediments and quality assurance of measurements in the Baltic Monitoring Programme (BMP). The Secretariat is also cooperating with the Finnish Environmental Data Centre (EDC) (which is handling the BMP data) with respect to data submission formats, quality assurance, and scientific reliability of the data.

The General Secretary represented ICES at the Thirteenth Meeting of HELCOM held in Helsinki from 3-7 February 1992. The Commission authorized its Executive Secretary to sign a Memorandum of Understanding with ICES which the Secretariat and President had pre-

pared in 1990. The Memorandum was adopted by the Council at the 1992 Statutory Meeting.

The General Secretary attended a ministerial-level Diplomatic Conference on the Protection of the Marine Environment of the Baltic Sea Area held in Helsinki on 9 April 1992. The Conference was hosted by the Government of Finland at the request of HELCOM. The purpose of the Conference was to adopt a new Convention (and related resolutions) and a Baltic Sea Environmental Declaration. The Declaration approved the strategic approach and principles in the Baltic Sea Joint Comprehensive Environmental Action Programme prepared by an *ad hoc* high level Task Force established after the 1990 Prime Ministers' Conference in Ronneby, Sweden.

The Environment Secretary attended a meeting of HELCOM's Environment Committee (EC) Chairman and Conveners of EC Working Groups held in Hamburg, Germany on 23 April 1992.

2.4 NEAFC

The Chairman of ACFM, General Secretary, and Fishery Secretary represented the Council at the Tenth Annual Meeting of NEAFC held in London from 20-21 November 1991. ACFM's advice on the status of and management recommendations for 1992 for the principal fish stocks in the NEAFC area was presented. No regulatory measures were adopted by the Commission. ICES was again asked to provide the full range of scientific advice on the status of fish stocks in the NEAFC area for 1992, as well as several additional items of information.

2.5 NASCO and the Ninth Dialogue Meeting

Information and advice on the status and management of North Atlantic salmon and compilation of tag releases in 1991 were prepared by the Working Group on North Atlantic Salmon at its meeting in Dublin, Ireland from 5-12 March 1992 (C.Res.1991/2:7:5) in response to requests from NASCO. Reports from the Study Group on the North American Salmon Fisheries which met in St. John's, Newfoundland, Canada from 17-21 February 1992 (C.Res.1991/2:7:3), the Study Group on the Norwegian Sea and Faroes Salmon Fishery which met in Dublin, Ireland from 28 February - 1 March 1992 (C. Res.1991/2:7:4), the Workshop on Salmon Assessment Methodology which was held in Dublin, Ireland from 2-4 March 1992 (C.Res.1991/2:31), and the Working Group on Pathology and Diseases of Marine Organisms which met at ICES Headquarters from 2-5 March 1992 (C.Res.1991/2:41) were considered by the Working Group on North Atlantic Salmon in preparing its report. This report was reviewed by ACMP at its 19-27 May 1992 meeting and formed the basis for the advice which was presented to NASCO at its Ninth Annual Meeting

in Washington, DC, USA from 9-12 June 1992, where ICES was represented by the General Secretary, Chairman of ACFM, and Fishery Secretary.

NASCO will co-sponsor, together with IBSFC, the Ninth ICES Dialogue Meeting which will be held in Edinburgh, Scotland, UK from 7-8 June 1993 in conjunction with the NASCO Annual Meeting. The working title for the Dialogue Meeting is "Atlantic Salmon: Management and Fishery Environments, Today and Tomorrow". Detailed planning, including the identification of the speakers (possibly 14-15) representing the scientific, managerial, and user disciplines, is in progress. A first planning meeting involving the speakers and representatives of ICES, NASCO, and IBSFC will be held in November 1992.

2.6 Commission of the European Communities (CEC)

A high proportion of the Council's work was again devoted to the preparation of scientific information and advice on the status of fish stocks and their management in response to requests from the CEC Directorate-General for Fisheries (DG XIV). An observer from DG XIV attended the November 1991 and May 1992 ACFM meetings.

The Council will assume responsibility for the CEC's STCF Working Group on Improvements of the Exploitation Pattern of the North Sea Fish Stocks and an associated large commercial fisheries data base. The Working Group on Long-Term Management Measures, established at the 1991 Statutory Meeting (C.Res.1991/2:7:19), will take over the work of the former STCF Working Group and the responsibility for handling the data base will be taken over by the Secretariat.

In other areas of cooperation with the CEC, the Oceanography Secretary has continued his participation in the MAST Data Committee (DG XII). Together with Mr G. Hopwood, he attended a meeting of the Committee held in Brussels from 5-7 May 1992.

The Secretariat has had additional contact with DG XII regarding the Community Bureau of Reference and its quality assurance programmes. One such programme on Quality Assurance of Measurements in the Marine Environment (QUASIMEME), which would take over many of the aspects of the Council's long-standing quality assurance activity, would not be able to officially accommodate ICES Member Countries which are not members of the EC. The Secretariat has initiated inquiries with DG XII concerning ways and means to include particularly the new Baltic countries in this programme. A recent response from DG XII indicated the likelihood of some future positive action.

3 MEETINGS AND OTHER ACTIVITIES ORGANIZED BY THE COUNCIL

3.1 Symposia

The Symposium on "Measurement of Primary Production from the Molecular to the Global Scale" was held in La Rochelle, France from 21-24 April 1992 with Dr T. Platt (Canada) as Convener (C.Res.1989/2:3). There were 164 participants and presentations of 23 invited papers and 59 posters. The contributions will be published in a volume of the *ICES Marine Science Symposia* series.

The Symposium on "Fish Behaviour in Relation to Fishing Operations" was held in Bergen, Norway from 11-13 June 1992 with Prof. S. Olsen (Norway) as Convener (C.Res.1988/2:3). There were about 135 participants and 75 papers and posters. The contributions are expected to be published early in 1993 in a volume of the *ICES Marine Science Symposia*.

A prospectus and call for papers was issued in February 1992 for the Symposium on "Mass Rearing of Juvenile Fish" to be held in Bergen, Norway from 21-23 June 1993 with Dr I. Huse (Norway) as Convener (C.Res.1990/2:4). A Steering Committee has been appointed consisting of Dr R.S. Batty (UK), Prof. H. Rosenthal (Germany), and Dr J.A. Verreth (Netherlands). Titles of contributions were to be submitted to the General Secretary by 1 November 1992. At the 1991 Statutory Meeting, Delegates granted permission for a registration fee of USD 100 to be charged to all participants.

A prospectus and call for papers was issued in February 1992 for the Symposium on "Cod and Climate Change" to be held in Reykjavik, Iceland from 23-27 August 1993 with Mr J. Jakobsson (Iceland) as Convener (C.Res.1990/2:3). Titles of contributions were to be submitted to the Convener by 1 November 1992.

Mr E.J. Simmonds (UK) has agreed to serve as Convener of the Symposium on "Fisheries and Plankton Acoustics" to be held in Aberdeen, Scotland, UK from 12-16 June 1995 (C.Res.1991/2:1). The first announcement has been distributed and a second prospectus/call for papers will be issued in early 1994.

3.2 Bureau

The mid-term meeting of the Bureau was held at ICES Headquarters from 3-4 June 1992. All members were present, and the Chairman of the Consultative Committee and General Secretary also attended, as did several members of the Secretariat staff as necessary.

The Bureau's second meeting in 1992 was held on 23 September in Rostock-Warnemünde, Germany immedi-

ately prior to the Statutory Meeting. All members were present, as were the Chairman of the Consultative Committee and the General Secretary.

3.3 Advisory Committees

ACFM

ACFM held two meetings during the last year, the first from 29 October - 6 November 1991 (C.Res.1990/2:5) and the second from 19-27 May 1992 (C.Res.1991/2:7), both under the chairmanship of Dr F. Serchuk.

All members or their alternates were present at the first meeting, as well as the Fishery Secretary, Mr L. Pedersen (part-time), the Chairman of the Working Group on Methods of Fish Stock Assessment (Dr G. Stefánsson), and observers from the Commission of the EC (Mr D. Armstrong) and the Faroe Islands and Greenland Home Governments (Mr H. í Jákupsstovu and Mr F. Riget, both part-time). Information on the status of numerous fish and shellfish stocks and advice for their management were prepared and submitted to NEAFC, the Commission of the EC, and the Government of Norway. The minutes of this meeting are contained in Doc. C.M.1992/A:3.

All members or their alternates were present at the second meeting, as well as the Fishery Secretary, Mr H. Sparholt (part-time), Mr L. Pedersen (part-time), Chairman of the Consultative Committee (part-time), Chairman of ACMP (part-time), observers from the Commission of the EC (Mr A. Astudillo) and the Faroe Islands and Greenland Home Governments (Mr H. í Jákupsstovu and Mr F. Riget, both part-time), and the Chairman of the Working Group on North Atlantic Salmon (Dr K. Friedland, part-time). Information on the status of numerous fish and shellfish stocks and advice for their management were prepared and submitted to NASCO, IBSFC, NEAFC, the Commission of the EC, the Norwegian/Soviet Fisheries Commission, and the Governments of Iceland, Norway, and Sweden. The minutes of this meeting are contained in Doc. C.M. 1992/A:4.

ACMP

The 1992 meeting of ACMP was held at ICES Headquarters from 3-12 June (C.Res.1991/2:32) under the chairmanship of Dr G. Topping. All members attended except Prof. H. Ackefors. Dr M. Estrada, Dr O. Svanberg, and Dr K. Richardson were unable to attend the full meeting. Dr H. Rosenthal attended part of the meeting in place of Prof. Ackefors. Others who attended (in some cases only part-time) were the Environment Secretary, Oceanography Secretary, Chairman of the Consultative Committee, General Secretary, and Dr S. Wilson. Information and advice on various aspects of marine

environmental quality were prepared for OSPARCOM, HELCOM, and the North Sea Task Force. The minutes of this meeting are presented in Doc. C.M.1992/A:5. The ACMP Report will be published in the *ICES Cooperative Research Report* series.

3.4 Programme Planning Group

The Programme Planning Group met at ICES Headquarters from 28-29 May 1992 (C.Res.1991/2:2) under the chairmanship of Prof. C.C.E. Hopkins. All of the Committee Chairmen appointed to attend the meeting were present. The Chairmen of ACFM and ACMP also attended in keeping with a proposal made at the Delegates meeting at the 1991 Statutory Meeting. The President, General Secretary, Oceanography Secretary, Environment Secretary, Fishery Secretary, and Ms M. Hänschell also participated in the meeting. The Group prepared the programme of scientific sessions for the 1992 Statutory Meeting, which was submitted to and approved by the Bureau at its mid-term meeting. Furthermore, the Group had an extensive and productive discussion on improvements in the organization, format, and conduct of Statutory Meetings as well as enhancing the interdisciplinary role of ICES. The report of the meeting is contained in Doc. C.M.1992/A:2.

3.5 Working/Study Group Meetings and Workshops

The meetings of over 65 Working, Study, and other Groups and Workshops were held during the period 1 November 1991 - 31 October 1992 as specified in C.Res.1991/2:2 - 2:52. In addition, 13 other Groups worked by correspondence. A list of these meetings is given in Annex 2. Particular attention is drawn to the following Groups:

- a) Mr V. Pruuki (Finland), appointed at the 1991 Statutory Meeting as Chairman of the Baltic Salmon and Trout Assessment Working Group which met at ICES Headquarters from 24-31 March 1992 (C.Res.1991/2:7:2), resigned in May 1992. A replacement was selected by ACFM at its November 1992 meeting.
- b) Mr N.A. Nielsen (Denmark), appointed at the 1991 Statutory Meeting as Chairman of the newly established Working Group on Long-Term Management Measures (C.Res.1991/2:7:19), resigned. Mr T.K. Stokes (UK) was selected by ACFM at its May 1992 meeting to be the new Chairman. The first meeting of the Group, originally scheduled for 24 November - 3 December 1992, was postponed until 19-28 January 1993.
- c) The Workshop on the Analysis of Trawl Survey Data, which was held in Woods Hole, MA

(USA) from 4-9 June 1992 and was to have been co-chaired by Dr H. Heessen (Netherlands) and Dr G. Stefánsson (Iceland) (C.Res.1991/2:10), was chaired instead by Dr S. Gavaris (Canada).

- d) The Study Group on Pollution Affecting Shellfish in Aquaculture and Natural Populations, originally scheduled to meet in Nantes, France from 1-3 July 1992 under the chairmanship of Dr M. Héral (France) (C.Res.1991/2:45), was instead authorized to work by correspondence due to a lack of interest.
- e) The Workshop on Age Determination of Redfish, scheduled to be held in Hamburg, Germany for 5 days in 1992 (C.Res.1991/2:19), was postponed until 1993 (possibly November) due to the inability of the Co-Conveners to find a suitable date in 1992.
- f) The newly established Working Group on the Assessment of Northern Shelf Demersal Stocks, scheduled to meet at ICES Headquarters from 1-10 September 1992 (C.Res.1991/2:7:15), met instead in Aberdeen, Scotland, UK at the same time.
- g) At the request of the Joint ICES/NAFO Working Group on Harp and Hooded Seals and following endorsement by ACFM and authorization by the President, an ICES/NAFO Workshop on Survey Methodology for Harp and Hooded Seals was held in Archangelsk, Russia from 5-12 October 1992.

3.6 90th Anniversary Celebration

In honour of the 90th anniversary of the Council, a reception, attended by about 80 people, was held on 21 August 1992 at ICES Headquarters. The President, General Secretary, and Delegates of Denmark and Sweden presented brief addresses. Approximately 175 invitations were sent to a variety of people including ICES Delegates; Ambassadors and other diplomats from Member (and several non-Member) Country embassies in Copenhagen; representatives of the Danish Government and cooperating international organizations in Copenhagen; representatives from Danish scientific institutions in Copenhagen; former Secretariat staff members and Council presidents; business associates and neighbours; and the current staff of the Secretariat.

3.7 Cooperation with Denmark's International Study Program

The Secretariat has cooperated with Denmark's International Study Program (DiS) and the Danish Institute for Fisheries and Marine Research in establishing a Marine

Environmental Studies program in Denmark for undergraduate college/university students from the United States, Canada, and Australia which will begin in the fall of 1993. The idea for this program was initiated by Mr E. Thomasson, the Secretariat's Librarian/Information Officer. DiS is affiliated with the University of Copenhagen and is one of Europe's oldest, largest, and most highly esteemed study-abroad centres which offers advanced undergraduate courses in four tracks: Humanities and Social Sciences, International Business, Architecture and Design, and now Marine Environmental Studies. Although the Secretariat's principal role was to initiate the idea and encourage DiS to establish the program, it will continue to assist by promoting the program and helping to arrange field trips for the students to Member Country research institutes in the North Sea and Baltic Sea areas. It is anticipated that students in the program will use the ICES library and possibly purchase Council publications as reference materials. The program is expected to generate some useful publicity for ICES.

4 SECRETARIAT MATTERS

4.1 Staffing

The total number of people employed in the Secretariat on a permanent, period, or temporary basis in either a Professional or General Service category post during the past year was 33. This included nine permanent/period and two temporary, part-time appointments at the Professional level and 17 permanent, two one-year, and three temporary, part-time appointments at the General Service level.

Ms Else Juul Nielsen was appointed, effective 1 November 1991, to a post of Temporary Assistant (C.3), under the supervision of the Oceanography Secretary. She is working primarily on a data archaeology project for the USA National Oceanographic Data Center which is supported financially by the University Corporation for Atmospheric Research in Colorado (USA). Her appointment is for one year, subject to extension depending on the longevity of the project. Ms Nielsen had been employed previously in the Secretariat on a temporary, part-time basis.

Ms Marilynn Sørensen, who was initially given a one-year appointment on 2 January 1989 to a post of Temporary Assistant (subject to extension) to provide assistance to the Environment Secretary in activities associated with the North Sea Task Force, was reappointed again in January 1992 for a fourth year. Most of her salary was being covered by the Special Budget for the North Sea Task Force provided by OSPARCOM. At its 3-4 June mid-term meeting, the Bureau authorized a permanent, full-time appointment for Ms Sørensen and

an upgrading of her post to the C.4 level as of 1 November 1992.

Mr Garry Hopwood was appointed to fill the post of Marine Data Scientist (P.1), under the supervision of the Oceanography Secretary, vacated by Mr Kai Jancke in April 1991. Mr Hopwood, previously employed by the Royal Australian Navy Hydrographic Service in Sydney, assumed his new post in the Secretariat on 9 January 1992. At its 23 September 1992 meeting, the Bureau authorized the upgrading of Mr Hopwood's post to the P.2 level, effective 1 September 1992.

Mr Henrik Sparholt was appointed to fill the new post of Fisheries Assessment Scientist (P.3), under the supervision of the Fishery Secretary. The responsibilities of this new position include providing technical assistance to assessment Working Groups, assisting in the editing of reports from these Groups, and handling the ICES International Bottom Trawl Survey (formerly IYFS) data base. Mr Sparholt, formerly employed by the Danish Institute for Fisheries and Marine Research in Charlottenlund, assumed the new post on 2 March 1992.

Dr Simon Wilson resigned his post as Scientific Assistant (P.1), under the supervision of the Environment Secretary, effective 31 July 1992. Dr Wilson was initially employed in February 1985 at the C.3 level, and over the years his post was steadily upgraded in light of increasing workload and responsibilities. Mr Jan René Larsen, formerly employed by the Danish Institute for Fisheries and Marine Research in Charlottenlund, was appointed to replace Dr Wilson, and he assumed the post on 1 September 1992. In addition, the post was renamed Pollution Data Scientist and upgraded to the P.2 level because of a further accretion of duties and responsibilities.

Dr Richard Grainger resigned his post as Fishery Secretary (P.5) effective 30 November 1992. He took up the post on 1 May 1989 and had served nearly 3½ years at the time of his departure. Dr Roger S. Bailey of the Marine Laboratory, Aberdeen was selected by the Bureau at its 23 September 1992 meeting to replace Dr Grainger. He assumed the post on 4 January 1993.

Mr Kenneth H. Brøndum and Ms Elizabeth C. Tangney were employed on a temporary, part-time basis (C.4 and C.2, respectively), under the supervision of the Environment Secretary, to provide assistance in computer programming and data entry, respectively, in support of data handling for the North Sea Task Force.

Mr Ole Friendved Hansen, Mr Arne Facius, and Mr Morten Vinther were employed on a temporary, part-time basis (P.1), under the supervision of the Fishery Secretary, to provide computer programming assistance.

Mr Hansen assisted in the transfer of the IYFS data base and its associated programs from an old to a new computer system at the University of Copenhagen Computer Centre. Mr Facius and Mr Vinther assisted in the development of the ICES Fisheries Assessment Package (IFAP).

Ms Michaela Ovens, a temporary, part-time employee (C.2), has assisted mainly the Librarian/Information Officer, but also the Environment Secretary and Fishery Secretary. Her work responsibilities and hours worked were increased in October 1992 and her post was, at the same time, upgraded to the C.3 level.

Following approval by the Bureau at its May 1991 meeting, the posts held by Ms Eleanor Christiansen (Senior Statistics Assistant) and Mr Søren Lund (Printer's Assistant) were upgraded to C.5 and C.3, respectively, as of 1 November 1991. In addition, the working hours for Ms Inger Lützhøft (Administrative Secretary) were increased from 25 to 30 per week as of 1 November 1991. The post of Librarian/Information Officer held by Mr Edgar Thomasson was upgraded to the C.5 level (effective 1 November 1992) by decision of the Bureau at its 23 September 1992 meeting.

4.2 Conditions of Service for Staff Members

Some changes in the Secretariat's Staff Rules regarding guidelines for the periods of probation and advance notice of resignation were approved by the Bureau at its mid-term meeting.

Attempts are underway, in cooperation with other international organizations located in Denmark, to obtain an exemption from Danish taxation of pension benefits to staff employees upon their retirement or upon their resignation and departure from Denmark prior to retirement.

4.3 Office Facilities and Equipment

A third conference room is now available at ICES Headquarters for large meetings. The large room on the first floor across the hallway from the Castle Room, which had been a computer terminal user room since the early 1980s, was converted into a meeting room in November/December 1991 and renamed the Eltham Room. New tables and chairs were purchased to equip this room, and a number of old meeting room chairs were sold.

New floor covering was installed in the Eltham Room, three PC user rooms and part of the hallway on the first floor, and the lunch room on the third floor.

Various items of office equipment and furniture have been purchased for use by new staff members.

A number of improvements to the office facilities and equipment, such as new floor covering, painting, new chairs, etc., in addition to those described above, still remain to be done. However, owing to the need for available funds to be used for other purposes, these improvements have not yet been possible.

4.4 Computer System

The new computer system at ICES Headquarters has been operational for nearly 1½ years. Several additional PCs and software packages have been acquired since the original installation. A finance and administration software package (SCALA) was recently installed. Expenditures to date for the new system are only slightly in excess of the originally-estimated purchase price of DKK 3.2 million. Additional hardware and software will have to be added in the near future to accommodate increasing data storage and processing demands.

5 PUBLICATIONS

Activities with respect to publications since the 1991 Statutory Meeting are summarized below. Additional information is given in Doc. C.M.1992/Pub:2 and other documents for the Publications Committee.

5.1 ICES Journal of Marine Science

Volume 48(3), 126 pages, scheduled for publication in November 1991, was issued in late December and distributed in January 1992. This was the last issue edited by Prof. R.J.H. Beverton and the last produced by Editorial International in cooperation with Academic Press. The issue carried a Short Note by Assistant Editor John W. Ramster in tribute to Prof. Beverton. Prices for Volume 48 were GBP 50.00 (UK only) or USD 90.00 (overseas) for institutional subscriptions and GBP 25.00 or USD 49.50 for personal subscriptions.

Volume 49 is the first under the editorship of Prof. J.H.S. Blaxter, and with the added help of Assistant Editor Stephen Smith. This volume, increased to four issues, will contain about 500 pages instead of about 300 pages, which was the usual case until 1990. Beginning with this volume, Academic Press assumed full production responsibility. Prices for this volume have been set at GBP 90.00 or USD 154.00 for institutional subscriptions and GBP 45.00 or USD 77.00 for personal subscriptions.

Volume 49(1), 123 pages, scheduled for February 1992, was printed in late March. A brief Editorial noted the transfer of editorship and commented on Prof. Beverton's contribution to the *Journal* and fisheries biology. This issue contains five of the papers presented at the 1990 Mini-Symposium on "Benthic Ecology of the

North Sea"; the sixth paper will appear in Volume 49(2).

Volume 49(2), 125 pages, scheduled for May 1992, was printed in the third week of May.

Volume 49(3), 125 pages, scheduled for August 1992, was published late in August. Volume 49(4) is scheduled for November 1992.

Compared with previous periods in the last several years, the flow of submitted manuscripts has diminished somewhat. The Editor and Assistant Editors are aware of this, but there have been considerable fluctuations in the past.

5.1 ICES Marine Science Symposia

Volume 194, "Introductions and Transfers of Aquatic Species", 125 pages, based on a Symposium held in Halifax, NS, Canada in June 1990 and co-sponsored by ICES, WAS, and EIFAC, was published in June 1992. The Secretariat received the manuscripts in March 1992. Paston Press (UK) handled the composition, and Page Bros. (UK) printed the volume.

Volume 195, "Hydrobiological Variability in the ICES Area, 1980-1989", will be based on a Symposium held in Mariehamn, Åland Islands in June 1991. The Secretariat has received 48 of 49 scheduled papers, and the volume will likely be printed by the end of 1992.

The proceedings of the following three Symposia are expected to be published in the *ICES Marine Science Symposia* series:

- a) "Shellfish Life Histories and Shellfishery Models", held in Moncton, NB, Canada in June 1990. The Secretariat received the first manuscript in January 1992, and the eleventh and latest in mid-May. However, 50-60 manuscripts still remain to be received. At the 1992 Statutory Meeting, following discussions between the Symposium Editor and members of the Publications Committee, it became evident that the serious delays already incurred in the processing of manuscripts were likely to continue with the existing Editor. In view of this unacceptable situation, the Editor agreed to step down, and a new Editor was subsequently appointed. Although a publication date is uncertain, significant progress in the processing of manuscripts is now expected.
- b) "Measurement of Primary Production from the Molecular to the Global Scale", held in La Rochelle, France in April 1992. The volume will carry most of the 23 invited papers presented at the Symposium as well as most of the poster presentations in the form of short papers or ab-

stracts. The Co-Editors are anxious to publish the volume as quickly as possible (e.g., early in 1993) and the first manuscripts were received by the Secretariat in October 1992.

- c) "Fish Behaviour in Relation to Fishing Operations", held in Bergen, Norway in June 1992. A Scientific Editor and the Technical Editor, both engaged by the Symposium Convener in the autumn of 1991, have successfully implemented an unusually rapid processing of papers. Authors wishing to have their papers published in the proceedings were asked to submit them by 1 May 1992. Out of the 75 papers and posters presented at the Symposium, 54 were submitted for publication. The Secretariat received the manuscripts during the autumn of 1992 and the volume will be printed in early 1993.

5.3 ICES Cooperative Research Reports

The following nine *ICES Cooperative Research Reports* were published during the past year:

- No. 178 A Review of Measurements of Trace Metals in Coastal and Shelf Sea Water Samples Collected by ICES and JMP Laboratories during 1985-1987, issued in November 1991.
- No. 179 Reports of the ICES Advisory Committee on Fishery Management, 1991, Parts 1 and 2, issued in February 1992.
- No. 180 Review of Contaminants in Baltic Sediments, issued in February 1992.
- No. 181 Effects of Harmful Algal Blooms on Mariculture and Marine Fisheries, issued in March 1992.
- No. 183 Report on the Results of the ICES/IOC/OSPARCOM Intercomparison Exercise on the Analysis of Chlorobiphenyl Congeners in Marine Media - Step 1 and the Intercomparison Study of the Determination of CBs in Baltic Herring Oil, issued in March 1992.
- No. 184 Report of the Second ICES Intercomparison Exercise on the Determination of Trace Metals in Suspended Particulate Matter, issued in March 1992.
- No. 185 Report of the ICES-IOC Study Group Meeting on Models for Recruitment Processes, issued in March 1992.

- No. 187 Acoustic Survey Design and Analysis Procedures: A Comprehensive Review of Current Practice, issued in August 1992.

- No. 188 Atlantic Salmon Scale Reading Guidelines, issued in October 1992.

5.4 ICES Fisheries Statistics

All national data for 1988 were finally received and Volume 73 was published in November 1992. The data for Volume 74 (1989) are all available except those from France and Spain.

5.5 Oceanographic Data Lists and Inventories

No numbers in this series were published this year.

5.6 ICES Identification Leaflets for Plankton

Three manuscripts were received in autumn/winter of 1991 and were printed in July 1992. They were the first in this series to be published since 1986. The price per number was increased from DKK 10.00 to 30.00.

The Editor informed the Secretariat that a number of authors are working on manuscripts for this series.

5.7 ICES Identification Leaflets for Diseases and Parasites of Fish and Shellfish

Nos. 41-50, dated 1991, were published in January 1992. They were delayed because of an exceptional amount of time required by the printer to incorporate extensive changes to the proofs. This represents the first set in this series to be published since 1987.

The Editor has had five additional manuscripts in hand for some time, but is awaiting five more in order to complete a publishable set.

5.8 Techniques in Marine Environmental Sciences

The following four issues of *Techniques in Marine Environmental Sciences* were published during the past year:

- No. 13 Biological effects of contaminants: Microplate method for measurement of ethoxyresorufin-O-deethylase (EROD) in fish, issued in November 1991.
- No. 14 Temporal trend monitoring: Introduction to the study of contaminant levels in marine biota, issued in November 1991.

No. 15 Temporal trend monitoring: Contaminant levels in tissues of Atlantic cod, issued in November 1991.

No. 16 Benthic communities: Use in monitoring point-source discharges, issued in November 1991.

The following are expected to be published in the near future:

No. 17 Nutrients: Practical notes on determinations in sea water.

No. 18 Pooling strategies for monitoring contaminant trends in marine organisms: Part 1. Basic statistical theory.

No. 19 Training guide for the identification of common diseases and parasites of fish in the North Atlantic.

5.9 ICES Annual Report

This publication for 1991 was issued in January 1992.

5.10 ICES/CIEM Information

Number 19 of this newsletter was issued in March 1992 and Number 20 was issued in August 1992.

5.11 Special Publications

A special publication entitled *An Annotated Bibliography of Seals, Sea Lions, and Walrus - Supplement 2*, containing 801 pages, was published in December 1991. Financial assistance, in the amount of USD 3,000, was received from UNEP. This publication supersedes the first *Bibliography and Supplement 1* published in 1976 and 1983, respectively.

An updated history of ICES, to be written by former General Secretary Dr B.B. Parrish, has been delayed somewhat by the poor health of the Dr Parrish, but is now expected to be completed by the end of 1993.

5.12 Publications Catalogue

A new publications catalogue was issued in April 1992, updating the last such catalogue printed in June 1989. The catalogue contains a listing of all the publications ever published by the Council, including prices and information on ordering.

ANNEX 1

MEETINGS AT WHICH ICES WAS REPRESENTED BY OBSERVERS

1. Sixth Meeting of the Working Group on Nutrients of the Paris Commission, Århus, Denmark, 29 October - 1 November 1991. ICES representatives: Environment Secretary and Oceanography Secretary.
2. Thirtieth Executive Committee Meeting of the Scientific Committee on Oceanic Research (SCOR), Hamilton, New Zealand, 11-13 November 1991. ICES representative: Prof. B. Rothschild.
3. Twelfth Regular Meeting of the International Commission for the Conservation of Atlantic Tunas (ICCAT), Madrid, Spain, 11-15 November 1991. ICES representative: Mr R. Robles.
4. Third Meeting of the North Sea Task Force Experts Steering Group (ESG), Antwerp, Belgium, 18 November 1991. ICES representatives: Environment Secretary and Chairman of ACMP.
5. Seventh Meeting of the North Sea Task Force (NSTF), Antwerp, Belgium, 19-22 November 1991. ICES representatives: Chairman of ACMP, Dr J.E. Portmann (NSTF Vice-Chairman), Environment Secretary, Oceanography Secretary, and Dr S. Wilson.
6. Tenth Annual Meeting of the North-East Atlantic Fisheries Commission (NEAFC), London, England, 20-21 November 1991. ICES representatives: General Secretary, Chairman of ACFM, and Fishery Secretary.
7. Second Follow-Up Meeting of the Third North Sea Conference, Copenhagen, Denmark, 2-4 December, 1991. ICES representatives: General Secretary and Environment Secretary.
8. Ninth Meeting of the *Ad Hoc* Working Group on Monitoring of the Oslo and Paris Commissions, ICES Headquarters, 2-6 December 1991. ICES representatives: Environment Secretary, Dr S. Wilson, and Ms M. Sørensen.
9. Meeting on the Greenland Sea Project of the Arctic Ocean Sciences Board (AOSB), Copenhagen, Denmark, 3-5 December 1991. ICES representative: Oceanography Secretary.
10. IMO Environmental Charting Symbols Standardization Meeting, London, England, 21-22 January 1992. ICES representative: Oceanography Secretary.
11. Seventeenth Meeting of the Joint Monitoring Group (JMG) of the Oslo and Paris Commissions, Uppsala, Sweden, 20-24 January 1992. ICES representatives: Chairman of ACMP, Environment Secretary, and Dr S. Wilson.
12. Thirteenth Meeting of the Baltic Marine Environment Protection Commission (HELCOM), Helsinki, Finland, 3-7 February 1992. ICES representative: General Secretary.
13. IOC/WMO/ICSU/ICES Ocean Climate Data Workshop, Greenbelt, MD, USA, 18-21 February 1992. ICES representative: Oceanography Secretary.
14. Fourth Meeting of the North Sea Task Force Experts Steering Group (ESG), London, England, 25-26 February 1992, ICES representatives: Environment Secretary and Chairman of ACMP.
15. First Session of the Joint IOC/UNEP Intergovernmental Panel for the Global Investigation of Pollution in the Marine Environment (GIPME), Paris, France, 4-7 March 1992. ICES representatives: Dr J.M. Bowers and Dr B.I. Dybern.
16. Meeting of Group of Experts of the Nutrients Working Group of the Paris Commission, Plymouth, England, 9-11 March 1992. ICES representative: Oceanography Secretary.
17. Twenty-Second Session of the IMO/FAO/UNESCO/WMO/WHO/IAEA/UN/UNEP Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP), Vienna, Austria, 9-13 March 1992. ICES representative: Dr J.M. Bowers.
18. Twenty-Fifth Session of the IOC Executive Council, Paris, France, 10-18 March 1992. ICES representative: General Secretary.

19. Nineteenth Meeting of the Standing Advisory Committee on Scientific Advice (SACSA) of the Oslo Commission, Nineteenth Meeting of the Technical Working Group (TWG) of the Paris Commission, and Second Joint Meeting of SACSA and TWG, Dublin, Ireland, 23 March - 3 April 1992. ICES representative: Chairman of ACMP.
20. Diplomatic Conference on the Protection of the Marine Environment of the Baltic Sea Area, Helsinki, Finland, 9 April 1992. ICES representative: General Secretary.
21. Meeting of the HELCOM Environment Committee (EC) Chairman and Conveners of EC Working Groups, Hamburg, Germany, 23 April 1992. ICES representative: Environment Secretary.
22. Meeting of the MAST Data Committee of the Commission of the EC (DG XII), Brussels, Belgium, 5-7 May 1992. ICES representatives: Oceanography Secretary and Mr G. Hopwood.
23. Fifth Meeting of the North Sea Task Force Experts Steering Group (ESG), Mont Saint-Michel, France, 18-19 May 1992, ICES representatives: Environment Secretary and Chairman of ACMP.
24. Eighth Meeting of the North Sea Task Force (NSTF), Mont Saint-Michel, France, 19-22 May 1992. ICES representatives: Chairman of ACMP, Dr J.E. Portmann (NSTF Vice-Chairman), Environment Secretary, Oceanography Secretary, and Dr S. Wilson.
25. Ninth Annual Meeting of the North Atlantic Salmon Conservation Organization (NASCO), Washington, DC, USA, 9-12 June 1992. ICES representatives: General Secretary, Chairman of ACFM, and Fishery Secretary.
26. First Meeting of the IOC Ocean-PC Project Working Group, ICES Headquarters, 9-13 June 1992. ICES representatives: Oceanography Secretary and Mr G. Hopwood.
27. First Meeting of the IOC-FAO *Ad Hoc* Intergovernmental Panel on Harmful Algal Blooms, Paris, France, 23-25 June 1992. ICES representatives: Dr B.I. Dybern and Ms B. Reguera.
28. Forty-Fourth Annual Meeting of the International Whaling Commission (IWC), Glasgow, Scotland, 29 June - 3 July 1992. ICES representative: Mr J. Sigurjónsson.
29. Fifteenth Session of the Coordinating Working Party on Atlantic Fishery Statistics (CWP), Dartmouth, NS, Canada, 8-14 July 1992. ICES representatives: Chairman of Statistics Committee, Fishery Secretary, and Dr M. Holliday.
30. Fifth Session of the IOC Group of Experts on the Technical Aspects of Data Exchange, Bidston, England, 14-17 July 1992. ICES representative: Oceanography Secretary.
31. Eighteenth Session of the International Baltic Sea Fishery Commission (IBSFC), Warsaw, Poland, 7-11 September 1992. ICES representatives: Chairman of ACFM and Fishery Secretary.
32. FAO Technical Consultation on High Seas Fishing, Rome, Italy, 7-15 September 1992. ICES representative: Dr Z.S. Karnicki.
33. Twenty-First General Meeting of the Scientific Committee on Oceanic Research (SCOR), Göteborg, Sweden, 15-17 September 1992. ICES representative: Prof. B. Rothschild.
34. Fourteenth Joint Meeting of the Oslo and Paris Commissions, Paris, France, 17-18 September 1992. ICES representatives: General Secretary and Environment Secretary.
35. EUROFISH Conference on Reform of the Common Fisheries Policy, London, England, 6-7 October 1992. ICES representative: General Secretary.
36. Third Meeting of the HELCOM Environment Committee, Tallinn, Estonia, 12-16 October 1992. ICES representatives: Chairman of ACMP and Environment Secretary.
37. First Annual Meeting of the North Pacific Marine Science Organization (PICES), Victoria, BC, Canada, 12-17 October 1992. ICES representative: Dr L.S. Parsons.
38. Sixth Meeting of the North Sea Task Force Experts Steering Group (ESG), ICES Headquarters, 20-22 October 1992, ICES representatives: Environment Secretary and Chairman of ACMP.

ANNEX 2

ICES WORKING GROUP AND STUDY GROUP MEETINGS IN 1991/1992

A. GROUPS CONCERNED WITH INTERDISCIPLINARY SUBJECTS

1. Study Group on Ecosystem Effects of Fishing Activities
(C.Res.1991/2:4)
Chairman: Mr H. Gislason
Held in Copenhagen, 7-14 April 1992.
Countries represented: Canada, Denmark, France, Germany, Netherlands, Norway, Sweden, UK.
Report available as Doc. C.M.1992/G:11.
2. Steering Group on Fisheries/Environmental Management Objectives and Supporting Research Programmes in the Baltic Sea
(C.Res.1991/2:3)
Chairman: Dr Z.S. Karnicki
Held in Copenhagen, 1-2 June 1992.
Countries represented: Belgium, Denmark, Finland, Germany, Poland, Sweden, UK, USA.
Report available as Doc. C.M.1992/J:11.
3. Inter-Committee Recruitment Group
(C.Res.1991/2:5)
Chairman: Dr M. Sissenwine
Held during the 1992 Statutory Meeting in Rostock-Warnemünde, Germany.
Report available on pp 61-62 of this publication.

B. GROUPS CONCERNED WITH FISHERY SUBJECTS

1. Study Group on Pilot Whales
(C.Res.1990/2:7)
Chairman: Mr M. Kingsley
Held in Montreal, 3-4 December 1991.
Countries represented: Canada, Faroe Islands, Japan, UK, USA.
Report available as Doc. C.M.1992/N:3.
2. International Bottom Trawl Survey Working Group
(C.Res.1991/2:23)
Chairman: Dr H.J.L. Heessen
Held in Copenhagen, 13-17 January 1992.
Countries represented: Denmark, France, Germany, Netherlands, Norway, UK.
Report available as Doc. C.M.1992/H:3.
3. Study Group on Stock Identity of Mackerel and Horse Mackerel
(C.Res.1991/2:21)
Chairman: Ms C. Porteiro
Held in Vigo, Spain, 21-23 January 1992.
Countries represented: Netherlands, Portugal, Spain, UK.
Report available as Doc. C.M.1992/H:4.
4. Statistics Committee Liaison Working Group
(C.Res.1991/2:10)
Chairman: Dr M. Fogarty
Held in Copenhagen, 29-30 January 1992.
Countries represented: Belgium, Denmark, EUROSTAT, Germany, Norway, Sweden.
Report available as Doc. C.M.1992/D:1.

5. Working Group on Multispecies Assessments of Baltic Fish
(C.Res.1991/2:7:11)
Chairman: Mr H. Sparholt
Held in Riga, Latvia, 30 January - 6 February 1992.
Countries represented: Denmark, Estonia, Finland, Germany, Latvia, Poland, Sweden, Russia.
Report available as Doc. C.M.1992/Assess:7.
6. Study Group on the North American Salmon Fisheries
(C.Res.1991/2:7:3)
Chairman: Dr R. Porter
Held in St John's, Nfld, Canada, 17-21 February 1992.
Countries represented: Canada, USA.
Report available as Doc. C.M.1992/M:3.
7. Working Group on *Nephrops* and *Pandalus* Stocks
(C.Res.1991/2:7:1)
Chairman: Dr N. Bailey
Held in Aberdeen, Scotland, 26 February - 5 March 1992.
Countries represented: Belgium, Denmark, France, Iceland, Ireland, Norway, Portugal, Spain, Sweden, UK.
Report available as Doc. C.M.1992/Assess:8.
8. Study Group on the Norwegian Sea and Faroes Salmon Fishery
(C.Res.1991/2:7:4)
Chairman: Dr E.C.E. Potter
Held in Dublin, Ireland, 28 February - 1 March 1992.
Countries represented: Faroe Islands, Finland, Iceland, Ireland, Norway, Sweden, UK.
Report available as Doc. C.M.1992/M:4.
9. Working Group on North Atlantic Salmon
(C.Res.1991/2:7:5)
Chairman: Dr K. Friedland
Held in Dublin, Ireland, 5-12 March 1992.
Countries represented: Canada, Denmark, Finland, France, Ireland, Russia, Sweden, UK, USA.
Report available as Doc. C.M.1992/Assess:15.
10. Study Group on Division IIIa Demersal Stocks
(C.Res.1991/2:7:21)
Chairman: Ms E. Nielsen
Held in Copenhagen, 9-13 March 1992.
Countries represented: Denmark, Norway, Sweden.
Report available as Doc. C.M.1992/G:2.
11. Study Group on Tagging Experiments for Juvenile Plaice
(C.Res.1991/2:11)
Chairman: Mr F. van Beek
Held in IJmuiden, Netherlands, 16-20 March, 1992.
Countries represented: France, Netherlands, UK.
Report available as Doc. C.M.1992/G:10.
12. Study Group on the Analysis of Feeding Data
(C.Res.1991/2:12)
Chairman: Dr G. Lilly
Held in St John's, Nfld, Canada, 17-19 March 1992.
Countries represented: Canada, Denmark, Germany, Norway, Spain, UK, USA.
Report available as Doc. C.M.1992/G:4.

13. Industrial Fisheries Working Group
(C.Res.1991/2:7:17)
Chairman: Mr D. Skagen
Held in Copenhagen, 18-25 March 1992.
Countries represented: Denmark, Norway, UK.
Report available as Doc. C.M.1992/Assess:9.
14. Baltic Salmon and Trout Working Group
(C.Res.1991/2:7:2)
Chairman: Mr V. Pruuki
Held in Copenhagen, 24-31 March 1992.
Countries represented: Denmark, Finland, Poland, Sweden.
Report available as Doc. C.M.1992/Assess:10.
15. Herring Assessment Working Group for the Area South of 62°N
(C.Res.1991/2:7)
Chairman: Mr O. Hagström
Held in Copenhagen, 31 March - 10 April 1992.
Countries represented: Canada, Denmark, France, Ireland, Netherlands, Norway, Sweden, UK.
Report available as Doc. C.M.1992/Assess:11.
16. Planning Group for Hydroacoustic Surveys in the Baltic
(C.Res.1991/2:27)
Chairman: Mr L.E. Palmén
Held in Copenhagen, 21-22 April 1992.
Countries represented: Denmark, Finland, Germany, Latvia, Poland, Sweden.
Report available as Doc. C.M.1992/J:10.
17. Working Group on the Assessment of Demersal Stocks in the Baltic
(C.Res.1991/2:7:6)
Chairman: Mr E. Aro
Held in Copenhagen, 21-29 April 1992.
Countries represented: Denmark, Finland, Germany, Latvia, Poland, Sweden.
Report available as Doc. C.M.1992/Assess:12.
18. Working Group on the Assessment of Pelagic Stocks in the Baltic
(C.Res.1991/2:7:8)
Chairman: Dr O. Rechlin
Held in Copenhagen, 21-29 April 1992.
Countries represented: Denmark, Estonia, Finland, Germany, Poland, Sweden.
Report available as Doc. C.M.1992/Assess:13.
19. Steering Group for the Production and Publication of an Atlas of North Sea Fish
(C.Res.1991/2:16)
Chairman: Dr H. Heessen
Held in IJmuiden, Netherlands, 29 April - 1 May 1992.
Countries represented: Netherlands, UK.
Report available as Doc. C.M.1992/G:13.
20. Planning Group on the Stomach Sampling Project in 1991
(C.Res.1991/2:13)
Chairman: Dr J.R.G. Hislop
Held in IJmuiden, Netherlands, 23-28 April 1992.
Countries represented: Denmark, Germany, Netherlands, Norway, UK.
Report available as Doc. C.M.1992/G:12.

21. North-Western Working Group
(C.Res.1991/2:7:10)
Chairman: Dr S. Schopka
Held in Copenhagen, 4-12 May 1992.
Countries represented: Denmark, Faroe Islands, Germany, Greenland, Iceland, Norway, Russia.
Report available as Doc. C.M.1992/Assess:14.
22. Study Group on Redfish Stocks
(C.Res.1991/2:18)
Chairman: Dr J. Magnusson
Held in Copenhagen, 13-15 May 1992.
Countries represented: Denmark, Faroe Islands, Germany, Iceland, Russia, Spain.
Report available as Doc. C.M.1992/G:14.
23. Report of the Study Group on Fisheries Units in Sub-Areas VII and VIII
(C.Res.1991/2:7:22)
Chairman: Dr J. Casey
Held in Nantes, France, 3-19 June 1992.
Countries represented: France, Spain, UK.
Report available as Doc. C.M.1992/G:15.
24. Multispecies Assessment Working Group
(C.Res.1991/2:7.18)
Chairman: Dr S. Murawski
Held in Copenhagen, 16-25 June 1992.
Countries represented: Canada, Denmark, Greenland, Iceland, Netherlands, Norway, Russia, UK, USA.
Report available as Doc. C.M.1992/Assess:16.
25. Working Group on Fishing Technology and Fish Behaviour
(C.Res.1991/2:8)
Chairman: Mr B. van Marlen
Held in Bergen, Norway, 15-16 June 1992.
Countries represented: Australia, Belgium, Canada, Denmark, Faroe Islands, Finland, France, Germany, Greenland, Iceland, Italy, Netherlands, Norway, Spain, Sweden, UK.
Report available as Doc. C.M.1992/B:4.
26. Joint Session of the Working Group on Fishing Technology and Fish Behaviour and the Working Group on Fisheries Acoustics Science and Technology
(C.Res.1991/2:9)
Chairman: Dr P.A.M. Stewart
Held in Bergen, Norway, 16 June 1992.
Countries represented: Australia, Belgium, Canada, Denmark, Faroe Islands, Finland, France, Germany, Greenland, Iceland, Italy, Netherlands, Norway, Spain, Sweden, UK.
Report available as Doc. C.M.1992/B:6.
27. Working Group on Fisheries Acoustic Science and Technology
(C.Res.1991/2:9)
Chairman: Dr J. Traynor
Held in Bergen, Norway, 17-18 June 1992.
Countries represented: Australia, Belgium, Canada, Denmark, Faroe Islands, Finland, France, Germany, Greenland, Iceland, Italy, Netherlands, Norway, Spain, Sweden, UK.
Report available as Doc. C.M.1992/B:5.

28. Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine and Anchovy
(C.Res.1991/2:7:9)
Chairman: Mr A. Eltink
Held in Copenhagen, 22-30 June 1992.
Countries represented: Denmark, France, Ireland, Netherlands, Norway, Portugal, Spain, UK.
Report available as Doc. C.M.1992/Assess:17.
29. Working Group on Recruitment Processes
(C.Res.1991/2:48)
Chairman: Dr M. Heath
Held in Fuengirola, Spain, 23-26 June 1992.
Countries represented: Canada, Denmark, Germany, Norway, Poland, Spain, Sweden, United Kingdom, USA.
Report available as Doc. C.M.1992/L:6.
30. Study Group on Fecundity of Sole and Plaice in Sub-Areas IV, VII, and VIII
(C.Res.1991/2:15)
Chairman: Mr A.D. Rijnsdorp
Held in Lowestoft, England, 6-10 July 1992.
Countries represented: Canada, France, Netherlands, UK.
Report available as Doc. C.M.1992/G:16.
31. Arctic Fisheries Working Group
(C.Res.1991/2:7:13)
Chairman: Mr L. Sunnanå
Held in Copenhagen, 25 August - 3 September 1992.
Countries represented: Canada, Faroe Islands, Germany, Norway, Spain, Russia.
Report available as Doc. C.M.1993/Assess:1.
32. Study Group on Young Fish Surveys in the Baltic
(C.Res.1991/2:25)
Chairman: Dr T. Raid
Held in Tallinn, Estonia, 31 August - 4 September 1992.
Countries represented: Canada, Denmark, Estonia, Finland, Germany, Latvia, Poland, Sweden.
Report will be presented to the 1993 Statutory Meeting.
33. Working Group on the Assessment of Northern Shelf Demersal Stocks
(C.Res.1991/2:7:15)
Chairman: Dr P.A. Kunzlik
Held in Aberdeen, 1-10 September 1992
Countries represented: Faroe Islands, France, Ireland, Norway, UK.
Report available as Doc. C.M.1993/Assess:2.
34. Working Group on Southern Shelf Demersal Stocks
(C.Res.1991/2:7:16)
Chairman: Mr B. Mesnil
Held in Copenhagen, 8-17 September 1992.
Countries represented: France, Spain, UK.
Report available as Doc. C.M.1993/Assess:3.
35. Blue Whiting Assessment Working Group
(C.Res.1991/2:7:12)
Chairman: Mr T. Monstad
Held in Copenhagen, 9-15 September 1992.
Countries represented: Faroe Islands, Norway, Spain, Russia.
Report available as Doc. C.M.1993/Assess:4.

36. Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak
(C.Res.1991/2:7:14)
Chairman: Dr R.M. Cook
Held in Copenhagen, 6-14 October 1992.
Countries represented: Belgium, Canada, Denmark, France, Germany, Netherlands, Norway, Sweden, UK.
Report available as Doc. C.M.1993/Assess:5.
37. Atlanto Scandian Herring and Capelin Working Group
(C.Res.1991/2:7:20)
Chairman: Mr H. í Jakupsstovu
Held in Copenhagen, 19-23 October 1992.
Countries represented: Canada, Faroe Islands, Iceland, Norway, Russia.
Report available as Doc. C.M.1993/Assess:6.

C. GROUPS CONCERNED WITH ENVIRONMENTAL SUBJECTS

1. Working Group on Environmental Assessment and Monitoring Strategies
(C.Res.1990/2:27:1)
Chairman: Mr S. Carlberg
Held in Halifax, Canada, 4-8 November 1991.
Countries represented: Canada, FAO, France, Netherlands, Spain, Sweden.
Report available as Doc. C.M.1992/Poll:9.
2. Study Group on SKAGEX
(C.Res.1991/2:33)
Chairman: Dr B.I. Dybern
Held in Gdynia, Poland. 4-8 November 1991.
Countries represented: Denmark, Estonia, Germany, Norway, Poland, Sweden, Russia.
Report available as Doc. C.M.1992/C:1.
3. Working Group on Shelf Seas Oceanography
(C.Res.1991/2:35)
Chairman: Dr T. Osborn
Held in Copenhagen, 26-28 February 1992.
Countries represented: Denmark, Netherlands, Norway, Sweden, UK, USA.
Report available as Doc. C.M.1992/C:3.
4. Working Group on Pathology and Diseases of Marine Organisms
(C.Res.1991/2:42)
Chairman: Dr B.J. Hill
Held in Copenhagen, 2-5 March 1992.
Countries represented: Denmark, Germany, Netherlands, Sweden, UK.
Report available as Doc. C.M.1992/F:2.
5. Study Group on Seals and Small Cetaceans in European Seas
(C.Res.1991/2:52)
Chairman: Dr J. Harwood
Held in Cromarty, Scotland, 2-5 March 1992.
Countries represented: Denmark, Germany, Netherlands, Norway, Sweden, UK.
Report available as Doc. C.M.1992/N:4.

6. Ad hoc Planning Group on the ICES/IOC/OSPARCOM ad hoc Intercomparison Programme on the Analysis of Chlorobiphenyls in Marine Media
(C.Res.1991/2:32:2)
Chairman: Dr J. de Boer
Held in Tenerife, Canary Islands, Spain, 7 March 1992.
Countries represented: Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Monaco, Netherlands, Norway, Portugal, Russia, Spain, Sweden, UK, USA.
Report available as Doc. C.M.1992/E:5.
7. Marine Chemistry Working Group
(C.Res.1991/2:31:1)
Chairman: Dr W. Cofino
Held in Tenerife, Canary Islands, Spain, 9-14 March 1992.
Countries represented: Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Ireland, Netherlands, Norway, Portugal, Spain, Sweden, UK.
Report available as Doc. C.M.1992/Poll:2.
8. Steering Group for the Coordination of the Baseline Study of Contaminants in Baltic Sea Sediments
(C.Res.1991/2:32:3)
Chairman: Dr M. Perttilä
Held in Lysekil, Sweden, 16-27 March 1992.
Countries represented: Denmark, Finland, Germany, Poland, Sweden.
Report available as Doc. C.M.1992/E:3.
9. Working Group on the Baltic Marine Environment
(C.Res.1991/2:39)
Chairman: Dr H.P. Hansen
Held in Lysekil, Sweden, 18-20 March 1992.
Countries represented: Estonia, Finland, Germany, Lithuania, Poland, Sweden,.
Report available as Doc. C.M.1992/E:4.
10. Study Group on Zooplankton Production
(C.Res.1991/2:47)
Chairman: Mr H.R. Skjoldal
Held in Bergen, Norway, 23-26 March 1992.
Countries represented: Faroe Islands, Germany, Norway, Spain, USA.
Report available as Doc. C.M.1992/L:5.
11. Working Group on Statistical Aspects of Trend Monitoring
(C.Res.1991/2:32:9)
Chairman: Dr J.F. Uthe
Held in Halifax, Canada, 31 March - 3 April 1992.
Countries represented: Canada, France, Netherlands, Norway, Sweden, UK.
Report available as Doc. C.M.1992/Poll:1.
12. Study Group on Dynamics of Algal Blooms in Coastal Waters
(C.Res.1991/2:36)
Chairman: Ms B. Reguera
Held in Vigo, Spain, 7-9 April 1992.
Countries represented: Canada, Denmark, Croatia, France, IOC, Netherlands, Portugal, Norway, Spain, Sweden, UK, USA.
Report available as Doc. C.M.1992/L:4.
13. Working Group on Introductions and Transfers of Marine Organisms
(C.Res.1991/2:32:11)
Chairman: Dr J.T. Carlton
Held in Lisbon, Portugal, 14-17 April 1992.
Countries represented: Canada, Finland, France, Ireland, Portugal, Sweden, UK, USA.
Report available as Doc. C.M.1992/Poll:3.

14. Working Group on Oceanic Hydrography
(C.Res.1991/2:37)
Chairman: Dr E. Buch
Held in Tórshavn, Faroe Islands, 22-24 April 1992.
Countries represented: Denmark, Faroe Islands, Germany, Iceland, Netherlands, Norway, Sweden, UK.
Report available as Doc. C.M.1992/C:4.
15. Working Group on Environmental Impacts of Mariculture
(C.Res.1991/2:43)
Chairman: Dr H. Rosenthal
Held in Kiel, Germany, 22-24 April 1992.
Countries represented: Canada, Denmark, France, Germany, Ireland, Netherlands, Norway, UK, USA.
Report available as Doc. C.M.1992/F:14.
16. Working Group on Marine Data Management
(C.Res.1991/2:38)
Chairman: Dr J. Blindheim
Held in Torshavn, Faroe Islands, 22-25 April 1992.
Countries represented: Faroe Islands, Finland, Germany, Netherlands, Norway, Sweden, UK.
Report available as Doc. C.M.1992/C:5.
17. Working Group on Phytoplankton and the Management of their Effects
(C.Res.1991/2:32:8)
Chairman: Dr K. Jones
Held in La Rochelle, France, 27-29 April 1992.
Countries represented: Canada, France, Germany, Iceland, Norway, Spain, Sweden, Ukraine, UK, USA.
Report available as Doc. C.M.1992/Poll:4.
18. ICES/NSTF/OSPARCOM ad hoc Working Group on Sediment Baseline Study Data Assessment
(C.Res.1991/2:32:5)
Chairman: Dr S. Rowlatt
Held in Copenhagen, 27 April - 2 May 1992.
Countries represented: Denmark, France, Germany, Netherlands, Norway, Portugal, UK.
Report to be published in the *ICES Cooperative Research Report* series.
19. Working Group on Biological Effects of Contaminants
(C.Res.1991/2:32:6)
Chairman: Dr R. Addison
Held in Copenhagen, 4-8 May 1992.
Countries represented: Belgium, Canada, France, Germany, Netherlands, Sweden, UK.
Report available as Doc. C.M.1992/Poll:5.
20. Benthos Ecology Working Group
(C.Res.1991/2:46)
Chairman: Dr P. Kingston
Held Bergen, Norway, 4-8 May 1992.
Countries represented: Canada, Denmark, Faroe Islands, Germany, Netherlands, Norway, Sweden, UK.
Report available as Doc. C.M.1992/L:11.
21. Working Group on Marine Sediments in Relation to Pollution
(C.Res.1991/2:32:4)
Chairman: Dr S. Rowlatt
Held in Copenhagen, 4-9 May 1992.
Countries represented: Canada, Denmark, France, Germany, Netherlands, Norway, Spain, Sweden, UK.
Report available as Doc. C.M.1992/Poll:6.

22. Study Group on the Biological Significance of Contaminants in Marine Sediments
(C.Res.1991/2:32:10)
Chairman: Dr H. Windom
Held in Copenhagen, 11-14 May 1992.
Countries represented: Canada, Germany, Netherlands, Norway, Spain, Sweden, UK.
Report available as Doc. C.M.1992/Poll:7.

D. WORKSHOPS

1. Workshop on Salmon Assessment Methodology
(C.Res.1991/2:32)
Chairman: Mr J. Browne
Held in Dublin, Ireland, 2-4 March 1992.
Countries represented: Denmark, Finland, France, Iceland, Ireland, Norway, Sweden, UK, USA.
Report available as Doc. C.M.1992/M:8.
2. Workshop on Methods of Forecasting Herring Catches in Division IIIa and the North Sea
(C.Res.1991/2:7:23)
Chairman: Dr R. Bailey
Held in Lysekil, Sweden, 10-13 March 1992.
Countries represented: Denmark, Germany, Norway, Sweden.
Report available as Doc. C.M.1992/H:5.
3. Workshop for Revising the Horse Mackerel Database of Divisions VIIIc and IXa
(C.Res.1991/2:24)
Chairman: Dr (Ms) F.M. Borges
Held in Lisbon, Portugal, 5-7 May 1992.
Countries represented: Portugal, Spain.
Report available as Doc. C.M.1992/H:7.
4. Workshop on the Analysis of Trawl Survey Data
(C.Res.1991/2:20)
Chairman: Dr S. Gavaris
Held in Woods Hole, MA, USA, 4-9 June 1992.
Countries represented: Canada, Denmark, France, Iceland, Netherlands, Norway, South Africa, Spain, UK, USA.
Report available as Doc. C.M.1992/D:6.
5. Workshop on Baltic Sprat Age Determination
(C.Res.1991/2:26)
Chairman: Dr R. Aps
Held in Tallinn, Estonia, 24-29 August 1992.
Countries represented: Denmark, Estonia, Finland, Sweden.
Report available as Doc. C.M.1992/J:12.

In addition to the meetings of the Groups indicated above, the following worked by correspondence:

1. Steering Group on Cod and Climate Change
(C.Res.1991/2:6)
Chairman: Prof. B. Rothschild
Report available as Doc. C.M.1992/G:17.
2. Study Group on Beam Trawl Surveys
(C.Res.1991/2:14)
Chairman: Dr R. Millner
Report available as Doc. C.M.1992/G:18.

3. Study Group on the Coordination of Bottom Trawl Surveys in Sub-Areas VI, VII, and VIII and Division IXa
(C.Res.1991/2:17)
Chairman: Dr J.C. Poulard
Report available as Doc. C.M.1992/G:19.
4. Study Group on Age Units for Herring
(C.Res.1991/2:20)
Chairman: Mr A. Corten
Report available as Doc. C.M.1992/H:8.
5. Study Group on Life Histories and Assessment Methods of *Pandalus* Stocks in the North Atlantic
(C.Res.1991/2:29)
Chairman: Mr S. Munch-Petersen
Report available as Doc. C.M.1992/K:8.
6. Study Group on Life Histories and Assessment Methods of *Nephrops* Stocks
(C.Res.1991/2:30)
Chairman: Dr N. Bailey
Report available as Doc. C.M.1992/K:9.
7. Working Group on the Effects of Extraction of Marine Sediments
(C.Res.1991/2:40)
Chairman: Dr S.J. de Groot
Report available as Doc. C.M.1992/E:7.
8. Working Group on Mass Rearing of Juvenile Marine Fish
(C.Res.1991/2:42)
Chairman: Dr I. Huse
Report available as Doc. C.M.1992/F:4.
9. Working Group on Genetics
(C.Res.1991/2:44)
Chairman: Dr W. Vilwock
Report available as Doc. C.M.1992/F:5.
10. Study Group on Seabird/Fish Interactions
(C.Res.1991/2:49)
Chairmen: Drs R. Bailey and G. Hunt
Report available as Doc. C.M.1992/L:8.
11. Study Group on Gulf III Plankton Sampler Efficiency Calibrations
(C.Res.1991/2:50)
Chairmen: Mr A. Corten
Report available as Doc. C.M.1992/L:9.
12. Study Group on FISHBASE
(C.Res.1991/2:51)
Chairmen: Dr R. Froese
Report available as Doc. C.M.1992/L:10.
13. Study Group on Life Histories and Assessment Methods of *Pandalus* Stocks in the North Atlantic
(C.Res.1991/2:21)
Chairmen: Mr S. Munch-Petersen
Report available as Doc. C.M.1992/K:8.
14. Study Group on Pollution Affecting Shellfish in Aquaculture and Natural Populations
(C.Res.1991/2:45)
Chairman: Dr M. Héral
Report available as Doc. C.M.1992/K:10.

INCOME AND EXPENDITURE ACCOUNTS FOR 1/11/1990 - 31/10/1991

INCOME

1. National Contributions	<u>DKK</u>	<u>DKK</u>
Belgium	423,200.00	
Canada	634,800.00	
Denmark	634,800.00	
Finland	317,400.00	
France	846,400.00	
German Democratic Republic	634,800.00	
Federal Republic of Germany	846,400.00	
Iceland	423,200.00	
Ireland	423,200.00	
Netherlands	634,800.00	
Norway	634,800.00	
Poland	634,800.00	
Portugal	423,200.00	
Spain	634,670.00	
Sweden	634,800.00	
United Kingdom	846,500.00	
USA	634,800.00	
USSR	<u>846,400.00</u>	11,108,970.00
 2. Interest		
General Funds	625,650.35	
Capital Reserve Fund	89,292.68	
Computer Loan	24,289.05	
Computer Equipment Fund	73,038.85	
- Bank Charges	<u>1,170.88</u>	
	811,100.05	
Carried to Capital Reserve Fund	89,292.68	
Carried to Computer Equipment Expenditure	24,289.05	
Carried to Computer Equipment Fund	<u>73,038.85</u>	624,479.47
 3. Publications		
Sale of Publications	168,885.13	
An Annotated Bibliography on the Pinnipedia	<u>956.51</u>	
	169,841.64	
Carried to Balance Sheet	<u>956.51</u>	168,885.13
 To carry forward		11,902,334.60

	<u>DKK</u>	<u>DKK</u>
INCOME brought forward		11,902,334.60
4. Contribution from NEAFC		444,000.00
5. Contribution from IBSFC		163,000.00
6. Contribution from Oslo and Paris Commissions		374,230.64
7. Contribution from Helsinki Commission		97,520.00
8. Contribution from NASCO		229,000.00
9. Contribution from EC Commission		441,985.00
10. Contribution from Faroe Islands and Greenland		211,600.00
11. Excess of Income over Expenditure 1987/1988		85,601.17
12. Transferred from Capital Reserve Fund		467,000.00
13. Miscellaneous Income		
Royalties on "Study of the Sea"	437.18	
ICES T-shirts and Sweatshirts	18,259.69	
ICES Keyfobs	1,491.15	
ICES Ties	3,740.87	
	<u>23,928.89</u>	
Carried to Balance Sheet	<u>23,491.71</u>	437.18
14. North Sea Task Force		
Balance as at 1 November 1990	72,949.47	
Contribution 1991	306,700.00	
- Travels	90,945.50	
- Salary	152,652.48	
- General Office Overheads	20,878.78	
	<u>264,476.76</u>	
	115,172.71	
Carried to Balance Sheet	<u>115,172.71</u>	0.00
General Fund	113,280.00	
Data Handling	34,677.25	
	<u>78,602.75</u>	
Carried to Balance Sheet	<u>78,602.75</u>	0.00
TOTAL		<u>14,416,708.59</u>

EXPENDITURE

	<u>DKK</u>	<u>DKK</u>
1. Incidentals for President and Chairmen		55,800.00
2. Salaries		
(a) Professional Category Posts	4,828,693.88	
(b) General Service Category Posts	5,049,708.38	
(c) Provision for Increase in Salaries	42,720.31	
(d) Periodic Assistance	113,348.90	
	<u>10,034,471.47</u>	
- Staff Assessment	2,728,784.63	7,305,686.84
3. Office Expenses		
(a) Electricity, Plumbing & Heating	305,105.34	
(b) Watchman	164,489.23	
(c) Office Cleaning	424,185.31	
(d) Stationery	372,449.99	
(e) Postage, Telephone, etc.	558,241.81	
(f) Office Equipment	53,770.59	
- Platemaker 1989/1990 returned	18,677.00	
	<u>35,093.59</u>	
(g) Insurance	56,228.26	
(h) Office Maintenance	75,000.00	
(i) Miscellaneous	120,242.87	
T-shirts and Sweatshirts	11,295.00	
	<u>131,537.87</u>	
- Carried to Balance Sheet	11,295.00	120,242.87
	<u>2,111,036.40</u>	
- Refundment of Tax	330,403.93	
	<u>1,780,632.47</u>	
- Overhead Costs 1990 North Sea Task Force	20,878.78	1,759,753.69
4. ADP Expenses		
(a) Running Costs (Computer and Word Processing)	765,344.97	
(b) Replacement Items	98,553.63	
(c) <u>Instalment, Computer Loan:</u>		
New Computer Equipment	3,014,507.82	
Initial Charges on Loan	33,775.00	
Interest gained	-24,289.05	
	<u>3,023,993.77</u>	
Computer Equipment Fund	-1,339,428.06	
Computer Loan	-1,184,565.71	500,000.00
	<u>1,363,898.60</u>	
- Refundment of Tax	103,605.06	1,260,293.54
To carry forward		10,381,534.07

	<u>DKK</u>	<u>DKK</u>
EXPENDITURE brought forward		10,381,534.07
5. Expenses for C.M.1991, La Rochelle		
(a) General Expenses	130,429.78	
(b) Travels	<u>267,677.92</u>	398,107.70
6. Travels, Meetings, etc.		
(a) Bureau	63,677.13	
(b) President and General Secretary	55,606.50	
(c) ACFM	669,680.28	
(d) ACMP	294,409.28	
(e) Cooperating Organizations	265,659.50	
Payment from HELCOM, IBSFC and CEC	<u>-136,588.38</u>	
(f) Symposia	129,071.12	
(g) Programme Planning Group	18,794.07	
(h) Intercalibration Exercises	<u>30,738.92</u>	
	35,675.10	1,297,652.40
7. Publications		
(a) ICES Journal of Marine Science	233,740.50	
(b) ICES Marine Science Symposia	571,716.45	
Payment from USA (RPV/189)	<u>-178,916.45</u>	
(c) ICES Annual Report	392,800.00	
(d) ICES Cooperative Research Reports	31,700.60	
(e) Oceanographic Data Lists	208,000.00	
(f) ICES Fisheries Statistics	0.00	
(g) Leaflets for Plankton and Diseases	50,000.00	
(h) Abstracts of Scientific Papers	32,000.00	
(j) TIMES	6,833.50	
(k) Reprint Outlay 1990/1991	36,469.89	
Received	14,899.00	
	<u>-3,427.00</u>	
	11,472.00	
Carried to Balance Sheet	<u>11,472.00</u>	0.00
		991,544.49
8. Pensions		
(a) Voted Pensions	24,000.00	
(b) ICES Pension Scheme	876,718.04	
(c) Danish State Pension (ATP)	37,324.80	
Payment for negative VAT	<u>-15,616.00</u>	
	21,708.80	922,426.84
Total		13,991,265.50
9. Excess of Income over Expenditure 1990/1991		
Carried to Computer Equipment Fund		<u>425,443.09</u>
GRAND TOTAL		<u>14,416,708.59</u>

BALANCE SHEET AT 31 OCTOBER 1991

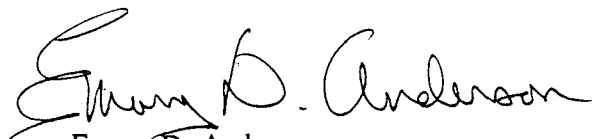
LIABILITIES


	<u>DKK</u>	<u>DKK</u>
Capital Reserve Fund		
as at 1/11/1990	1,455,030.22	
Interest	89,292.68	
Gain in Value of Bonds at 31/10/1991	5,109.30	
Transferred to Budget 1990/1991	<u>467,000.00</u>	1,082,432.20
Computer Equipment Fund		
as at 1/11/1990	1,266,389.21	
Interest	73,038.85	
New Computer Equipment paid	-1,339,428.06	
Transferred from Accounts 1990/1991	<u>425,443.09</u>	425,443.09
Pension Funds		
as at 1/11/1990	250,083.22	
Contributions 1990/1991	207,916.20	
Interest and Gain in Value of Bonds	<u>53,078.00</u>	511,077.42
UNIBANK Computer Loan		1,425,000.00
Contributions prepaid for 1991/1992		10,487,584.00
ATP		4,989.60
Library Fund		6,864.00
Fund for Office Maintenance		50,326.71
Publications		487,703.31
Hydrocarbon Measurement Exercise		20,566.97
Intercalibration Exercise on PCBs		45,000.00
North Sea Task Force		115,172.71
OSPARCOM General Fund		78,602.75
Provision for Increase in Salaries at 1 July 1991		42,720.31
Creditors		87,348.71
Interest 1991/1992		<u>406,408.82</u>
		<u>15,277,240.60</u>

ASSETS

	<u>DKK</u>	<u>DKK</u>
Cash in hand	20,356.25	
UNIBANK Check Account	101,071.80	
UNIBANK 842-44-15562	342,066.33	
UNIBANK Bonus Account	9,899,560.30	
Giro Account	11,167.14	
UNIBANK/Capital Reserve Fund	<u>961,389.95</u>	11,335,611.77
UNIBANK/Pensions		6,307.02
UNIBANK/Computer Equipment Loan		230,948.34
Computer Equipment		1,184,565.71
Bonds		
Capital Reserve Fund:		
Market Value of 10% Kreditforening Danmark, alm. 43-2004		
(nom. value DKK 120,500) at 31/10/1991, 100.45		121,042.25
Pension Funds		504,770.40
Prepaid Postage		10,900.00
Stock of:		
Ties	16,977.46	
- Sale	<u>3,740.87</u>	13,236.59
T-shirts and Sweatshirts Old Stock	12,235.03	
T-shirts and Sweatshirts New Stock	<u>11,295.00</u>	
	23,530.03	
- Sale	<u>18,739.69</u>	4,790.34
Keyfobs	11,459.00	
- Sale	<u>1,491.15</u>	9,967.85
An Annotated Bibliography on the Pinnipedia	17,650.35	
- Sale	<u>956.51</u>	16,693.84
To carry forward		13,438,834.11

	<u>DKK</u>	<u>DKK</u>
ASSETS brought forward		13,438,834.11
Debtors		
Unpaid Contributions	1,382,782.20	
Reprint Outlay	11,472.00	
VAT Computer Equipment	36,273.06	
Rent of Parking Places	750.00	1,431,277.26
	<hr/>	
Tax on Publication Expenses	106,046.33	
Tax on Sale of Publications	23,000.50	
	<hr/>	
	83,045.83	
- Tax refunded	70,963.00	12,082.83
	<hr/>	
Suspense Account		
ACFM Meeting November 1991	353,250.40	
Education Grant	41,796.00	395,046.40
	<hr/>	
		15,277,240.60
		<hr/>


 Emory D. Anderson
 General Secretary


 Karen Schrader
 Administrative Secretary

The above Balance Sheet has been audited by Rigsrevisionen. Rule 20 (vii) of the Council's Rules of Procedure has been observed.

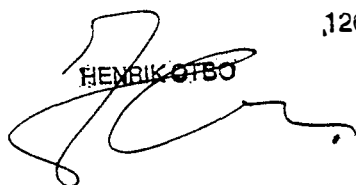
During the audit, Rigsrevisionen observed a need to remedy the procedures regarding the consecutive numbering of invoices covering the sale of publications.

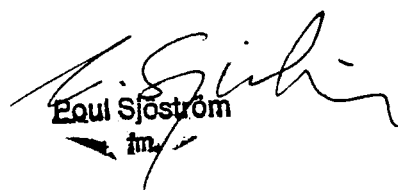
ICES has recognized this need and confirms that appropriate procedures will be established. Rigsrevisionen intends to review the established procedures in due time.

For the Auditor General of Denmark

- 4 SEP. 1992

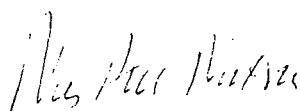
RIGSREVISIONEN
ST. KONGENSGADE 45-47
1264 KØBENHAVN K


HENRIK OTHO


Eoul Sjöström
fm

We approve the foregoing Accounts and Balance Sheet.







Peter Walker

DRAFT BUDGET FOR THE FINANCIAL YEAR 1992/1993

INCOME

Approved Budget 1991/1992		Draft Budget 1992/1993	Approved Forecast Budget 1992/1993
DKK (in '000s)		DKK	DKK
	1. National Contributions		
464.8	Belgium	497,200	497,200
697.2	Canada	745,800	745,800
697.2	Denmark	745,800	745,800
348.6	Finland	372,900	372,900
929.6	France	994,400	994,400
929.6	Germany	994,400	994,400
464.8	Iceland	745,800	745,800
464.8	Ireland	497,200	497,200
697.2	Netherlands	745,800	745,800
929.6	Norway	994,400	994,400
697.2	Poland	745,800	745,800
464.8	Portugal	497,200	497,200
929.6	Russia	994,400	994,400
697.2	Spain	745,800	745,800
697.2	Sweden	745,800	745,800
929.6	United Kingdom	994,400	994,400
697.2	USA	745,800	745,800
11,736.2	Total	12,802,900	12,802,900
459.4	2. Interest	528,650	528,650
110.0	3. Sale of Publications	122,000	122,000
487.5	4. Contribution from NEAFC	532,000	532,000
179.0	5. Contribution from IBSFC	195,000	195,000
402.0	6. Contribution from Oslo and Paris Commissions	455,000	455,000
108.9	7. Contribution from Helsinki Commission	220,000	220,000
251.5	8. Contribution from NASCO	274,500	274,500
467.0	9. Contribution from EC Commission	1,333,900	1,333,900
223.5	10. Contribution from Faroe Islands and Greenland	244,000	244,000
35.0	11. Transferred from Capital Reserve Fund	75,000	0
464.8	12. Supplementary Budget	0	0
14,924.8	GRAND TOTAL	16,782,950	16,707,950

EXPENDITURE

Approved Budget 1991/1992		Draft Budget 1992/1993	Approved Forecast Budget 1992/1993
DKK (in '000s)		DKK	DKK
55.8	1. Incidentals for President and Chairmen	55,800	55,800
	2. Salaries		
5,293.0	a) Professional Category Posts	6,079,650	6,079,650
5,211.0	b) General Services Category Posts	5,687,500	5,687,500
37.0	c) Increase in Salaries	48,500	48,500
100.0	d) Periodic Assistance	150,000	150,000
0	e) Personnel Services	941,000	0
10,641.0	Sub-total	12,906,650	11,965,650
2,819.0	- Staff Assessment	3,214,000	3,214,000
7,822.0	Total	9,692,650	8,751,650
	3. Office Expenses		
320.0	a) Electricity and Heating	336,000	336,000
167.0	b) Watchman	175,000	175,000
440.0	c) Office Cleaning	462,000	462,000
265.0	d) Stationery	338,500	330,000
385.0	e) Postage, Telephone, etc.	505,000	505,000
50.0	f) Office Equipment	53,000	53,000
40.0	g) Insurance	42,000	42,000
100.0	h) Office Maintenance	180,000	105,000
55.0	i) Miscellaneous	58,000	58,000
6.0	j) Library	6,500	6,500
1,828.0	Sub-total	2,156,000	2,072,500
207.0	- Refundment of Tax	270,000	270,000
1,621.0	Total	1,886,000	1,802,500
	4. ADP Expenses		
1,008.0	a) Running Costs (Computer and Word Processing) . .	1,050,000	1,050,000
74.5	b) Replacement Items	78,000	78,000
500.00	c) Instalment, Computer System Loan	500,000	500,000
1,582.5	Sub-total	1,628,000	1,628,000
195.0	- Refundment of Tax	203,000	203,000
1,387.5	Total	1,425,000	1,425,000
	5. Expenses for C.M. 1993, Dublin		
130.0	a) General Expenses	115,000	115,000
305.0	b) Travels	354,000	354,000
435.0	Total	469,000	469,000

EXPENDITURE

Approved Budget 1991/1992		Draft Budget 1992/1993	Approved Forecast Budget 1992/1993
DKK (in '000s)		DKK	DKK
	6. Travels, Meetings, etc.		
82.0	a) Bureau	86,000	86,000
73.0	b) President and General Secretary	80,000	80,000
790.0	c) ACFM	830,000	830,000
320.0	d) ACMP	386,000	386,000
110.0	e) Other Secretariat Travels and Meetings	115,500	115,500
69.0	f) Symposia	72,000	72,000
69.0	g) Programme Planning Group	72,000	72,000
55.6	h) Intercalibration Exercises	58,000	58,000
1,568.6	Total	1,699,500	1,699,500
	7. Publications		
450.0	a) ICES Marine Science Symposia	475,000	475,000
27.3	b) ICES Annual Report	28,500	28,500
208.0	c) ICES Cooperative Research Reports	218,000	218,000
10.0	d) Oceanographic Data Lists	10,000	10,000
58.0	e) ICES Fisheries Statistics	58,000	58,000
33.6	f) Leaflets for Plankton and Diseases	40,000	40,000
8.0	g) Abstracts of Scientific Papers	0	8,500
48.0	h) TIMES	50,000	50,000
25.0	i) Newsletter	31,500	31,500
867.9	Total	911,000	919,500
	8. Pensions		
24.0	a) Voted Pensions	24,000	24,000
1,113.0	b) Contribution to Council's Pension Scheme	590,000	1,531,000
30.0	c) Danish State Pension (ATP)	30,000	30,000
1,167.0	Total	644,000	1,585,000
14,924.8	GRAND TOTAL	16,782,950	16,707,950

ACRONYMS APPEARING IN ICES ANNUAL REPORT 1992

ACFM	Advisory Committee on Fishery Management
ACME	Advisory Committee on the Marine Environment
ACMP	Advisory Committee on Marine Pollution
ADCP	Acoustic doppler current profiler
ANACAT	Anadromous and Catadromous Fish Committee
AOSB	Arctic Ocean Sciences Board
ATC	Aspartate transcarbamylase
AtlantNIRO	Atlantic Research Institute of Marine Fisheries and Oceanography (Russia)
AZTI-SIO	Instituto de Investigacion y Tecnologia para la Oceanografia, Pesca y Alimentacion (Spain)
BAS	British Antarctic Survey
BC	British Columbia (Canada)
BCR	Community Bureau of Reference (CEC)
BITS	Biophysical Interdisciplinary Trophic Studies
BMP	Baltic Monitoring Programme (HELCOM)
BOFS	Biogeochemical Ocean Flux Study
BT	Biological Tissue
CA	California (USA)
CB	Chlorobiphenyl
CCC	Cod and Climate Change Programme
CEC	Commission of the European Communities
CECAF	Committee for the Eastern Central Atlantic Fisheries (FAO)
CPUE	Catch per unit effort
CSIRO	Commonwealth Scientific and Industrial Research Organization (Australia)
CT	Connecticut (USA)
CWP	Coordinating Working Party on Atlantic Fishery Statistics
DC	District of Columbia (USA)
DDT	Dichloro-diphenyl-trichloro-ethane
DEPM	Daily egg production method
DFA	Discriminant function analysis
DG	Directorate-General
DiS	Denmark's International Study Program
DKK	Danish kroner
DNA	Deoxyribonucleic acid
EC	European Communities
EIFAC	European Inland Fisheries Advisory Commission
EQS	Environmental Quality Standard
EROD	Ethoxyresorufin-O-Deethylase
ERSEM	European Seas Ecosystem Model
ESG	Experts Steering Group (North Sea Task Force)
EUROSTAT	Statistical Office of the European Communities
FAO	Food and Agriculture Organization (UN)
FAST	Fisheries Acoustics Science and Technology (Working Group)
FISHBASE	Global biological data base on fish, crustaceans, and molluscs
FTFB	Fishing Technology and Fish Behaviour (Working Group)
GA	Georgia (USA)
GBP	Great Britain pound
GDR	German Democratic Republic
GESAMP	Group of Experts on the Scientific Aspects of Marine Pollution
GIPME	Global Investigation of Pollution in the Marine Environment
GIS	Geographical information system
GLOBEC	Global Ocean Ecosystem Dynamics Research
GMO	Genetically modified organism
GOOS	Global Ocean Observing System
GOV	Grand Overture Verticale
HCB	Hexachlorobenzene

HCH	Hexachlorocyclohexane
HELCOM	Helsinki Commission (Baltic Marine Environment Protection Commission)
HPLC	High performance liquid chromatography
IABO	International Association for Biological Oceanography
IAEA	International Atomic Energy Agency
IAPSO	International Association for the Physical Sciences of the Ocean
IBSFC	International Baltic Sea Fishery Commission
ICCAT	International Commission for the Conservation of Atlantic Tuna
ICES	International Council for the Exploration of the Sea
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
IMO	International Maritime Organization
INIDEP	Instituto Nacional de Investigacion y Desarrollo Pesquero (Argentina)
INIP	Instituto Nacional de Investigação das Pescas (Portugal)
INRA	Institut National de la Recherche Agronomique (France)
IOC	Intergovernmental Oceanographic Commission
IODE	International Oceanographic Data and Information Exchange (IOC)
IPN	Infectious pancreatic necrosis
IRG	Inter-Committee Recruitment Group
IWC	International Whaling Commission
IYFS	International Young Fish Survey
JGOFS	Joint Global Oceans Flux Study
JMG	Joint Monitoring Group (OSPARCOM)
JMP	Joint Monitoring Programme (OSPARCOM)
JPOTS	Joint Panel on Oceanographic Tables and Standards
MA	Massachusetts (USA)
MAFF	Ministry of Agriculture, Fisheries, and Food (UK)
MAST	Marine Science and Technology (CEC)
MBAL	Minimum biologically acceptable level
MD	Maryland (USA)
MFO	Mixed function oxidase
MLS	Minimum landing size
MMP	Monitoring Master Plan (North Sea Task Force)
MSVPA	Multispecies virtual population analysis
NAC	North Atlantic Committee for Cooperation on Research on Marine Mammals
NAFO	Northwest Atlantic Fisheries Organization
NASCO	North Atlantic Salmon Conservation Organization
NAMMCO	North Atlantic Marine Mammal Commission
NB	New Brunswick (Canada)
NC	North Carolina (USA)
NEAFC	North-East Atlantic Fisheries Commission
NGO	Non-governmental organization
NMFS	National Marine Fisheries Service (USA)
NOAA	National Oceanic and Atmospheric Administration (USA)
NS	Nova Scotia (Canada)
NSTF	North Sea Task Force
NUT	Nutrients Working Group (Paris Commission)
OMEX	Ocean Margin Experiment
ON	Ontario (Canada)
ORSTOM	Office de la Recherche Scientifique et Technique Outre-Mer (France)
OSPARCOM	Oslo and Paris Commissions
PAH	Polycyclic aromatic hydrocarbon
PARCOM	Paris Commission
P/B	Production/biomass
PC	Personal computer

PCB	Polychlorinated biphenyl
PEX	Patchiness Experiment in the Baltic (1986)
PICES	North Pacific Marine Science Organization
PINRO	Polar Research Institute of Marine Fisheries and Oceanography (Russia)
QA	Quality assurance
QSR	Quality Status Report
QUASIMEME	Quality Assurance of Measurements in the Marine Environment (CEC)
RI	Rhode Island (USA)
RNA	Ribonucleic acid
ROSCOP	Report on Observations/Samples Collected by Oceanographic Programmes
SACSA	Standing Advisory Committee on Scientific Advice (Oslo Commission)
SC	South Carolina (USA)
SCOR	Scientific Committee on Oceanic Research
SEDMON	Sediment Baseline Study
SKAGEX	Skagerrak Experiment (1990)
SMHI	Swedish Meteorological and Hydrological Institute
SOAFD	Scottish Agriculture and Fisheries Department
STATLANT	Statistical Programme for Atlantic Fisheries
STCF	Scientific and Technical Committee for Fisheries (CEC)
SW	Sea water
TAC	Total allowable catch
TBT	Tributyl-tin
TM	Trace metal
TWG	Technical Working Group (Paris Commission)
TXRF	Total reflection x-ray fluorescence
UK	United Kingdom
UN	United Nations
UNCED	United Nations Conference on Economic Development
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific, and Cultural Organization
USA	United States of America
USD	United States dollar
USSR	Union of Soviet Socialist Republics
VPA	Virtual population analysis
WA	Washington (USA)
WAS	World Aquaculture Society
WGBME	Working Group on the Baltic Marine Environment
WGPDMO	Working Group on Pathology and Diseases of Marine Organisms
WHO	World Health Organization (UN)
WHP	WOCE Hydrographic Programme
WMO	World Meteorological Organization
WOCE	World Ocean Circulation Experiment
WV	West Virginia (USA)
WWF	World Wide Fund for Nature
XBT	Expendable bathythermograph
Y/R	Yield per recruit
1SW	One-sea-winter

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