

Intergovernmental Oceanographic Commission
Reports of Governing and Major Subsidiary Bodies

**Twenty-third Session of
the Executive Council**

Paris, 7-14 March 1990

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1. OPENING

1 The Chairman, Professor Ulf Lie, opened the Twenty-third Session of the IOC Executive Council at 10:00 on 7 March 1990.

2 The Executive Council received with interest the statements given by the Chairman and by Professor A. Badran, the Assistant Director-General of Unesco for Science, acting on behalf of the Director General (see Annex III).

2. ADMINISTRATIVE ARRANGEMENTS

2.1 ADOPTION OF THE AGENDA

3 The Executive Council adopted the Agenda as given in Annex I, noting that matters relating to reorganization within Unesco would be discussed and reported upon under Agenda Items 9 and 10, with preliminary views raised under Agenda Item 3.

2.2 DESIGNATION OF THE RAPPORTEUR

4 The Executive Council accepted the proposal by Kenya to designate Dr. A. Bullock (United Kingdom) as Rapporteur for the Session.

2.3 CONDUCT OF THE SESSION, TIMETABLE AND DOCUMENTATION

5 The Secretary reviewed the arrangements for the Session and introduced a Provisional Timetable (Document IOC/EC-XXIII/1 Add. prov.) and the Provisional List of Documents (Document IOC/EC-XXIII/4 prov.).

6 In accordance with decisions of the Fifteenth Session of the Assembly, as documented in Document IOC/INF-734 rev., the Executive Council established a Technical Review Committee for Resolutions under the chairmanship of Prof. A. Yankov (Bulgaria), comprising Delegates of Brazil, China, Egypt, France, Malaysia, Nigeria, USA and the USSR.

7 The Executive Council appreciated the timely issuance and quality of documentation. Expressing the desirability of reducing the volume of documentation, the Executive Council instructed the Secretary to study this matter and to make appropriate proposals to the next session, taking into account the need to provide adequate background material to the items of the agenda.

8 The Resolutions adopted by the Executive Council are given in Annex II. The List of Working Documents, the List of Participants and the List of Acronyms are given in Annexes V, VI and VII, respectively. Annex IV presents implications of decisions of the Executive Council to the IOC Programme and Budget 1990-1991.

3. REPORT OF THE SECRETARY ON INTERSESSIONAL ACTIVITIES

9 The Secretary introduced his Report on Intersessional Activities (Documents IOC/EC-XXIII/6 and 6 Suppl.), as well as an addendum giving updated information (Document IOC/EC-XXIII/6 Add.). He noted that although the Report covered the whole of 1989, and certain more recent events, more detailed coverage had been given to action since July 1989 as the first half of 1989 had been dealt with at the Fifteenth Session of the Assembly.

10 In providing an overview of IOC activities, the Secretary emphasized the importance of global change as a framework within which local, regional and global scientific programmes should be both viewed and understood. The dynamics and momentum of the Commission, in his view, needed to be pursued within the context of mobilizing the vast potential of its Member States to contribute national expertise and technology to common goals. In this respect, the regional programmes were cited as noteworthy examples, as seen in the recent meetings of the IOC Sub-commissions for IOCARIBE and WESTPAC and the IOC Regional Committee for IOCEA. Member States needed, however, to recognize that the full potential of their Commission could only be fully tapped by providing the require

resources, including substantial funding for development, that would allow the IOC to operate as a mature, autonomous intergovernmental body, albeit affiliated with a parent organization.

11 Recognizing the limitations of funding and staff resources compared with the magnitude of IOC's aspirations, several Delegates pointed out that the requirements of regional programmes, an integrated component of Training, Education and Mutual Assistance (TEMA), and the timely preparation of documents in the Commission's languages, still demanded increased attention.

12 In responding to the comments from Delegates, the Secretary summarized their concerns as reflecting a number of pivotal issues for the future of the IOC. These include:

- (i) a viable, dynamic TEMA programme, linked to regional concerns;
- (ii) equitable attention to all regional programmes, within a realistic assessment of forecast time periods and resources;
- (iii) greater involvement and recognition of the IOC role in climate-related issues and programmes, including the concerns of nations particularly vulnerable to environmental hazards such as changes in sea level, storm surges and tsunamis;
- (iv) adequate follow-up to IOC initiatives in setting the pattern for evolution of marine scientific activities within the UN System;
- (v) initiation of a programme for provision of equipment to institutions participating in IOC programmes as an integral part of training exercises;
- (vi) special attention to emerging programmes, such as those on continental shelf dynamics and harmful algal blooms, that reflect the responsiveness of the IOC to new scientific issues.

13 The Secretary concluded by juxtaposing the challenges facing the world ocean community, and the interest and commitment of IOC Member States, to the situation of the Commission within its parent body.

14 In response to the Secretary's suggestion to recall and reconfirm the ideals of the Commission's founders, the Executive Council conveyed their recognition and best wishes to Professor R. Revelle.

15 The Executive Council, in accepting the Report of the Secretary on Intersessional Activities, expressed its deep appreciation for the dedication of the IOC Secretariat, and its firm endorsement of the actions and work of the Secretary IOC.

4. OCEAN SCIENCES

4.1 OCEAN DYNAMICS AND CLIMATE, OCEANOGRAPHIC COMPONENTS OF WCRP AND RELATED PROGRAMMES

16 Under this item, introduced by Dr. D.J. Baker, Chairman of the Committee on Ocean Processes and Climate (OPC), the Executive Council considered the progress in the planning and implementation of the Tropical Ocean and Global Atmosphere (TOGA) Programme, the World Ocean Circulation Experiment (WOCE) and other related activities. The question of the desirability of formalizing the relationships between the IOC and the international offices supporting the various components of WCRP was discussed. One Member State recommended that in future sessions of the governing bodies of IOC, discussion on TOGA and WOCE should be focussed on policy, rather than on reporting.

4.1.1 The Tropical Ocean and Global Atmosphere (TOGA) Programme

17 The Secretary of the Joint SCOR-IOC Committee on Climatic Changes and the Ocean (CCCCO), Mr. R. Godin, presented the results of the Third Session of the WMO-IOC Intergovernmental TOGA Board and the status of planning for the International TOGA Scientific Conference, (Honolulu, 16-20 July 1990).

18 On behalf of the JSC-CCCCO TOGA Scientific Steering Group, Ms. C. E. Clark presented an overview of the Coupled Ocean-Atmosphere Response Experiment (TOGA-COARE). TOGA-COARE is a dedicated effort within TOGA designed to improve knowledge of the coupled ocean-atmosphere system in the warm water pool regions of the tropics. A substantial increase in the understanding of these processes is necessary to achieve the primary objective of TOGA, namely the

operational use of coupled ocean-atmosphere models for the prediction of ocean-atmosphere phenomena (such as El Nino) on the time scales of months to years. This understanding is not only critical to TOGA but also to global and climate change studies such as the investigation of global warming due to greenhouse gas increases. In addition to a focussed modelling effort, the programme calls for enhanced monitoring of the ocean and atmosphere, and their interface, together with a number of pilot studies leading into a four-month Intensive Observation Phase in the Western Pacific between November 1992 and February 1993. There has been substantial international collaboration in the development of a detailed scientific plan for TOGA-COARE; its successful implementation also depends on a strong multilateral effort.

- 19 **The Executive Council endorsed** the Executive Summary and Recommendations to the IOC of the Third Session of the WMO-IOC Inter governmental TOGA Board, including approval of the proposal to expand the membership of the Board by the addition of Canada and the Federal Republic of Germany; and developments regarding the International TOGA Scientific Conference, including the provision of US\$ 30,000 for support from IOC to increase the participation from developing countries of oceanographers who are active in TOGA research.

- 20 **The Executive Council expressed overwhelming support** for TOGA, recognizing specifically the importance of TOGA COARE, and the excellent governmental support for the TOGA science programme being provided through the TOGA Board, with the increased attention to TOGA programme implementation in the Atlantic ocean.

4.1.2 **The World Ocean Circulation Experiment (WOCE)**

- 21 The Co-Chairman of the JSC-CCCO WOCE Scientific Steering Group, Dr. D.J. Baker, presented a status report of the WOCE programme. The WOCE field programme officially began with deployment of a current meter array across the Weddel Sea by the R/V POLAR STERN and the completion by the R/V METEOR of a WOCE hydrographic programme section across the Drake Passage. WOCE seminars and discussions have been held in Svenigorod, USSR, and at the recent WESTPAC meeting in Hangzhou, People's Republic of China. WOCE Data and Analysis Centers for hydrography have been established in Woods Hole, USA, and Hamburg, Federal Republic of Germany. WOCE Core Project 1, the Global Survey, has all the elements in place except for the scatterometer which will be available with the launch of ERS-1 later in 1990. Affordable XCTD probes are not yet available. Indian Ocean XBT coverage and repeat hydrography are weak. WOCE Core Project 2, the Southern Ocean, has good hydrographic section coverage and partial deployment of current meter arrays. WOCE Core Project 3, the Gyre Dynamics Experiment, has received support from tracer release experiments, NOAA Atlantic Climate Change Programme (US), repeat hydrography (USSR), and thermocline ventilation of subpolar gyre experiment (UK). Several Member States informed the Executive Council of their current national programmes in relation to WOCE and stressed the importance of better data management.

- 22 The Secretary CCCO reported on arrangements and membership for the IOC-WMO Intergovernmental WOCE Panel. The Secretary General of WMO agreed to co-sponsor the Panel. The first session of the Panel will be held in Paris (22-24 October 1990). Member States of IOC and WMO were invited to join the Panel by indicating in writing their on-going involvement or intention to participate in the implementation of WOCE and their nomination of representatives. Positive responses have been received from Brazil, Canada, China, Colombia, Federal Republic of Germany, France, Norway, United Kingdom and the USSR.

- 23 **The Executive Council took note** of WOCE progress both in terms of implementation of the Experiment and of interaction and complementarity between the intergovernmental and non-governmental bodies responsible for its planning and co-ordination; it further noted the willingness of Australia, Chile, India, Japan, Kenya, Mexico, the Nordic countries, Ukrainian SSR and the USA to also participate in the Intergovernmental WOCE Panel.

- 24 **The Executive Council also encouraged** a strengthened co-operation between WOCE and its various implementation groups, and bodies of IOC and WMO such as IGOSS, DBC?, GLOSS and IODE, with a view to improving co-ordination and eventual long-term maintenance of the ocean-observing systems to be put in place during WOCE.

- 25 **The Executive Council endorsed** IOC support for a WOCE-related course on dynamical oceanography which is open to Latin American scientists and is to be organized by Instituto Oceanografico da Universidade de Sao Paulo, Brazil and recognized the continued need to broaden participation of developing countries' scientists in WOCE.

4.1.3 Other Related Programmes

26 The Chairman of the Committee on Ocean Processes and Climate, Dr. D. J. Bøker, presented an overview of the Global Energy and Water Cycle Experiment (GEWEX) which is the third major component of the World Climate Research Programme. GEWEX objectives are to observe, understand and model the global atmospheric hydrological cycle, energy budget, and exchanges of moisture and energy with the underlying surface. The hydrological cycle consisting of water, clouds, and ice is not well understood. Major new studies of precipitation, soil moisture, etc., will be undertaken primarily through the utilization of new satellite and *in situ* measurements. Oceanographic data from IOC programmes including IGOSS and others will be utilized to support this important effort.

27 The Third Vice-Chairman, Mr. E. H. Tabet-Aoul, reported upon the IPCC Working Group III, Coastal Zone Management Sub-group Workshop, (Perth, February 1990). The Workshop expressed its support for the IOC to implement operational ocean observations on sea-level and upper layer thermal structure measurements on a global basis. A recommendation was also made to increase the interface between IOC and UNEP activities including the Regional Seas Programmes.

28 On behalf of the Chairman CCCO, Dr. A. McEwan, the Secretary CCCO Mr. R. Godin, reported on the Committee's efforts to incorporate oceanic perspective and science in the developing international climate change programmes. The CCCO considers that the IOC and CCCO attempts to achieve appropriate oceanographic representation in the IPCC Working Group I report and the SWCC, have in general not been very successful, at least in the preparatory phases. The most significant contribution has been achieved through the ICSU-WMO Joint Scientific Committee for the World Climate Research Programme which incorporated extensive oceanographic input in their chapter. In the opinion of the CCCO, the oceans and their role in climate change do not appear to be given sufficient attention within the IPCC Working Group I.

29 The statement on the ocean and climate (Document IOC/INF-811) developed in response to the request of the Fifteenth Session of the Assembly presents the importance of the ocean in climate and global environmental change and the consequent need to expand and modernize the global ocean observing system. The statement is intended to assist Member State Representatives in articulating the importance of the role of the ocean in climate change. One Member State stressed the importance of paleoclimatic assessments and research related to global climate change.

30 The Executive Council noted the efforts of the Secretary IOC and the CCCO to provide oceanographic representation to IPCC Working Group I. Although the Member States represented on the IPCC had decided that the Working Group I report should be prepared as a compilation of inputs from prominent individual scientists, the Executive Council considered that such personal roles should be augmented by co-ordinated formal input through IOC and CCCO. The Executive Council instructed the Secretary IOC to continue the efforts to obtain greater involvement of the oceanographic community in these activities through national representation, and urged Member States to communicate with the IOC Secretariat on their participation in relevant activities so as to facilitate and increase the dialogue with, and input from, the IOC.

4.2 OCEAN SCIENCE IN RELATION TO LIVING RESOURCES (OSLR)

31 The Technical Secretary for OSLR, Dr. J. Alheit, presented the recent advances within the OSLR programme and introduced the Executive Summary and Recommendations of the Third Session of the IOC-FAO Guiding Group of Experts for OSLR (Paris, 5-9 February 1990, Document IOC-FAO/OSLR-III/3S).

32 He pointed out that IREP, through the Sardine/Anchovy Recruitment Project (SARP) and the Tropical Demersal Recruitment Project (TRODERP), has been firmly established in several regions, and, based on the expertise available, should now be expanded to other regions. Referring to the report on intersessional activities, Dr. Alheit recalled the major developments and activities. Co-operation with other agencies had increased considerably, particularly with FAO at the regional level. An IOC-SCOR Workshop on Statistical Methods of Recruitment Time Series was conducted in Monterey, USA, (31 July-1 August 1989). The excellent co-operation with ICES through its Intercommittee Recruitment Group and its Working Group on Recruitment Processes continued. In May 1990, ICES and IOC will co-sponsor a workshop on Models for Recruitment Processes at IOC headquarters in Paris.

33 The Executive Summary and Recommendations submitted by the *ad hoc* Group of Experts on Harmful Algal Blooms (Paris, 31 January-2 February 1990) to the Guiding Group of Experts for OSLR are found in Annex II to Document IOC-FAO/OSLR-III/3S.

34 The Guiding Group of Experts for OSLR endorsed all the recommendations of (i) the TRODERP-IOCARIBE Workshop (Caracas, Venezuela, 9-14 September 1989); (ii) the ~~ad hoc~~ Experts Consultation on SARP (La Jolla, USA, 31 October-2 November 1989); and (iii) the ~~ad hoc~~ Group of Experts on Harmful Algal Blooms. In addition, it suggested establishing a third OSLR Sub-Programme on Ecosystems Dynamics and Living Resources, with a view to potential IOC involvement in IGBP, to develop a strategy and methodology to assess the potential impact of predicted global climate change on marine resources and ecosystems.

35 The Technical Secretary for OSLR, Dr. J. Alheit, informed the Executive Council that his secondment by the Federal Republic of Germany would end on 15 March 1990.

36 The Executive Council appreciated the secondment, by the Federal Republic of Germany, of Dr. J. Alheit to the IOC Secretariat since September 1988, regretted its termination as of 15 March 1990, and thanked the Federal Republic of Germany for the secondment, and Dr. Alheit for his dedication to advancing this IOC programme.

37 Many Delegates emphasized the high priority that their countries give to the OSLR programme. The Executive Council urged the Secretary to expand this successful programme to other regions, particularly to IOCINDIO, IOCEA and the Mediterranean region and recommended that regional representation be established within the Guiding Group of Experts for OSLR.

38 The Executive Council gave strong support to the new Sub-Programme on Harmful Algal Blooms which will meet the needs of many Member States and also suggested the extension of the co-operation with ICES to this component.

39 Most Delegates expressed their strong interest in the development of the new proposed OSLR Sub-programme on Ecosystem Dynamics and Living Resources, particularly in view of the predicted global climate changes, and recommended linking it to a number of similar national and international initiatives. The upcoming Symposium on Large Marine Ecosystems could also provide input to this development.

40 The President of SCOR stressed the importance of studies of ecosystem dynamics and invited IOC to co-sponsor a planned workshop on this topic.

41 The Representative of FAO reaffirmed his Organization's satisfaction with the evolution of OSLR. The General Fisheries Council for the Mediterranean is continuing efforts to promote OSLR in the Mediterranean. Regarding algal blooms, there is a great need for near-real-time satellite images of relevant parameters and he believed IOC could assist meeting this need. He also explained his Organization's interest in gaining access, in the context of international co-operation in regional seas, and with the help of IOC and IHO, *inter alia*, to digitized bathymetric data on coastal waters to improve understanding of such matters as algal blooms, pollutant dispersion and establishment of artificial-reefs and parks.

42 The Executive Council expressed its great satisfaction with the considerable progress made by the OSLR programme.

43 The Delegate of the USA announced that the USA is prepared to second a staff member to the IOC Secretariat for one year to work in the fields of OSLR, Coastal Oceanography and Shelf Sea Dynamics and Ecosystem Dynamics.

44 The Executive Council endorsed the Recommendations of the Guiding Group of Experts for OSLR and particularly welcomed the establishment of the second Sub-programme on Harmful Algal Blooms and the proposal for another Sub-programme on Ecosystems Dynamics and Living Resources.

45 The Executive Council expressed great concern about the staffing situation following the departure of Dr. Alheit. The Executive Council welcomed the offer of the Delegate of the USA to second a staff member to the Secretariat to assist in OSLR matters. The Executive Council also emphasized the need for the IOC staff to be further increased in this important area.

The Executive Council adopted Resolution ~~EC-XXIII.1~~

4.3 MARINE POLLUTION RESEARCH AND MONITORING (GIPME/MARPOLMON) AND RELATED PROGRAMMES

46 Dr. N. Andersen, Chairman of the Committee for GIPME, introduced this Agenda Item. He noted the accomplishments achieved at the Second Session of the GIPME Group of Experts on Standards and Reference Materials (GESREM) (Halifax, Nova Scotia, Canada, 22-25 January 1990). The work of the GIPME Group of Experts on the Effects of Pollution (GEEP) was noted, with the ICES-IOC Workshop on Biological Effects of Contaminants, the CPPS-UNEP-IOC Bioassay Training Workshop and the IMO-HELCOM-IOC-UNEP Symposium on Particularly Sensitive Areas being identified as activities that will be conducted in the near future. The implementation of the Open Ocean Baseline Study was referred to and the Federal Republic of Germany was thanked for the provision of the R/V METEOR. It was pointed out that there were two action items requested of the Executive Council: (i) formation of a Joint IOC-UNEP Panel for GIPME; and (ii) guidance for the preparation of an IOC contribution to the 1992 UN Conference on Environment and Development (Document IOC-EC-XXIII/8 Annexes 2 and 3).

47 The Executive Council approved the proposal for the establishment of a Joint IOC-UNEP Intergovernmental Panel for the GIPME Programme. Some Delegates pointed out that further elaboration was needed on the rationale and mechanism of the Panel's functioning.

48 The Executive Council decided that IOC should make a significant contribution to the 1992 UN Conference on Environment and Development and stressed that the contribution by IOC should be wider than the GIPME programme and should cover all those programmes and activities of the Commission related to the subject areas of the Conference.

49 The Executive Council, noting the successful outcome of the Second Session of GESREM (22-25 January 1990), and recognizing the importance of standards and reference materials to global geoscience initiatives addressing climate change and other environmental issues such as JGOFS and WOCE, emphasized that this aspect of the GIPME programme continue to be given high priority.

50 The Executive Council and the Representative of ICES noted the continuing close co-operation between ICES and IOC in marine pollution research and monitoring and the desirability to incorporate regional organizations such as ICES in the work of the Joint IOC-UNEP Panel.

51 The Executive Council expressed its appreciation of the continued efforts of IOC, UNEP and other UN Agencies in co-ordinating regional marine pollution monitoring and research programmes such as MEDPOL in the Mediterranean and CEP POL in the Caribbean region.

52 The Delegate of the USSR reaffirmed the offer to host a Joint GEEP-GEMSI meeting in Moscow (14-21 October 1990) and to host an International Symposium on Integrated Global Ocean Monitoring (IGOM-2) (Leningrad, USSR, 14-21 April 1991).

53 The Delegate of the Federal Republic of Germany, in noting the provision by his country of the R/V METEOR for the Open Ocean Baseline Study, considered it important that other countries make similar offers of shiptime to allow for the continuation of this study.

54 The Delegate of Canada noted that his Government would soon announce the offer of shiptime for the Open Ocean Baseline Study and that a national component of the Mussel Watch Programme will be implemented in Canada.

55 The Delegate of the USA announced that NOAA would provide a financial contribution to the implementation of the second phase of the International Mussel Watch Programme.

56 The Delegates of Bulgaria, the Ukrainian SSR and Turkey, referring to the ecological problems of the Black Sea and the River Danube, requested IOC and UNEP to contribute to the development of a regional ecological research and monitoring programme. The Executive Council endorsed support within existing resources from IOC to the development of this programme, and to the organization of international and regional related conference.

57 The Delegates of Mexico and Venezuela referred to new infrastructures being created in their countries to carry out marine pollution research and monitoring more effectively, particularly in the framework of CEP POL so as to support an active implementation of that joint regional IOC-UNEP Programme.

58 The Delegate of India referred to the development of marine pollution and monitoring programmes in his region and the setting up by India of two new marine pollution research and monitoring centres; he confirmed his Government's offer to host a training course in Goa in 1990.

59 The Representative of IAEA noted, as co-sponsor of GESREM, the recent successful session of the Group and stressed the importance of its future work in producing and supplying standard and reference materials to regional programmes.

60 The Executive Council adopted Resolutions ~~EC-XXIII.2~~, ~~EC-XXIII.3~~ and ~~EC-XXIII.4~~.

5. OCEAN SERVICES

5.1 GLOBAL INTEGRATED OCEAN OBSERVING SYSTEM DEVELOPMENT

61 The Chairman of the Committee on Ocean Processes and Climate, Dr. D. J. Baker, presented a progress report on the activities since IOC-XV (Documents IOC/EC-XXIII/8 Annex 1 and Addendum) and on the results of the informal consultation on the development of an ocean observing system, (Paris, 6 March 1990). Dr. Baker pointed out that the ocean plays a major role in determining climate change. The TOGA programme has demonstrated that a network of observations, based upon XBTs, drifting buoys, sea-level gauges and atmospheric measurements, can form the basis of a prediction scheme for El Nino. More comprehensive measurements will be required to understand and predict the impact of the ocean on global environmental change.

62 Two parallel activities must be undertaken in close co-operation: (i) the IOC ad hoc Group of Experts, as a subsidiary body of IOC/OPC, will advise IOC through IOC/OPC on the necessary actions to implement long-term systematic ocean observations for monitoring and predicting environmental changes. In the near term, the ad hoc Group will concentrate on collating existing identified needs for long-term systematic observations of the major climate-related programmes (TOGA, WOCE, JGOFS, GEWEX, WCDP and others as appropriate); assess the present and potential capacity of the existing observational and data delivery systems to meet those needs; and recommend actions to be taken to begin to build an adequate system to meet the needs; (ii) the CCCO-JSC Ocean Observing System Development Panel (OOSDP) will formulate the conceptual design of an operational observing system for monitoring physical and other properties that determine the ocean circulation, the response of the ocean to climate change and the initial-value inputs for climate predictions. The design will proceed in step with the development of the TOGA, WOCE and JGOFS programmes. The Panel will provide progress reports to the CCCO and JSC on annual intervals and is to produce its final report no later than 31 December 1994. It was also agreed that both groups would require liaison with existing systems or bodies of IOC and WMO (IGOSS, DBCP, GLOSS, IODE, CBS, CCI, and relevant IOC regional bodies).

63 A strategy needs to be developed before the Second World Climate Conference leading to a draft plan which can be approved by the IOC Assembly in 1991, and a proposal for the UN Conference on Environment and Development in Brazil, 1992. Existing programmes must be drawn together into a comprehensive ocean information system, ultimately including relevant coastal interactions and pollution monitoring.

64 Dr. Baker also referred to the preparation, jointly by IOC, UNEP and WMO, of a master plan for a global coastal zone observing system, to be developed in close harmony with the above activities, over the same time scale (Document IOC/EC-XXIII/8 Annex 1 Add.).

65 The Executive Council endorsed the proposal of the ad hoc expert consultations on the responsibilities of the IOC ad hoc Group of Experts and CCCO-JSC OOSDP and their interaction with regard to the planning and design of the ocean observing system on a near- and long-term basis, as well as the development of the master plan for the coastal zone observing system.

66 Some Member States suggested that an enabling protocol or convention amongst governments would facilitate participation in a global ocean observing system.

67 An enabling agreement would provide a formal framework as a basis for Member States to express governmental support in principle for an observing system. Member States could agree to the principle of exchanging data and data products, for regional and global benefit, regardless of their present capability or resources.

- 68 Details of participation of Member States in each case would be conditional on their respective interest both geographically and in substance, in the data and data products to be generated and the perceived benefits. Specific resources or programmes would not be committed in an enabling agreement, but such commitments could arise following parallel technical studies and the identification of programme elements of the observing system. Provision would be included, in the articles of an enabling agreement, for appropriate technical assistance, education and training.
- 69 **The Executive Council emphasized** the importance of a visible instrument to further the concept of a global integrated ocean observing system which can receive the general support of governments and which can be presented at the UN Conference on Environment and Development, 1992.
- 70 **The Executive Council decided** that timely action was required in preparing the technical strategies and draft plans for ocean observations, in co-operation as appropriate with the WMO and for coastal observations in co-operation with UNEP and WMO.
- 71 Dr. R. Dickson reported on the status of the Continuous Plankton Recorder (CPR) programme. The effort to obtain financial support for continuation and expanding of CPR surveys had achieved a gratifying measure of success. He suggested that the IOC should collaborate in the establishment of the International Trust that would administer a new entity to implement a CPR programme. This entity would be established by phasing from the present Plymouth Marine Laboratory operation to an independent separately funded CPR programme. The existing CPR operation should be extended from the North Atlantic to the world's oceans. The value of a long time series of plankton data against which monitoring results can be compared was illustrated by a North Sea example where such a comparison disproved a popular but unjustified assumption that a recent plankton bloom was a result of human activities.
- 72 **The Executive Council decided** that the IOC would stand behind and support the continuation and expansion of the CPR programme.
- 73 **The Executive Council adopted** Resolution EC-XXIII.5.
- 5.2 INTERNATIONAL OCEANOGRAPHIC DATA AND INFORMATION EXCHANGE (IODE)
- 74 Dr. N.C. Flemming, Chairman, IOC Committee on IODE, introduced the Executive Summary, Resolutions and Recommendations of the Thirteenth Session of the Committee (New York, 17-24 January, 1990, Document IOC/IODE-XIII/3S) and the IODE Programme and Budget for 1990-1991 (Document IOC/EC-XXIII/8 Annex 4). During the past seven months the Committee had carried out all the requests specifically referred to it by the Fifteenth Session of the IOC Assembly. However, the lack of resources to meet the demands now made on the IODE system remains a major concern.
- 75 **The Executive Council noted with satisfaction** the actions taken by the Committee on IODE to strengthen collaboration with the global ocean science programmes, in particular, TOGA, WOCE, JGOFS and also elements of IGBP, and stressed the importance of IODE developing the capability to manage the large data sets mutually necessary to several programmes. Links with other IOC ocean service programmes and with OSLR, OSNLR and ocean mapping have also been strengthened. **The Executive Council emphasized** the need to continue close collaboration between data management panels within those programmes and IODE to ensure the long term availability of valuable and costly data for use by the international scientific community and Member States. **The Executive Council noted** the important role of the WDCs (Oceanography) as final depository centres for those data.
- 76 **The Executive Council welcomed** the offer of the USA to host an IOC Workshop on Ocean Climate Data to be held in Washington, D.C., October 1991.
- 77 **The Executive Council adopted** the proposals for co-ordination between IOC and ICSU on World Data Centres (Oceanography). These had been agreed by the Meeting of the Directors of WDCs (Oceanography), the Chairman of the ICSU Panel on World Data Centres and the Chairman of IODE (New York, 15-16 January 1990) and accepted by the IOC Committee on IODE at its Thirteenth Session. **The Executive Council supported** the need to continue work on the guidelines for data exchange between WDCs A, B and D (Oceanography) during the meeting of WDC Directors which is planned for the second part of 1990.

- 78 **The Executive Council approved the conclusions of the Workshop on the Global Temperature-Salinity Pilot Project (GTSP) (New York, 15-16 January 1990), and related recommendations of IOC/IODE on the implementation of the GTSP as a joint IODE-IGOSS project beginning in 1990. The Executive Council concurred with the recommendations of the Committee on the future relationship between IODE and IGOS. In addition to the joint work on the GTSP, there will be joint meetings of IOC/IODE and the Joint IOC-WMO/IGOSS subsidiary bodies. The Executive Council instructed the Secretary IOC to bring these proposals to the attention of the WMO and the Joint IOC-WMO Committee on IGOS.**
- 79 **The Executive Council strongly emphasized the importance of the NOP, ROSCOP and MEDI systems in meeting the needs of various marine users for up-to-date information on planned research cruises, oceanographic data collected, and sources and availability of oceanographic data sets. The Executive Council welcomed the offers of the USA and USSR to assist in implementing the NOP and MEDI systems, and instructed the Secretary IOC to make the necessary arrangements. The Executive Council noted with satisfaction that the revised format of ROSCOP, agreed by the Committee, is expected to encourage more scientists to report the results of cruises.**
- 80 **The Executive Council noted growing interest in the exchange of quality-controlled standard data sets of marine biological and chemical data to support aspects of WOCE, JGOFS and IGBP. Some characteristics of tracer chemistry, global fluxes and biogeochemistry will be measured in the global integrated ocean observing system. The Executive Council invited the Committee on IODE to give particular attention to this matter, and noted that these activities should be developed in collaboration with the existing activities in marine pollution research and monitoring undertaken by IOC/GIPME and UNEP.**
- 81 **In view of the growing use of Acoustic Doppler Current Profilers (ADCP) by Member States and their potential role in ocean observation, the Executive Council welcomed the establishment of the RNODC for the development of ADCP data management at the Japan Ocean Data Centre.**
- 82 **The Executive Council noted with satisfaction recent progress in the development of ASFIS and endorsed the proposal of the Committee on IODE to establish a Joint FAO-IOC-UN Group of Experts on ASFIS as well as the plan to hold an ad hoc Joint Consultation of Experts, to draft terms of reference and working arrangements for the Joint IOC-FAO-UN Group of Experts on ASFIS, possibly in conjunction with the next meeting of the IODE Group of Experts on Marine Information Management.**
- 83 **The Executive Council noted the success of the IOC RECOSCIX-WIO project in the IOCINCWIO region and welcomed the offer of Kenya to continue to provide accommodation and facilities for this project. The Executive Council endorsed the planned further enhancement of regional and global aspects of ASFIS and instructed the Secretary to seek additional funding from extrabudgetary sources, particularly in support of regional ASFIS networks, such as RECOSCIX-WIO.**
- 84 **The Executive Council noted that National Reports on IODE activities would be invited from marine information contact points, as well as from the NODC, in Member States where these activities are not closely linked at national level.**
- 85 **The Executive Council welcomed the recommendation of the Regional Committee for IOCEA, at its Second Session, to establish a regional data centre for IOCEA in Guinea. The Executive Council invited other IOC regional bodies, particularly IOCARIBE and IOCINDIO, to recommend possible establishment of regional data centres, to be considered for designation as RNODCs according to the approved IODE procedure, and to appoint IODE contact points to facilitate the delivery of IODE services and TEMA to the Member States. The Executive Council took note of the offer by India of the services of the Indian NODC for the IOCINDIO region and of requests for assistance in establishing the IOCEA regional data centre in Conakry, setting up of an NODC in Thailand, and in providing data management training for scientists in the IOCARIBE and IOCINCWIO regions.**
- 86 **The Executive Council noted with satisfaction the co-operation at a technical level between the IOC/IODE and the Commission of the European Communities in the field of marine information and data management.**
- 87 **The Executive Council stressed that further progress in international oceanographic data/information management will depend on the availability of new technology for data collection, processing and exchange and on the readiness of countries to provide their data for international exchange. The Executive Council called on Member States to facilitate access to new technologies and data in the oceanographic community.**

88 The Executive Council welcomed the interest expressed by the Representative of the Organization of African Unity in the exchange of marine data and information of common interest and instructed the Secretary to explore the possibilities for collaboration with the OAU in this field.

89 The Executive Council emphasized that strong National Oceanographic Data Centres are essential both to meet national data needs and to achieve effective international data exchange through the IODE system.

90 The Executive Council noted with appreciation offers to support or host IODE training activities in Algeria, China, Colombia, Greece, Japan and the USSR. The Executive Council recognized that staff and financial resources are insufficient to carry out all the proposed activities and requested the Secretary IOC to evaluate the costs and benefits of these activities, and where possible, to implement them within a coherent IODE training programme. The Executive Council supported the collection of existing course material for the preparation of standard course modules.

91 The Executive Council underlined the importance, especially for developing countries, of the OCEAN CLICOM (Climate Computer) proposal to prepare a standard microcomputer software package for oceanographic data processing and exchange along the lines of the CLICOM developed under WMO auspices and now being widely implemented for use with atmospheric climatological data. The Executive Council endorsed the views and recommendations of the Committee on IODE concerning this project.

92 The Executive Council endorsed the IODE Strategy for 1990-1995 and the Work Plan for 1990-1991 as presented in Annexes 1 and 2 to Recommendation IODE-XIII.7. The Executive Council recognized that to implement the IODE Work Programme for 1990-1991 effectively, and without unacceptable delay to its essential components, an additional \$40 000 and at least one additional full-time professional and one and a half additional general service staff will be needed (Document IOC/EC-XXIII/8 Annex 4). If this reinforcement is not obtained, some Delegates suggested that particular priority should be given to IODE activities related to global ocean science programmes.

93 The Executive Council instructed the Secretary to investigate the possibility of increasing the funds allocated for IODE in 1990-1991 through the interaction with TEMA and IOC regional activities in view of the fact that many proposed IODE activities strongly supported by Member States are of direct relevance to those programmes.

94 The Executive Council adopted Resolution EC-XXIII.6.

5.3 DRIFTING-BUOY COOPERATION PANEL (DBCP)

95 The Executive Council received with appreciation the Third Annual Report (1989) of the Drifting-Buoy Co-operation Panel and expressed satisfaction with the development. Recalling the main points highlighted by the Fifteenth Session of the Assembly, it noted that specifications for the processing chain to deliver drifting-buoy data onto the Global Telecommunication System (GTS) of WMO had been developed by Collecte-Localisation-Satellite (CLS)/Service Argos. It also expressed satisfaction with the slight but steady improvements in the quality of data distributed onto the GTS, through considerable efforts devoted to quality control at the Argos Global Processing Centres in Toulouse, France, and Landover, MD, USA, under the guidance of the Technical Co-ordinator.

96 The Executive Council further noted that eight countries were currently participating in the funding of the Technical Co-ordinator of the Panel and were committed to a total amount of about \$100,000 for a one-year period. This amount allows for maintaining the *status quo* for the employment and place of work of the Technical Co-ordinator, thanks in particular to CLS/Service Argos which pays some of the expenses. A more stable situation would arise if the total level of funding could be increased by \$30,000 to \$50,000 per year. The Executive Council therefore once again urged those Member States which had not yet done so, to consider contributing to the financial support of the Panel.

97 The Executive Council finally noted plans underway to deploy a dozen drifting buoys in the South-West Indian Ocean to assist in tropical cyclone forecasting. These plans may lead, in the not too distant future, to the establishment of a new regional action group of the Panel, in addition to the one presently existing (the European Group on Ocean Stations (EGOS)).

5.4 INTERNATIONAL TSUNAMI WARNING SYSTEM IN THE PACIFIC (ITSU)

- 98 The Chairman of the International Co-ordination Group (ICG) for the Tsunami Warning System in the Pacific, Dr. R. Hagemeyer, introduced the Report of the Twelfth Session of the Group (Novosibirsk, USSR, 7-10 August 1989, Document IOC/ITSU-XII/3). He also reported on the Symposium of the IUGG Tsunami Commission (IUGG/TC) and the Workshop on the Technical Aspects of Tsunami Warning Systems, Analysis, Preparedness, Observation and Instrumentation, jointly sponsored by the IUGG/TC and the ICG/ITSU. These two meetings were also held in Novosibirsk prior to the Twelfth Session of the ICG/ITSU (31 July-6 August 1989). Dr. Hagemeyer noted that a total of 12 Member States were present at ICG/ITSU and that this represented the largest attendance by Member States since the initial session in 1965, with the exception of ITSU-X at Sidney, British Columbia, Canada (1985).
- 99 Major achievements included the development of the UNDP project for the Sub-regional Tsunami Warning System in the South-west Pacific; preparation and publication by the Krasnoyarsk Computing Centre (USSR) of the Atlas of Travel Time Charts; preparation of the first edition of the Glossary of Tsunami-Related Terms; training of experts from Colombia, Peru, Mexico and USSR at the International Tsunami Information Centre (ITIC); approval of the Standardized Tsunami Database Format, data and associated software; and the work implemented by some countries on the use of microcomputers for numerical forecasting of tsunami in an operational mode; proposals of the Group to initiate programmes and projects in support of the International Decade on Natural Disaster Reduction (IDNDR).
- 100 Dr. Hagemeyer drew the particular attention of the Executive Council to the ITSU Work Programme and Priorities as proposed by the Group in its Recommendation ITSU-XII.2 and invited the Executive Council to accordingly consider strengthening the support of the ICG/ITSU to meet the needs for the IDNDR activities.
- 101 The Executive Council noted with satisfaction the progress in developing an International Tsunami Warning System in the Pacific and re-emphasized the direct relevance of ITSU activities to the International Decade on Natural Disaster Reduction and the Unesco Programme on Natural Hazards. The Executive Council expressed its appreciation of the activities of the ITIC, particularly in the field of training and preparedness, and the support provided for its activities by the USA.
- 102 The Executive Council also expressed its appreciation to the USSR, and in particular to the Novosibirsk Computing Centre of the USSR Academy of Sciences, for hosting the above-mentioned meetings and for the excellent arrangements which led to their success.
- 103 The Executive Council endorsed the ITSU Work Programme for 1990-1991. It recognized that the funds presently allocated for ITSU for 1990-1991 are insufficient to implement the programme formulated by ICG/ITSU. The Executive Council instructed the Secretary IOC to seek methods of increasing financial assistance for ITSU, particularly in support of the ITIC, as well as technical assistance and training activities, and to seek additional funds for ITSU activities from Unesco and other UN agencies in view of their importance within the framework of IDNDR and the Unesco Programme on Natural Hazards.
- 104 The Executive Council also noted with appreciation the assistance provided to other countries by the USA, Japan and New Zealand on a bilateral basis and called on Member States to consider increasing the assistance to developing countries in setting up their national tsunami warning systems on a bilateral and/or a multilateral basis.
- 105 The Delegate of Australia informed the Executive Council of the assistance provided by his country to some countries of South-east Asia in establishing sea-level stations that are of importance to the tsunami warning systems in the Pacific.
- 106 The Executive Council stressed the importance of further improvement of real-time telemetry, seismic and tsunami data exchange between various national centres and closer integration of national warning systems into international systems, while bearing in mind the possibility of implementing initial measures on a bilateral basis. The importance of actions by the Member States both on multilateral and bilateral bases for the development of such systems was also emphasized.
- 107 The Executive Council recognized the importance of establishing a tsunami warning system in the South-west Pacific where a dense observation network and an effective information system are required for observations. It therefore requested UNDP to consider favourably and approve the proposed project on establishment of a sub-regional tsunami warning system in the South-west Pacific

so as to enable IOC to start its execution without delay. The Executive Council urged the Member States concerned to take the necessary steps to express their full support of the project to UNDP.

108 The Executive Council noted the importance of establishing a regional tsunami warning system in Central America that would benefit not only countries of the region, but also the other areas of the Pacific.

109 The Executive Council expressed its satisfaction with the actions taken by the ICG/ITSU to strengthen co-operation with other international bodies involved in tsunami research and hazards mitigation, in particular, the Tsunami Society, the Natural Hazards Society, the IAPSO Commission on Marine Hazards and the JUGG Tsunami Commission. The Executive Council invited the Chairman ICG/ITSU to continue such co-operation.

110 The Executive Council adopted Resolution ~~EC-XXIII.7~~.

6. REGIONAL SUBSIDIARY BODIES AND RELATED ACTIVITIES

6.1 IOC SUB-COMMISSION FOR THE CARIBBEAN AND ADJACENT REGIONS (IOCARIBE)

111 Dr. F. Robles, IOC Senior Assistant Secretary for IOCARIBE, introduced this Agenda Item, referring to the Summary Report of the Third Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions, (Caracas, Venezuela, 4-8 December 1989, Document SC-IOCARIBE-III/3). The programme on Physical Oceanography and Climate is planned to be implemented through two main projects: "Climatic Change Impacts and Physical Ocean Processes" and "Ocean Circulation in the Caribbean Sea and Adjacent Regions: An IOC Proposal to the European Space Agency for ERS-1 Science, Application and Validation". Among the long-term objectives are efforts to reduce the scientific uncertainties concerning the magnitude, direction and possible impacts of climatic and other environmental changes. One of the main short-term goals is the training of experts in measuring and interpreting parameters relevant to these changes. Central to these projects is an operational network of sea-level stations throughout the Caribbean as a regional component of GLOSS.

112 A Joint IOC-UNEP Marine Pollution Assessment and Control Programme for the Wider Caribbean (CEP POL) has recently been established, aiming at activities related to Marine Pollution, Research, Control and Abatement. The programme comprises projects on: "Control of Domestic, Industrial and Agricultural Land-based Sources of Pollution"; "Baseline Studies on Pesticide Contamination"; "Monitoring and Control of the Sanitary Quality of Bathing and Shellfish Growing Waters"; "Monitoring and Control of Pollution by Oil and Marine Debris"; "Site Specific Studies of Damaged Ecosystems and Development of a Proposal for Remedial Action"; "Development of Environmental Quality Criteria"; and "Research on the Significance of Organotin as a Pollutant".

113 A project proposal on "Impacts of Sea-Level Changes on the Coastal Zone - Effects on Erosion and Sedimentation" is being considered in the framework of OSNLR. The project document will be finalized by an ad hoc Group of Experts to meet during the Second Congress on Marine Sciences (Havana, Cuba, 18-22 June 1990).

114 Other regional programmes relate to Ocean Science and Living Resources where the problem of "recruitment" is addressed through four sub-projects: "Satellite Ocean Analysis", "Fish-Estuarine Deltaic Recruitment", "Shrimp Recruitment", and "Coral Reef Recruitment", and to Marine Information Management where an appropriate mechanism to assure an adequate and stable flow of supporting information is under consideration.

115 Dr. H. Perez-Nieto, Chairman of the Sub-Commission, presented the IOCARIBE Medium Term Plan (1990-1995), referring to document IOC/INF-809. The Plan describes activities and actions within each major programme for the period listed. It also contains a section incorporating responsibilities and mechanisms for its implementation.

116 The Chairman of SC-IOCARIBE ended by noting that, most importantly, the success of the programmes and projects detailed in the Plan is contingent on strong and consistent support from Member States inside and outside the region, as well as from international, governmental and non-governmental organizations.

117 **The Executive Council commended** the work done by the IOCARIBE Secretariat and the Officers of the Sub-Commission during the intersessional period.

118 **The Executive Council emphasized** the importance of the recently established joint IOC-UNEP Marine Pollution Assessment and Control Programme for the Wider Caribbean (CEP POL), **expressing** that this wider co-operative effort should be taken as a model for similar joint activities in other regional subsidiary bodies. **The Executive Council also expressed** some concerns as regards the implementation of the regional component for GLOSS.

119 The Delegate of Mexico recommended that the Secretary of IOC examine the possible development of an IOC regional subsidiary body for the Eastern Tropical Pacific.

120 The Delegate of Venezuela offered to host a meeting related to the regional development of the OSLR Sub-programme on Harmful Algal Blooms.

121 **The Executive Council recalled** that the post for the IOC Senior Assistant Secretary for IOCARIBE was established through the transfer of the post as Head of the Science Unit from Headquarters, and **requested** the Director-General of Unesco to consider establishing a new post at headquarters to carry out the tasks previously covered by the post moved to the IOCARIBE Secretariat.

122 **The Executive Council thanked** Venezuela for the excellent facilities and hospitality provided for the local organization of the Third Session of the Sub-Commission, as well as for an IOCARIBE workshop, seminar and meeting held in this Member State during the last six months.

123 **The Executive Council thanked** Colombia for the continuous support provided for the operation of the IOCARIBE Secretariat in Cartagena.

124 **The Executive Council expressed** its recognition to Sweden for the continuous secondment of associate experts to the IOCARIBE Secretariat.

125 **The Executive Council approved** the Summary Report of the Third Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions and the Recommendations therein (Document SC-IOCARIBE-III/3).

126 **The Executive Council also approved** the IOCARIBE Medium Term Plan (1990-1995) including the programmes/projects listed, subject to the availability of the required funding for their implementation.

127 **The Executive Council urged** all interested Member States to continue and increase contributions to the activities of the Sub-Commission.

128 **The Executive Council instructed** the Secretary IOC to ensure that the regional Secretariat continues to function smoothly and to provide special support for the implementation of the short- and medium-term programmes for the Sub-Commission.

129 **The Executive Council invited** regional and global international bodies to co-operate with the Sub-Commission and, in particular, to support the programmes and projects of the IOCARIBE Medium-Term Plan.

6.2 IOC SUB-COMMISSION FOR THE WESTERN PACIFIC (WESTPAC)

130 Professor T. Nemoto, Chairman of the IOC Sub-Commission for the Western Pacific (WESTPAC), introduced the Agenda Item, referring to the Summary Report of the First Session of the IOC Sub-commission for the Western Pacific, Hangzhou, People's Republic of China, 5-9 February 1990 (Document IOC/SC-WESTPAC-1/3), following the successful conclusion of the Fifth and final Session of the Regional Committee on 5 February 1990 at the same venue. He noted, in particular, that the Sub-Commission: (i) became operative with the convening of its first session; (ii) adopted nine projects initiated by the Regional Committee for the Western Pacific as the projects of the Sub-Commission; (iii) considered that it is extremely important to develop a financially realistic plan and formulated an action-oriented plan covering two to six years; (iv) recommended that a major international IOC-WESTPAC Marine Science Symposium be organized in 1991 or 1992; and (v) decided on a three-year time-span between regular sessions of the Sub-Commission. He also noted that considerations given at the WESTPAC Scientific Seminar, held 2-3 February 1990 at the same venue, provided a good basis for review and planning of the programme and activities.

- 131 The Executive Council expressed its satisfaction with the outcome of the First Session of WESTPAC and the work done by its Member States, Chairman and the Secretary IOC for the Session. The Executive Council expressed its gratitude to the People's Republic of China for hosting the Session.
- 132 The Secretary informed the Executive Council that progress has been made in establishing an IOC Regional Secretariat for WESTPAC in Bangkok, Thailand, as well as establishing a post for a senior Unesco/IOC professional staff member to serve there, allocating funds of Unesco to match the financial contribution to be made by the USA. He informed the Council that, during the Session of the Sub-commission, the Delegates of China and France indicated willingness to provide associate experts for the Regional Secretariat and the Delegate of the USSR indicated that USSR was ready to study the possibility of providing an associate expert for the Regional Secretariat. The Delegate of Japan reiterated the offer of Japan to provide an associate expert.
- 133 The Delegate of Australia confirmed his Government's decision to provide a contribution of US\$ 15,000 to the Trust Fund for each of the next three years in support of WESTPAC project activities. The Delegate of Thailand reiterated the allocation to the Regional Secretariat for WESTPAC of US\$13,000 for 1990 and the provision of office facilities, of a secretary and a clerk.
- 134 The Executive Council expressed its appreciation to the Member States for their contributions.
- 135 The Executive Council agreed that the Sub-Commission would provide a good mechanism in planning and executing IOC programmes and activities.
- 136 The Executive Council noted with appreciation the offer made by the Delegate of Malaysia to host the International IOC-WESTPAC Marine Science Symposium.
- 137 The Executive Council accepted the Summary Report and approved the Recommendations.
- 138 The Executive Council adopted Resolution ~~EC-XXIII.8~~.
- 6.3 IOC REGIONAL COMMITTEE FOR THE CENTRAL EASTERN ATLANTIC (IOCEA)
- 139 The Chairman of the Regional Committee for the Central Eastern Atlantic (IOCEA), Dr. Sekou Konate, introduced this subject. He informed the Executive Council of the main outcome of the Regional Committee's Second Session.
- 140 Regarding Ocean Science in Relation to Non-Living Resources, the Regional Committee expressed its appreciation for the steps taken to implement the project on "Sediment Budgets along the West African Coast" relating to coastal erosion, and also thanked Nigeria for making available the research vessel SARKIM BAKA, on board of which the first regional oceanographic cruise along the continental shelf of the Gulf of Benin was successfully undertaken, 10-25 October 1989.
- 141 The Regional Committee also expressed its appreciation for the approaches made by the IOC Secretariat to the Commission of the European Communities, within the framework of the Unesco-EEC Agreement, in order to obtain further funding for the project.
- 142 The Regional Committee noted that, in regard to the joint FAO-IOC-WHO-IAEA-UNEP Project on the Monitoring of Pollution in the Marine Environment of the West and Central African Region (WACAF/2), the oil monitoring component for which IOC is responsible would be reoriented during phase II, to put emphasis on physical oceanographic parameters.
- 143 The Regional Committee expressed its satisfaction on the decision taken by the IBCEA Editorial Board to assign responsibilities for the International Bathymetric Chart of the Central Eastern Atlantic comprising twelve sheets on a scale of 1:1,000,000, to be printed with the assistance of France and Portugal.
- 144 Regarding the Oceanographic Data and Information Exchange (IODE), the Regional Committee approved the establishment in Conakry of a regional physical oceanographic data and information centre and requested the Secretary IOC to look into the possibility of securing extra-budgetary funds in order to expand its capabilities. It also asked for a mission to be organized in order to examine the possibility of developing a regional information network.

145 The Regional Committee took note of the outcome of the Third Meeting of the Regional Co-ordinating Committee for the COMARAF Programme, held in Abidjan (6-9 February 1990).

146 The Regional Committee stressed the need to obtain extra-budgetary funding in order to ensure the follow-up of projects and to procure the necessary equipment, and invited the Secretary IOC to continue efforts in that connection.

147 The Regional Committee and the Executive Council thanked Nigeria and the Institut Scientifique de Peches Maritimes of Morocco for offering to provide oceanographic vessels for cruises relating to living resources within the framework of a regional component of OSLR. The Executive Council expressed its appreciation to Nigeria for its contribution to the success of the regional projects.

148 The Representative of the OAU expressed the political and financial support of his organization to the activities of the Regional Committee and suggested to the Executive Council that the Executive Summary of the last session in Lagos be approved.

149 The Delegate of Portugal expressed the interest of his country for the regional activities, in particular, those relating to OSLR, GLOSS and IBCEA.

150 The Delegate of France expressed appreciation for the results obtained during the first regional cruise related to OSNLR and stated that France will support the different activities of the Regional Committee.

151 Having stressed the importance of TEMA activities to the countries of the region, the Delegate of the Ukrainian SSR noted the positive experience gained in organizing training courses and workshops in marine sciences at the CERESCOR centre in Conakry (Guinea). These included both theory and practice on board a scientific research vessel, and the offer of assistance in organizing such training courses in the future on a regular basis.

152 The Executive Council considered that the first regional oceanographic cruise should be regarded as a model of partnership and regional co-operation, to be followed, and confirmed its support of the future work of IOCEA.

153 The Executive Council endorsed the Summary of Proceedings and Recommendations of the Second Session of the Regional Committee.

6.4 SOUTH-EASTERN PACIFIC

154 Dr. F. Robles, IOC Senior Assistant Secretary, introduced this Agenda Item, referring to Documents IOC/EC-XXIII/8 Annex 5 and Annex 5 Add., and the Memorandum of Understanding between the IOC and the CPPS signed in 1984. The regional co-operation includes activities in Ocean Processes and Climate, Marine Pollution Research and Monitoring, OSLR, OSNLR and Ocean Services, such as IGOSS and GLOSS.

155 Regarding OSNLR, the Twentieth Ordinary Session of CPPS (Bogota, Colombia, September 1989) endorsed the establishment of a Joint CPPS-IOC-UN(OALOS) Regional Component and associated joint Group of Experts on OSNLR.

156 The Delegate of Chile recognized and thanked the CPPS and IOC for their fruitful co-operation in marine sciences and services and confirmed that the CPPS is the appropriate regional organization for marine sciences in the South-east Pacific. He recalled that the CPPS Secretariat has been established for four years in Santiago, Chile.

157 The Representative of Unesco informed the Council of a Research Project on the South American coastal temperate zone covering Peru and Chile as well as Argentina, Uruguay and Brazil. He expressed interest in co-ordinating this activity with those on OSNLR undertaken by IOC and CPPS in the South-eastern Pacific region.

158 The Executive Council noted with satisfaction the progress made in the implementation of regional components of IOC programmes and services jointly carried out with CPPS and approved the report presented by the IOC Secretariat.

159 The Executive Council endorsed the establishment of a Joint CPPS-IOC-UN(OALOS) Regional Component and the associated joint Group of Experts on OSNLR.

6.5 **JOINT CCOP-IOC WORKING GROUP ON POST-IDOE STUDIES OF EAST ASIAN TECTONICS AND RESOURCES (SEATAR) AND THE JOINT CCOP/SOPAC-IOC WORKING GROUP ON SOUTH PACIFIC TECTONICS AND RESOURCES (STAR)**

160 Dr. K. Kitazawa, IOC Assistant Secretary, introduced the main outcomes of the Fifteenth Session of the Joint CCOP-IOC Working Group on Post-IDOE Studies of East Asian Tectonics and Resources (SEATAR) (Bangkok, Thailand, 30-31 October 1989, Document CCOP-IOC/SEATAR-XV/3). The Working Group recommended that the SEATAR transect study project should be completed by publication of selected transect maps and a compendium volume.

161 IOC co-sponsored the CCOP/SOPAC-IOC Workshop on the Geology, Geophysics and Mineral Resources of the South Pacific (Canberra, Australia, 24 September to 1 October 1989) with 81 participants from 17 member states. The Workshop aimed at reviewing and planning geophysical research in the South Pacific on the two main topics: plate boundary tectonics of the Southwest Pacific and associated mineral and hydrocarbon resources, and intraplate dynamics and resources of the Pacific Ocean with special emphasis on manganese nodules and crusts. It also recommended the establishment of a regional tsunami warning system in the South Pacific as an extension of the IOC proposed Tsunami Warning System in the Southwest Pacific. IOC maintains close co-operation with the Committee for Coordination of Joint Prospecting for Mineral Resources in Asian Offshore Areas (CCOP) and the South Pacific Applied Geoscience Commission (SOPAC, previously the Committee for Coordination of Joint Prospecting for Mineral Resources in South Pacific Offshore Areas). Reference was also made to the Advanced Training Course on Continental Shelf Structures and Sediments and Mineral Resources (Quezon City, Philippines, 2-13 October 1989).

162 **The Executive Council endorsed the Summary Report together with the recommendations of the Fifteenth Session of SEATAR and instructed the Secretary IOC to take the necessary steps to encourage early publication of the transect maps. It supported the future projects proposed at the CCOP/SOPAC-IOC workshop and requested the Secretary IOC to provide assistance in implementing them.**

163 **The Executive Council expressed its appreciation to the Governments of the Federal Republic of Germany and of the Philippines for providing valuable assistance to the advanced training course, and to the Government of Australia for hosting the Workshop.**

164 **Noting information provided by the Delegate of the USA that the final products of SEATAR Transect IV (Banda Sea) and Transect VII (Java-Kalimantan-South China Sea) will be displayed at the Fifth Circum-Pacific Energy and Mineral Resources Conference to be held in Honolulu (30 July - 3 August 1990), the Executive Council requested the Secretary IOC to consider encouraging participation of scientists from countries in the SEATAR region in that Conference.**

165 **The Executive Council requested the Secretary IOC to study carefully possible topics for future co-operative research projects with CCOP and SOPAC.**

7. **TRAINING, EDUCATION AND MUTUAL ASSISTANCE IN THE MARINE SCIENCES**

166 The Chairman of the Committee for TEMA, Professor Ulf Lie, introduced this item and drew attention to the TEMA Seminar on "Partnership in Ocean Sciences and Services for Sustainable Development", convened jointly by IOC, Unesco and the Alfred-Wegener Institute for Polar and Marine Research, Bremerhaven, Federal Republic of Germany, 19-22 September 1989. The Scientific Seminar was attended by twenty-six scientists, with sixteen from developing countries, and representatives of various national and international agencies involved in funding work in marine sciences.

167 An IOC consultant, Dr. John Pernetta, in introducing the overview report, Document IOC/INF-808, stressed that the Seminar recognized the need for restructuring approaches to partnership and co-operation in marine sciences. In the light of predicted climatic changes and the implications of the UN Convention on the Law of the Sea for ocean research, the need for Member States to have a strong marine science capability has increased and thus the TEMA activities assume a new and additional degree of importance.

168 The Chairman then introduced the draft outline of a strategy and action plan for the Unesco/IOC Comprehensive Plan for a Major Assistance Programme to Enhance the Marine Science Capabilities of Developing Countries (Document IOC/EC-XXIII/8 Annex 6).

- 169 The Technical Secretary for TEMA, Dr. S. M. Haq, in describing TEMA activities, reminded the Executive Council of the roles of the IOC Committee for TEMA to advise on policy, to review progress and to develop strategies to strengthen TEMA activities. The tasks assigned to this Committee are different from those of other subsidiary bodies of the Commission.
- 170 **The Executive Council stressed** that the Bremerhaven Seminar had been timely in bringing out the importance of "Partnership" in ocean science and services for development; it **expressed** its satisfaction with the outcome of the Seminar and **also expressed** its great appreciation to Professor G. Hempel, Chairman of the Seminar. "Partnership" amongst countries/institutions was considered essential in dealing with new lines of research, particularly those that necessarily involve international efforts in monitoring global climatic change, in using advanced technologies, and in the monitoring of environmental changes and managing resources in the coastal zone and open ocean regions by adjacent states.
- 171 **The Executive Council emphasized** that partnership between developed and developing countries should be based on achieving common objectives. In this way partnership could be a key element in promoting and strengthening TEMA, in fostering scientific and technological transfer to developing countries and supporting an effort to reduce the growing scientific and technological gap in marine sciences between industrialized and developing countries.
- 172 **The Executive Council, being convinced** that the new developments in ocean affairs call for much stronger mobilization of international efforts than at present in order to resolve various issues of concern to all coastal and island States, **agreed** that "Partnership" is a very important concept in the promotion of all the Commission's programmes.
- 173 **The Executive Council referred** to the IOC regional and global programmes which offer a unique opportunity for developing and strengthening co-operation amongst the participating states. **The Executive Council decided** that TEMA activities should form an integral part of those programmes and that IOC subsidiary bodies concerned should play a decisive role in both defining and implementing TEMA needs.
- 174 The range of current TEMA-related activities was noted by the Executive Council and suggestions were made as to how such activities might be expanded and strengthened. Suggestions included: the possibility of providing a research vessel to act as a mobile training base; provision of specific handbooks in various fields of marine science; greater support to scientific meetings/symposia where results relevant to on-going programmes could be discussed and experiences shared; linkage between institutions of developed and developing countries; expansion of IOC-UNDP co-operative activities; revitalization of IOC's Voluntary Co-operation Programme; development of regional centres for training; and provision of equipment and support to the IOC Research Fellowship Scheme (IOC-RFS).
- 175 **The Executive Council referred** to several projects now being endorsed by UNDP, expressed great satisfaction on the progress made in the implementation of the Unesco-IOC Comprehensive Plan for a Major Assistance Programme to Enhance Marine Science Capabilities of Developing Countries and strongly supported the need for a detailed action plan for its further implementation. The action plan should take into account training needs at the national, regional and global levels and all aspects of TEMA should be considered, including training and education of scientists and technicians; provision of equipment; research; the sharing of knowledge and data; and inter-regional transfer of experience. The development of marine science country profiles could be very useful, despite the fact that considerable time is required for the preparation and continuous updating of such profiles.
- 176 The Representative of WMO noted the very high priority given by his Organization to TEMA-related activities. He referred to the joint WMO-IOC initiative in developing a post-graduate diploma course in marine meteorology and physical oceanography and urged Member States to assist the two Secretariats in its implementation. He also stressed the importance of the Voluntary Co-operation Programme of WMO which was first initiated in support of the World Weather Watch (WWW) and then extended to cover other programmes including those concerned with climate and hydrology. He proposed the VCP programme of WMO and IOC as mechanisms for the implementation of the planned global ocean observing system.
- 177 The Executive Secretary of SCOR informed the Executive Council that a recent review of SCOR's role in the Joint Oceanographic Assembly had recommended to SCOR's Executive Council

that the JOA be replaced by more frequent, more focussed interdisciplinary meetings which would retain the JOA objectives of interdisciplinary exchange, scientific excellence and facilitating communication between developed and developing country scientists.

178 The Director of the International Marine Radioactivity Laboratory of the International Atomic Energy Agency (IAEA), Dr. A. Walton, reviewed the co-operation of the IAEA with IOC and UNEP in training scientists in various aspects of marine chemistry and the provision of instrument maintenance services and suggested that such co-operation could be improved under the existing Memorandum of Understanding between IOC and IAEA. He informed the participants of a planned training course in marine radioactivity to be held in 1990 and invited Delegates to contact him for further details.

179 Delegates expressed their appreciation of the fine work undertaken by Dr. Haq in developing TEMA activities during his ten years with the IOC Secretariat and concern was expressed about the future of TEMA given his imminent departure. The Secretary reassured Delegates that TEMA activities would continue to receive the highest priority of the Secretariat and that interim measures would be taken to ensure continued development of the TEMA programme.

180 **The Executive Council instructed** the Secretary to prepare a draft action plan, taking into account the various suggestions made by the Delegates and to submit it to the forthcoming session of the Committee for TEMA and the Sixteenth Session of the IOC Assembly. **The Executive Council reiterated** its strong support of the Recommendations of the Fourth Session of the Committee for TEMA which urges major subsidiary bodies responsible for global programmes to develop, inter alia, brochures, educational and training material for the benefit of developing countries in the different regions.

181 **The Executive Council decided** that the Committee for TEMA should review global progress as well as strategies in regard to TEMA, every four to six years, taking into account the experiences gained by other subsidiary bodies of the Commission on matters relating to TEMA. **The Executive Council instructed** the Secretary IOC, in close consultation with the Chairman of TEMA, to convene the next session in Paris prior to the Sixteenth Session of the Assembly.

182 **The Executive Council noted with concern** the deteriorating staff situation in the Secretariat with respect to TEMA implementation **and expressed the fact that** unless immediate measures are taken the implementation is bound to be adversely affected. **The Executive Council, accordingly, strongly recommended** the Director-General of Unesco to remedy the situation as soon as possible.

183 **The Executive Council also recognized** the budgetary constraints facing the Commission in responding to the growing demand of assistance required by Member States to participate in ongoing programmes of the Commission. **The Executive Council invited** Member States to contribute to the IOC Trust Fund, the IOC Research Fellowship Scheme and the Voluntary Co-operation Programme of the Commission.

8. CO-OPERATION WITH ORGANIZATIONS OF THE UN SYSTEM AND OTHER BODIES

8.1 MATTERS RELATED TO ICSPRO AND LEPOR

184 The Secretary informed the Council that, in accordance with decisions of the Fifteenth Session of the Assembly, the report on "Marine Research and Ocean Science: Opportunities for Progress" had been presented to the Second 1989 Regular Session of ECOSOC (Geneva, July 1989) as a step towards updating the Long-term and Expanded Programme of Oceanic Research (LEPOR). ECOSOC had taken note of the report, but had not passed any specific resolution on the subject. He also referred to later decisions of the 44th United Nations General Assembly, through its Resolution A/RES/44/26 on the Law of the Sea, by which the Secretary General is requested to prepare several reports to be presented to the 45th General Assembly and to which the IOC will contribute. These matters, including agreement by the Member Organizations of ICSPRO regarding their joint efforts to prepare such reports, will be discussed at the forthcoming session of the Inter-secretariat Committee, scheduled for 2-4 May 1990 in Geneva. In the opinion of the Secretary, the Commission could benefit from a number of opportunities to ensure appropriate presentation of IOC views to both ECOSOC and the UN General Assembly.

185 The Representative of FAO recalled that LEPOR is a programmatic framework for ocean-related activities of the UN system as a whole, the co-ordination of which is entrusted to the IOC. His Organization had expressed some reservations on the formulation of the next phases of LEPOR because it is felt most important that the respective roles of the UN agencies involved be more clearly defined. In this respect he referred to a study being made by the FAO, UNDP, the World Bank and the EEC on International Fisheries Research Needs which would assist FAO in determining its role in future programmatic developments.

186 The Executive Council took note of the information provided and expressed the Commission's interest in receiving a copy of the draft of the Study on International Fisheries Research Needs from FAO for comment.

8.2 STUDY OF LEGAL ASPECTS OF OCEANOGRAPHIC DATA ACQUISITION SYSTEMS (ODAS)

187 The Chairman reported on the development since the Fifteenth Session of the Assembly. Prof. A. Kolodkin and his team from the Soviet Maritime Law Association had submitted a documentary analysis of steps taken since the early 70's to the Secretary IOC. Following instructions from the Fifteenth Session of the Assembly (Document SC/MD/91, para. 253) the Secretary, in his capacity of Secretary of ICSPRO, sent the document to the ICSPRO Agencies, inviting them to prepare comments on it for the forthcoming Twenty-eighth Session of ICSPRO (2-4 May 1990).

188 The Executive Council commended Prof. Kolodkin and his team and requested the Secretary to implement the Assembly's instructions and report on progress to the Sixteenth Session of the Assembly.

8.3 OTHER RELATED MATTERS

International Council of Scientific Unions/International Geosphere-Biosphere Programme (ICSU-IGBP)

189 The Representatives of ICSU and SCOR informed the Executive Council of the recent developments within ICSU-IGBP, especially with respect to the oceanographic components, expressed their appreciation of the willingness of IOC to co-operate and contribute to the development, and emphasized that the involvement of IOC in several of the up-coming projects could be essential.

190 The Executive Council stressed the need for close interaction between IOC and ICSU-IGBP and expressed its appreciation to SCOR for the important role it plays as an advisory body to IOC.

191 Reference was made to the Addendum to the Report on Intersessional Activities (Document IOC/EC-XXIII/6 Add.) containing detailed information on IGBP core projects and up-coming events. The Executive Council accepted the invitation to IOC to attend the Second Meeting of the IGBP Scientific Advisory Council (Paris, 3-7 September 1990) and emphasized the need for appropriate information exchange and co-ordination on national as well as international levels in all these activities, in view of the large resource requirements and commitments involved.

Organization of African Unity (OAU)

192 The Representative of the OAU informed the Executive Council of the coverage and activities of this intergovernmental organization, in existence since 1963. In particular, he expressed great interest on behalf of his organization and especially its Scientific, Technical and Research Committee, which serves as a scientific, technical, advisory and executive committee to the Heads of State, in co-operating with IOC and its relevant regional subsidiary bodies. The Representative informed the Executive Council that IOC and its IOCEA will be invited to the forthcoming meeting of the Inter-African Committee for Oceanography and Fisheries (Abidjan, Côte d'Ivoire, 4-9 June 1990).

Food and Agriculture Organization of the United Nations (FAO)

193 The Representative of FAO informed the Executive Council of: (i) the forthcoming intersecretariat consultation between FAO and IOC, following the invitation of FAO, to examine ways and means of expanding co-operation between the two organizations; (ii) the planned interagency meeting to discuss the content of a Study of Long-term Trends in the Marine Environment and Interaction with Fisheries in the GFCM area, (FAO Headquarters, 16-17 May 1990), in which IOC will participate; and (iii) efforts within FAO to revitalize the ACMRR.

International Commission for the Scientific Exploration of the Mediterranean Sea (ICSEM)

- 194 The Secretary informed the Executive Council of the very positive developments regarding co-operation between ICSEM and IOC since the Fifteenth Session of the Assembly, including the formulation of joint programmes within OSNLR and the related preparations for the establishment of a joint IOC-ICSEM Regional Group of Experts. The Executive Council took note of the information with appreciation and endorsed the development.

International Study of the Equatorial Segment of the Mid-Atlantic Ridge (EQUARIDGE)

- 195 The Secretary reported on the ad hoc sessional consultations regarding the EQUARIDGE project (Document IOC/INF-805), an International Study of the Equatorial Segment of the Mid-Atlantic Ridge proposed by the USSR Academy of Sciences. The Executive Council, being informed about the project by the USSR Academy, and, in view of the scientific significance of the project, expressed its support for it on the understanding that there would be no financial commitment on behalf of the IOC, except possibly to facilitate participation of selected scientists from developing countries in relevant parts of the project and, at a later stage, to help ensure the international dissemination of the results of the project.

- 196 The Executive Council instructed the Secretary IOC to circulate the proposed programme to all Member States so as to encourage the participation of scientific institutions and individual scientists in the programme. It requested the Delegate of the USSR to keep IOC informed of the scientific results received after completion of the programme.

The Division of Marine Sciences of Unesco (Unesco/OCE)

- 197 The Chairman drew the attention of the Executive Council to Document MARINF/76 which presents the activities of the Division of Marine Sciences of Unesco. The Executive Council took note with appreciation of the information.

Others

- 198 The Chairman recalled that co-operation with several other Organizations and Programmes, including IAEA, IMO, UNEP, WMO, UN(OALOS), had been considered under relevant subject items, and the Executive Council stressed the importance of continued broadening of co-operation between the IOC and other bodies, in particular regional ones. The Chairman, in this context, referred to the contacts between the IOC Secretariat and the EEC and the Council of Europe, and the Executive Council endorsed the continuation of these contacts with the aim of strengthening IOC's co-operation with the relevant European regional organizations, including the UN-ECE. Finally, the Executive Council noted with appreciation that contacts with and use of ECOR, as an advisory body, were expanding.

9. PROGRAMME AND BUDGET 1990-91

9.1 STATUS REPORT AND IMPLICATIONS OF THE UNESCO 25TH SESSION OF THE GENERAL CONFERENCE

- 199 The Chairman presented this subject within the context of his opening address to the Executive Council. He referred to the positive reaction of IOC Member States to his Circular Letter requesting that national contacts mobilize support for the Commission's programme when Major Programme Area II was discussed at the 25th Unesco General Conference. The majority of speakers in Commission III had indeed called for strengthening of the IOC within Unesco and also endorsed adjustments to the Draft Third Medium-Term Plan along the lines of Resolution XV-11.

- 200 Although the General Conference had not approved any of the Director General's proposals for budgetary reinforcement, including that of \$350,000 for IOC, he had subsequently, as explained in Document IOC/EC-XXIII/7, authorized a special allocation to the Commission of \$500,000 for 1990-1991, to be used for programme funding and staff support.

- 201 The Executive Council took note with appreciation of this information for further discussion under Agenda Item 9.2 and expressed its satisfaction with the positive efforts made by IOC national contacts in ensuring a strong voice for the Commission at the Unesco General Conference.

9.2 IMPLICATIONS OF DECISIONS OF THE TWENTY-THIRD SESSION OF THE EXECUTIVE COUNCIL

- 202 The First Vice-Chairman introduced this item by recalling that the basic framework for the IOC Programme and Budget for 1990-1991 was approved by the Assembly through Resolution XV-10 and that changes in forecast funding and expenditure since the Assembly were found in Document IOC/EC-XXIII/7 Annex I. He noted that the basic resources of the Commission are in line with the forecast made at the time of the Assembly, with trends indicating that the IOC is about equally supported by funds and staff through Unesco and by support from Member States.
- 203 This, however, does not imply that the total resources required to set up and maintain ocean observations and services, or reduce the gap in marine science and technology, or implement the Comprehensive Plan, are provided for, or can ever be provided for, within the IOC programme and budget from its present institutional resources. He cited as an example that the medium term plans of regional bodies encompass plans for development and operational aspects that must be funded through extrabudgetary resources in parallel with a new approach to IOC financing. Such aspects should be a major objective of the Commission in the coming years, and he hoped that some of the FURES studies on a strategic approach to IOC development including a pledging system would contribute to this goal.
- 204 The Executive Council, while recognizing that the forecast resources were indeed at the same level as anticipated by the Assembly, was also of the view that these resources were largely dependent upon the good will of its parent organization and its Member States. A case in point is the evolution since last July of funding through Unesco which had fluctuated down and up by a margin of 25% and had been recently restored to the forecast level by decision of the Director-General to provide a special allocation of \$500,000 for the biennium. The Executive Council requested that the Chairman convey to the Director-General of Unesco its appreciation and thanks for making available the special allocation of \$500,000 in 1990-91 for support of IOC programmes and staff.
- 205 Noting the dedication of the IOC Secretary and his staff and the work being undertaken, the Executive Council again called attention to the question of staff resources as still being a major problem for the IOC. In this respect, further weakening of the Secretariat, through the transfer of an IOC post to Apia, was viewed with great concern as was the possibility of attribution of staff costs associated with the post of Director of the former Division of Marine Sciences to another position outside of a unified marine science programme.
- 206 In association with the requested negotiations between the Chairman and the Director-General on the status of IOC within Unesco, the Executive Council expressed the firm opinion that Unesco staff funding, as found within the 25 C/5 under Programme II.2.4, should serve the marine science programme, with a priority to strengthening the IOC Secretariat and the IOC Regional Sub-Commissions.
- 207 The Executive Council endorsed the plans of the Secretary to ensure issuance of financial status reports and related staff resources in two parts, with the first to be issued in September-October of each calendar year so as to facilitate the analysis by Member States and preparation of national positions.
- 208 The Executive Council welcomed the announcements of continued financial and staffing support by the Delegates of Canada and Japan, and the Representative of SCOR.
- 209 Having compared the resource requirements identified during the Council with those forecast in Document IOC/EC-XXIII/7 Annex I, the Executive Council agreed that the implementation rate of all programmes and activities will determine, during the first year of the biennium, between now and the Sixteenth Session of the Assembly, the requirements for the timing of internal adjustments to the forecast programme and budget. In the case of regional subsidiary bodies, emphasis will be given to implementation of priority activities as the required planning phase is completed, using the Director-General's allocation and the IOC Trust Fund.
- 210 Taking into account that the timing of implementation requirements and phasing of programmes and activities implies adjustments to forecast expenditure, the Executive Council was of the view that, within the margin of variation that is probable, the Secretary IOC is entrusted as part of his functions to make the required adjustments.

- 211 **The Executive Council agreed** that adjustments emerging from the present Session should be recorded as Annex IV to its Summary Report and instructed the Secretary to present to the Assembly his views on any further adjustments for 1991 that might evolve from intersessional developments.

10. **ENHANCING THE ROLE OF THE COMMISSION: MEASURES TO ENSURE ADEQUATE AND DEPENDABLE RESOURCES FOR THE COMMISSION'S PROGRAMME OF WORK (FURES)**

- 212 The First Vice-Chairman introduced this subject. He referred to the work of the ad hoc Study Group on Measures to Ensure Adequate and Dependable Resources for the Commission's Programme of Work (FURES) as well as to the interventions of Member States under Agenda Item 3 regarding the Director-General's plans to institute reforms within Unesco and their potential implications for the IOC.

- 213 In relation to progress made by the ad hoc Study Group, he provided an in-depth summary of the tasks assigned by the Executive Council and Assembly since the establishment of FURES in 1987 and the conclusions reached to date. Emphasizing the number and diversity of such tasks, he drew the attention of the Council to the need for its guidance regarding priority assignments within a given time-frame so that the report of FURES to the Assembly could adequately reflect the major concerns of the Commission.

- 214 In outlining the interim conclusions of the ad hoc Study Group that had emerged during its Second Session (Paris, 11-13 January 1990), he drew attention to matters relating to: (i) functional autonomy; (ii) responsibilities of Member States and the interface between national structures and the IOC; (iii) organization and scheduling of IOC governing body meetings; (iv) interpretation of Article 5, para.4 of the Statutes regarding geographical distribution; (v) application of Article 10 of the Statutes; and (vi) IOC documentation requirements. Advice was also sought regarding the future work plan of the ad hoc Study Group which intended to hold its Third Session in August 1990 so that a full report could be circulated to Member States in due time before the Sixteenth Session of the Assembly.

- 215 The Representative of FAO stressed the value of a strong and relatively independent Commission in the context of ICSPRO. While noting the considerable difficulty of precisely defining functional autonomy within Unesco, he suggested that it could be manifested by, among other things, the adoption of geo-oceanic groupings of Member States as a basis for ensuring equitable geographical representation on the Executive Council, as proposed by the ad hoc Study Group, which would, in turn, facilitate co-operation with FAO and other organizations at the regional level as far as marine and fishery sciences are concerned.

- 216 Several Delegates took this opportunity to commend the work of the ad hoc Study Group under the leadership of the First Vice-Chairman and emphasized the complexity of the issues being addressed. Although the interim nature of the report before the Executive Council was duly recognized, a number of preliminary views were expressed as indications to assist FURES in its work.

- 217 **The Executive Council agreed** that Member States should send further comments on the work of FURES to the Secretary by 1 May 1990 and requested the ad hoc Study Group to bear the following in mind during its intersessional work, in addition to the tasks identified in Resolution XV-12 of the Fifteenth Session of the Assembly: (i) the need for a more detailed analysis of the advantages and disadvantages in changing the cycle of governing body meetings, considering the proposals made and taking into account a clearer definition of the functions of the Assembly and Executive Council; (ii) further development of a strategy for IOC over the present decade, within which both institutional and resource aspects should be addressed, including diverse but inter-related aspects such as comparative analysis of the work methods of similar organizations, including the frequency of their meetings, the feasibility of an IOC pledging system, and ways to put into effect a greater involvement of Member States in the work of the Commission; (iii) proposals, acceptable to all Member States, to implement Article 10 of the Statutes; and (iv) whether the Commission has need of a standing body to address various issues and, if so, to propose the mandate and composition of such a body.

- 218 **The Executive Council gave** the highest priority to consideration of the announced reorganization of Unesco and its potential implications to the status and functions of the Commission.

219 In referring to the definition of functional autonomy as approved by the Fifteenth Session of the Assembly, the **Executive Council welcomed** the steps taken by the Director-General with a view to providing for a unified marine science programme but **expressed** the view that the announced structure does not reflect the intergovernmental status of the Commission and its role in international marine scientific affairs and in the UN system.

220 Recognizing the importance of the 1992 Conference on Environment and Development as well as that of an interdisciplinary approach to environmental problems, the **Executive Council also expressed** its willingness to provide inputs to an integrated Unesco position and to collaborate closely with the Co-ordinator for the Environment.

221 The **Executive Council** received with appreciation the reassurance of the Representative of the Director-General that the announced reform measures were not intended to impinge upon the status and functional autonomy of the Commission, as clearly established in Article 1 of the IOC Statutes, and that the views of IOC would be duly taken into account.

222 In this context, the **Executive Council expressed** the view that the status of the Commission could be reaffirmed by Unesco by: (i) adjusting the organigram of the Organization to indicate that the IOC was directly attached to the Office of the Director General, with lines of communication to the Science Sector; and (ii) changing the title of Secretary IOC to that of Secretary-General.

223 Being informed of the briefing prepared by FURES on means by which Unesco could give concrete effect to IOC's functional autonomy within the Organization, the **Executive Council requested** the Chairman to discuss the matter with the Director General at the earliest opportunity.

224 Being informed of the preliminary meeting between the Chairman and the Director-General, the **Executive Council expressed** its appreciation for this accommodation and the request of the Director-General that IOC prepare a note on its wishes.

225 The **Executive Council** adopted Resolution **EC-XXIII.9**. One Member abstained.

11. ARRANGEMENTS FOR THE TWENTY-FOURTH SESSION OF THE EXECUTIVE COUNCIL AND THE SIXTEENTH SESSION OF THE ASSEMBLY

226 The Secretary referred to the decision of the Fifteenth Session of the Assembly that the Twenty-fourth Session of the Executive Council should be convened on 5 March 1991 and the Sixteenth Session of the Assembly should start on 6 March, ending not later than 22 March 1991. Both these meetings are to be held at Unesco Headquarters in Paris. The Secretary informed the Executive Council that meeting rooms had been reserved accordingly. The **Executive Council noted** the information. However, the **Executive Council decided** to extend its Twenty-fourth Session to two days to facilitate the discussion of certain agenda items at the Assembly. The dates of 5-6 March 1991 were accordingly decided with the Assembly starting 7 March and ending not later than 22 March 1991.

227 The Second Vice-Chairman, in his capacity as Chairman of the Technical Review Committee for Resolutions, expressed concern regarding the length and complexity of draft resolutions, especially their preambular paragraphs. He urged that Member States make every effort to prepare short and action-oriented resolutions. Delegates strongly supported the recommendation proposing that the IOC Assembly authorize the Technical Review Committee to take a more active role in their consideration of draft resolutions, for example by working closely with those who prepared the draft resolutions, and, if necessary, returning draft resolutions which do not meet the guidelines to the author for revision.

Anton Bruun Memorial Lectures

228 The First Vice-Chairman informed the Executive Council that several suggestions had been put forward to the effect that, if the IOC Assembly or Executive Council deems it acceptable, one or more Anton Bruun Lecture(s) might be presented in memory of a distinguished person to commemorate her or his support to a specific programme or activity of the Commission with which she or he was closely connected.

229 In the light of several projects of the Commission, in which immediate ocean partnership plays a growing role, and the fact that TEMA will be a major item of discussion at IOC-XVI, the Chairman proposed that in addition to the three presentations already agreed upon for next year's Anton Bruun Lectures, the subject of how best to achieve transfer of marine science and technology should also be the subject of one Lecture.

230 In recalling the discussion and proposals made on the Anton Bruun Lectures arrangements at IOC-XV (Document SC/MD/91, paras 7 and 8) - in particular the suggested theme "Modelling and Prediction in Marine Sciences" with possible lectures on (i) Modelling and prediction of El Nino: a phenomenon of a global scale; (ii) modelling and prediction of plankton blooms; and (iii) modelling and prediction of coastal processes: tools for coastal zone management, and the proposal by some Delegates to honour the memory of Marie-Annie Martin-Sane, also naming the lectures after her, several Delegates suggested additional examples of how best to commemorate such distinguished persons, e.g., by establishing special fellowships and lectureships, and proposed that a sessional working group be established at the Sixteenth Session of the Assembly to consider the matter.

231 Some Delegates further requested the Secretary to ensure that up-dated documentation on the history of the Commission, including a suitable biography of distinguished contributors to the development of the Commission, should be prepared.

232 Noting the guidance from the Chairman, the Executive Council then agreed to nominate experts to present the Anton Bruun Memorial Lectures as soon as possible, indicating that Member States may also provide for the attendance of Lecturers free of charge to IOC, and that arrangements for travel only are made by the Secretary if such support is requested. The Delegate of the USSR proposed a Lecture on the theme "Status and perspectives of long-term indices of marine ecosystems functioning in the World Ocean and assessment of impacts, including anthropogenic impacts, caused by global climate change".

233 The Executive Council requested the First Vice-Chairman to take these proposals into account, as well as other suggestions that Member States may wish to bring to his attention in the next few weeks, when deciding on the speakers of which there should be only three.

12. ADOPTION OF THE SUMMARY REPORT

234 The Chairman of the Technical Review Committee for Resolutions, Professor A. Yankov, informed the Executive Council that all the Draft Resolutions had been seen by the Committee.

235 Having considered the Draft Summary Report, the Executive Council adopted it unanimously together with nine Resolutions.

236 Following a discussion on the method of adopting resolutions in the Commission's subsidiary bodies, and referring to the March 1989 edition of the IOC Manual, Part I, one Delegate requested that the guidelines for the preparation and examination of draft resolutions given in Document IOC/INF-734 rev., be modified so as to specify the possibility for a subsidiary body to adopt a resolution; this would remove the apparent contradiction between paragraphs 9.2.2 (Subsidiary Body Resolutions and Recommendations) and 10.2.4 (Recommendations and Decisions of Subsidiary Bodies) in Pt.I of the IOC Manual.

13. CLOSURE

237 The Chairman thanked the participants for their active involvement in the debates and expressed the view that this Executive Council had demonstrated the maturity of the Commission and its global and regional programmes. He also thanked the Rapporteur, the Secretariat, the interpreters and other services which had all helped the Session to work effectively.

ANNEX I

AGENDA

- 1. OPENING**
- 2. ADMINISTRATIVE ARRANGEMENTS**
 - 2.1 ADOPTION OF THE AGENDA**
 - 2.2 DESIGNATION OF THE RAPPORTEUR**
 - 2.3 CONDUCT OF THE SESSION, TIMETABLE AND DOCUMENTATION**
- 3. REPORT OF THE SECRETARY ON INTERSESSIONAL ACTIVITIES**
- 4. OCEAN SCIENCES**
 - 4.1 OCEAN DYNAMICS AND CLIMATE, OCEANOGRAPHIC COMPONENTS OF WCRP AND RELATED PROGRAMMES**
 - 4.1.1 The Tropical Oceans and Global Atmosphere (TOGA)**
 - 4.1.2 The World Ocean Circulation Experiment (WOCE)**
 - 4.1.3 Other related programmes**
 - 4.2 OCEAN SCIENCE IN RELATION TO LIVING RESOURCES (OSLR)**
 - 4.3 MARINE POLLUTION RESEARCH AND MONITORING (GIPME/MARPOLMON) AND RELATED PROGRAMMES**
- 5. OCEAN SERVICES**
 - 5.1 GLOBAL INTEGRATED OCEAN OBSERVING SYSTEM DEVELOPMENT**
 - 5.2 INTERNATIONAL OCEANOGRAPHIC DATA AND INFORMATION EXCHANGE (IODE)**
 - 5.3 DRIFTING BUOY CO-OPERATION PANEL (DBCP)**
 - 5.4 INTERNATIONAL TSUNAMI WARNING SYSTEM IN THE PACIFIC (ITSU)**
- 6. REGIONAL SUBSIDIARY BODIES AND RELATED ACTIVITIES**
 - 6.1 IOC SUB-COMMISSION FOR THE CARIBBEAN AND ADJACENT REGIONS (IOCARIBE)**
 - 6.2 IOC SUB-COMMISSION FOR THE WESTERN PACIFIC (WESTPAC)**
 - 6.3 IOC REGIONAL COMMITTEE FOR THE CENTRAL EASTERN ATLANTIC (IOCEA)**
 - 6.4 SOUTH-EASTERN PACIFIC**
 - 6.5 JOINT CCOP-IOC WORKING GROUP ON POST-IDOE STUDIES OF EAST ASIAN TECTONICS AND RESOURCES (SEATAR) AND THE JOINT CCOP/SOPAC-IOC WORKING GROUP ON SOUTH PACIFIC TECTONICS AND RESOURCES (STAR)**
- 7. TRAINING, EDUCATION AND MUTUAL ASSISTANCE IN THE MARINE SCIENCES**

- 8. CO-OPERATION WITH ORGANIZATIONS OF THE UN SYSTEM AND OTHER BODIES**
 - 8.1 MATTERS RELATED TO ICSPRO AND LEPOR**
 - 8.2 STUDY OF LEGAL ASPECTS OF OCEANOGRAPHIC DATA ACQUISITION SYSTEMS (ODAS)**
 - 8.3 OTHER RELATED MATTERS**
- 9. PROGRAMME AND BUDGET 1990-91**
 - 9.1 STATUS REPORT AND IMPLICATIONS OF THE UNESCO 25TH SESSION OF THE GENERAL CONFERENCE**
 - 9.2 IMPLICATIONS OF DECISIONS OF THE TWENTY-THIRD SESSION OF THE EXECUTIVE COUNCIL**
- 10. ENHANCING THE ROLE OF THE COMMISSION: MEASURES TO ENSURE ADEQUATE AND DEPENDABLE RESOURCES FOR THE COMMISSION'S PROGRAMME OF WORK (FURES)**
- 11. ARRANGEMENTS FOR THE TWENTY-FOURTH SESSION OF THE EXECUTIVE COUNCIL AND THE SIXTEENTH SESSION OF THE ASSEMBLY**
- 12. ADOPTION OF THE SUMMARY REPORT**
- 13. CLOSURE**

ANNEX II

LIST OF ADOPTED RESOLUTIONS

Resolution Number	Agenda Item	Title
EC-XXIII.1	4.2	Ocean Science in Relation to Living Resources (OSLR)
EC-XXIII.2	4.3	Co-sponsorship by IOC and UNEP of the GIPME Programme
EC-XXIII.3	4.3	IOC Contribution to the 1992 United Nations Conference on Environment and Development
EC-XXIII.4	4.3	Black Sea Project
EC-XXIII.5	5.1	Global Ocean Observing System
EC-XXIII.6	5.2	The Thirteenth Session of the IOC Committee on International Oceanographic Data and Information Exchange
EC-XXIII.7	5.4	Twelfth Session of the International Co-ordination Group the Tsunami Warning System in the Pacific
EC-XXIII.8	6.2	Work of the IOC Sub-Commission for the Western Pacific
EC-XXIII.9	10	The Status of the IOC and its Functional Autonomy

Resolution EC-XXIII.1

OCEAN SCIENCE IN RELATION TO LIVING RESOURCES (OSLR)

The Executive Council,

A. General

Having received with appreciation the presentation on the activities of the joint IOC-FAO OSLR programme, over the last twelve months,

Having considered the Executive Summary and Recommendations of the Third Session of the IOC-FAO Guiding Group of Experts on OSLR, including the Recommendations of the ad hoc Group of Experts on Harmful Algal Blooms.

Recognizes the considerable progress achieved in the implementation of OSLR;

Accepts the Executive Summary of the Third Session of the Guiding Group of Experts and **approves** the Recommendations thereof, subject to the observations made below;

Urges Member States and interested organizations to take up specific OSLR projects in different regions;

B. International Recruitment Programme (IREP)

Recognizing with satisfaction the continued growth of IREP, through the Sardine-Anchovy Recruitment Project (SARP) and the Tropical Demersal Recruitment Project (TRODERP) and their successful implementation in certain regions,

Stresses the importance of expanding IREP through appropriate SARP and TRODERP initiatives by Member States, with the support of the Secretariats of IOC and FAO, to other regions, notably the Indian Ocean, the central eastern Atlantic and the Mediterranean;

C. Algal Blooms and Related Processes

Being aware of the increasing concern over algal blooms, especially those that are harmful to man, fishery resources or other marine organisms, and the understanding of their socio-economic impacts,

Endorses the Recommendations of the ad hoc Group of Experts on Harmful Algal Blooms, which were also endorsed by the Guiding Group of Experts (Recommendation OSLR-III.7);

Agrees that this Sub-Programme on Algal Blooms and Related Processes focus initially on taxonomy, ecology and toxicology;

D. Marine Ecosystem Dynamics and Living Resources

Having taken note of a number of national and international initiatives on the study of marine ecosystem dynamics [e.g., BICED (Brazil), ECOMONOC (USSR), GLOBEC (USA), MOSES (UK), and the Large Marine Ecosystems initiatives (USA/IOC)], as well as the International Conference on Large Marine Ecosystems to be convened by US NOAA, IUCN, IOC and ICSEM, in Monaco, 1-6 October 1990,

Considering that SCOR has informed the Executive Council of IOC of its plans to convene a Workshop on Ecosystem Dynamics and would be pleased to invite IOC to co-sponsor such a workshop, which would allow the possibility of developing, inter alia, the scientific basis for an OSLR Programme on Ecosystem Dynamics and Living Resources recommended by the Guiding Group of Experts on OSLR (Recommendation OSLR-III.11),

Decides to accept such a future invitation from SCOR;

Invites SCOR to extend its invitation to FAO, in view of the latter's co-sponsorship of OSLR, and ICES, in view of its active co-operation in implementing OSLR;

Also invites SCOR to convene this Workshop in 1990;

Instructs the Secretary to convene an ad hoc Expert Consultation on Ecosystem Dynamics and Living Resources, as recommended (Recommendation OSLR-III.11) by the Guiding Group of Experts, to follow the afore-mentioned Workshop and to consider the results of the Workshop with a view to develop a new OSLR Sub-Programme on Marine Ecosystems Dynamics and Living Resources;

E. Composition of the Guiding Group of Experts

Noting the Recommendation of the Guiding Group of Experts that its composition be diversified so as to be able to provide the necessary expertise for the new OSLR activities it has proposed,

Recognizing the fact that OSLR has now progressed well beyond the start-up period and now has substantial participation by many Member States and their marine scientific communities,

Recommends to the Assembly that, at its Sixteenth Session, it review the development of OSLR and adopt arrangements for the long-term co-ordination of this Programme;

F. Secretariat Support

Recognizing the increasing needs of OSLR for augmentation of the IOC Secretariat to support OSLR, which presently lacks adequate staff in this area,

Appreciating the contribution made so far by FAO to OSLR,

Thanks the Federal Republic of Germany for having seconded an expert in the past;

Welcomes the offer of the USA to second a marine scientist to the IOC Secretariat in the near future to assist with respect to living resources, ecosystem dynamics and coastal oceanography issues;

Urges Member States to second additional experts for OSLR to the IOC Secretariat to ensure the implementation of the OSLR Programme;

Requests FAO to make every effort to increase its Secretariat support to OSLR, not only through its staff in the Fisheries Department and through its regional fishery bodies, but also by re-assigning a staff member to the IOC Secretariat, in view of the increasing range and depth of activities under OSLR.

Resolution EC-XXIII.2

CO-SPONSORSHIP BY IOC AND UNEP OF THE GIPME PROGRAMME

The Executive Council

Recalling Resolution XV-5 on IOC-UNEP Co-sponsorship of the GIPME Programme,

Noting with satisfaction the growing co-operation and collaboration between IOC and UNEP on issues related to marine pollution,

Noting also the proposal prepared by the Secretary, together with Officers of the GIPME Programme and the Secretariat of UNEP, to establish a Joint IOC-UNEP Intergovernmental Panel,

Endorses the co-sponsorship of the GIPME Programme by UNEP as a Joint IOC-UNEP Programme contributing to the "Earth Watch" Programme of the United Nations Systems;

Instructs the Secretary to pursue consultations with the Executive Director of UNEP with the view of updating and signing the Memorandum of Understanding which will reflect the growing co-operation between IOC and UNEP and covering arrangements for the joint programme including those of a financial nature;

Decides, subject to reciprocal endorsement by the Governing Council of UNEP, that a Joint IOC-UNEP Intergovernmental Panel be established with the modus operandi and Terms of Reference contained in the Annex to this Resolution;

Invites the Panel to seek the participation of ICES and other appropriate regional bodies and organizations to take part in its work;

Annex to Resolution EC-XXIII.2

Establishment of a Joint IOC-UNEP Intergovernmental Panel for GIPME

- (i) The membership of the Panel will be comprised of those Member States of IOC or of the UNEP Governing Council, or the UNEP Regional Seas Programme Governing Bodies, that have declared through a letter to the Secretary IOC or the Executive Director of UNEP their on-going involvement or intention to participate in the design, development and implementation of the Global Investigation of Pollution in the Marine Environment (GIPME) Programme, or in related Regional Seas Marine Pollution Programmes, whether on a global scale, or a regional level.
- (ii) The Panel should report to the Governing Bodies of the co-sponsors, IOC and UNEP, through the Secretary IOC and the Executive Director of UNEP, respectively. It should also work in harmony and closely co-ordinate its work with the IOC Scientific Committee for GIPME, through the Panel's Chairman who would be an ex-officio member of the Committee, and through the Chairman of the Committee for GIPME who would serve in a like manner on the Panel.
- (iii) The Panel should provide overall guidance to IOC and UNEP to harmonize regional and global programmes and actions and serve as a new instrument for ensuring that scientific advancements in the Programme are made available for environmental actions in management, protection and assessment.
- (iv) Secretariat support should be provided through a joint IOC-UNEP Secretariat for the Panel, with at least one staff member designated by each organization. Correspondence with Panel members, as well as with IOC Action Addressees and UNEP National Focal Points, should be carried out by IOC on behalf of both Organizations.
- (v) The Chairman and Vice-Chairman should be elected by the Panel in their personal capacity for single 2-year terms, at the biennial meetings of the Panel.
- (vi) Independent overall scientific advice should possibly be sought from various scientific advisory bodies of IOC and UNEP and Scientific Steering Committees of the various on-going and emerging global geoscience initiatives addressing global climate change and environmental issues.
- (vii) The Groups of Experts established in the framework of GIPME will report to the Panel through the Committee for GIPME and would receive requests and general guidance by the Panel, as endorsed by the Governing Bodies of IOC and UNEP, and the needs expressed by other appropriate Agencies.
- (viii) Secretariat support for the Groups of Experts should follow similar procedures as the Secretariat of the Panel and follow the correspondence procedures established for correspondence with Panel members.
- (ix) Agenda, documentation, venues and dates for the meetings of the Panel and Groups of Experts would be determined by the Joint Secretariat and other co-sponsors of the Groups of Experts.

Terms of Reference for the Panel

- (i) Identify gaps in the scientific basis and the monitoring needed for regional studies and the protection and preservation of the marine environment and adjacent areas;
- (ii) Provide overall co-ordination and guidance and harmonize the implementation of the scientific and management components of the activities of IOC and the UNEP Regional Seas Programme with a view of optimizing the use of available resources;
- (iii) Review the progress in development and implementation, identify gaps, new needs and priorities, and help obtain the required support for implementation in Member States;
- (iv) Seek advice from appropriate scientific bodies with regard to new problem areas, on-going efforts and completed projects and solicit support for implementation of recommended new elements in Member States;

- (v) Collaborate closely with other Agencies and subsidiary bodies, and other intergovernmental, non-intergovernmental and regional bodies engaged in marine pollution issues;
- (vi) Identify needs for the support to Member States to help implement GIPME activities and MARPOLMON and help prepare measures to meet these needs, including international arrangements for field and laboratory studies;
- (vii) Report biennially to the governing bodies of IOC and UNEP, through the Secretary IOC and the Executive Director of UNEP, respectively.
- (viii) Co-ordinate with the work of GIPME and other programmes in IOC and UNEP dealing with, or being relevant for marine pollution assessment, control and abatement.

Resolution EC-XXIII.3

IOC CONTRIBUTION TO THE 1992 UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT

The Executive Council,

Recalling that the First UN Conference on the Human Environment (Stockholm, 1972) played an important role in the development of the IOC,

Recognizing that the potential impact of the United Nations Conference on Environment and Development, 1992, on the enhancement of the quality of the terrestrial and ocean environments,

Noting that the Resolution of the 44th Session of the UN General Assembly, which decided to convene a UN Conference on Environment and Development and affirmed that "Protection of the oceans and all kinds of seas, including enclosed and semi-enclosed seas, and of coastal areas and the protection, rational use and development of their living resources", and "Protection of the atmosphere by combatting climate change, depletion of the ozone layer and transboundary air pollution" is of major concern in maintaining the quality of the global environment,

Expecting that the IOC through its scientific and regional subsidiary bodies will play an increasingly large role in issues relating to the global environment, and climate change with respect to the definition of strategies to make development compatible to the protection and management of the global environment,

Recognizing that IOC can provide a significant contribution through its Programmes to the 1992 UN Conference on Environment and Development,

Expresses the willingness of IOC to participate in the 1992 UN Conference and to contribute to its preparation;

Instructs the Secretary to pursue proper and adequate IOC representation in its own right at the 1992 UN Conference on Environment and Development and in the meetings of the Preparatory Committee;

Further instructs the Secretary to initiate actions, as early as possible, to ensure that a significant IOC contribution will be made to the Conference with respect to the development of strategies for the protection and management of the global environment.

Resolution EC-XXIII.4

BLACK SEA PROJECT

The Executive Council,

Taking into consideration the anthropogenic pressures on the Black Sea and the Danube river, which have increased during recent years,

Recognizing the interest expressed at the UNEP Governing Council for the development of a comprehensive regional seas action plan for the protection of the Black Sea region and recalling the expression of similar interest by the Fifteenth Session of the Assembly,

Noting the interest in this problem on the part of Unesco, UNEP, UNDP, GFCM and other international organizations, as well as a number of Member States, within and outside of the region, in the elaboration and implementation of a project on ecological research and monitoring of the Black Sea and the Danube river discharge influence upon the basin,

Invites Unesco, UNDP, UNEP and other interested organizations to consider providing assistance to the countries of the region in the implementation of the aforesaid regional project;

Decides to support the proposal of Bulgaria to hold an International Conference on Ecology of the Black Sea in September 1991 in Varna under the auspices of Unesco and IOC, and the proposal of the Ukrainian SSR to organize a regional meeting on geological and ecological problems of the Black Sea in May 1991 in Yalta under IOC and Unesco auspices.

Resolution EC-XXIII.5

GLOBAL OCEAN OBSERVING SYSTEM

The Executive Council,

Noting: (i) Resolution XV-4 on Global Integrated Ocean Observing System Development and WMO Executive Council Resolution 11 (EC-XLI) on the development of a global operational ocean observing system; (ii) that, as stated in the Unesco Third Medium Term Plan, "the development of ocean services will be greatly accelerated leading to a "global integrated ocean observing system" ("World Ocean Watch"), in support of marine research and ocean use, as a common service to Member States and their scientific communities"; (iii) the outcome of the consultations held to establish the IOC ad hoc Group of Experts on an Ocean Observing System; and (iv) the establishment by the Joint ICSU-WMO Scientific Committee (JSC) for the World Climate Research Programme (WCRP) and the Joint SCOR-IOC Committee on Climatic Changes and the Ocean (CCCCO) of the Ocean Observing System Development Panel (OOSDP),

Taking into account: (i) the present achievements of and planned improvements to such existing mechanisms as IGOSS, GLOSS, IODE, DBCP and MARPOLMON; (ii) the preparation, jointly by IOC, UNEP and WMO, of a master plan for coastal zone observations of phenomena attributable to climate changes; (iii) the convening in October-November 1990 of the Second World Climate Conference (SWCC), and in 1992 of the UN Conference on Environment and Development; and (iv) that one of the objectives of the 1992 Conference is "to promote international co-operation within the UN System in monitoring, assessing and anticipating environmental threats",

Recognizing that: (i) a full understanding of the ocean and its relation to global climate change requires measurement programmes conducted at the scale of ocean basins, shelf seas, coastal and near-shore regions; (ii) any future global ocean observing system must be strategically designed and implemented using a phased approach that takes advantage of regional capabilities and optimizes the utilisation of the resources Member States can contribute,

Stresses the importance and urgency of developing a plan for a Global integrated ocean observing system for the understanding of ocean processes, in particular those relevant to global climate monitoring, research and prediction, as well as to global environment changes and to the management of ocean and coastal resources, to be presented to the SWCC and later to the 1992 UN Conference;

Requests (i) its ad hoc Group to prepare a status report on the immediate requirements for an ocean observing system, as well as a plan to meet these requirements, and to analyse the problems foreseen in the implementation of a long-term systematic ocean observing system; (ii) the Secretary, in consultation with the officers of the Committee on Ocean Processes and Climate (OPC), to bring the results of the work of the ad hoc Group, as substantial agenda items, to the OPC and Assembly at their forthcoming sessions, as well as to the attention of the SWCC and of the preparatory Committee for the 1992 UN Conference; and (iii) the Secretary to assure that effective coordination is maintained between the work of the ad hoc Group and relevant activities of the WMO and other interested organizations;

Urges Member States to continue and expand their participation in and support of the IOC's existing ocean service programmes and systems to meet urgent ocean observation needs, recognizing that these programmes and systems contribute to the progressive development of the Global Environmental Monitoring System (GEMS);

Underlines the need for long-term commitments from Member States and **instructs** the Secretary to prepare for consideration by the Assembly at its Sixteenth Session a study of appropriate formal arrangements for operation of a global ocean observing system, possibly leading to a world ocean watch.

Resolution EC-XXIII.6

THE THIRTEENTH SESSION OF THE IOC COMMITTEE ON INTERNATIONAL OCEANOGRAPHIC DATA AND INFORMATION EXCHANGE

The Executive Council,

Having considered the Executive Summary Report, recommendations and resolutions of the Thirteenth Session of the IOC Committee on International Oceanographic Data and Information Exchange (New York, 17-24 January 1990),

Recalling the conclusions and proposals made by the Fifteenth Session of the Assembly on IODE matters,

Having also considered the proposals on the IODE programme and budget for 1990-1991 prepared by the Secretary IOC and the Chairman IODE on the basis of the Recommendation IODE-XIII.7 as requested by the IOC Assembly at its Fifteenth Session,

Noting with satisfaction the progress made in developing IODE and in strengthening the interaction of IOC/IODE with large-scale research programmes; improved co-operation with FAO and UN(OALOS) on the development of ASFIS; the conclusions and recommendations of the Workshop on Global Temperature-Salinity Pilot Project (GTSP) (New York, 15-16 January 1990) and of the Organizing Committee for Ocean Climate Data Workshop (Washington, 10-12 January 1990),

Accepts the Report and Resolutions and **approves** the Recommendations of the Thirteenth Session of the IOC Committee on IODE, and in particular the proposal of the Committee on future collaboration with IGOSS through the joint development of the IODE-IGOSS Global Temperature-Salinity Pilot Project and through co-operation between the IODE Group of Experts on TADE and the IGOSS Group of Experts on OTA;

Calls on Member States to ensure that National Oceanographic Programmes (research ship cruise schedules), ROSCOP forms and MEDI entries are submitted for all oceanographic research cruises and data holdings, in accordance with the time-frame identified in the IODE Manual;

Adopts the proposed procedures on the improved collaboration between IOC, ICSU and their respective subsidiary bodies, especially SCOR, regarding co-ordination of international oceanographic data exchange and activities of World Data Centres;

Invites WMO to co-sponsor the Steering Group on the IODE-IGOSS Global Temperature-Salinity Pilot Project (GTSP) with the Terms of Reference as identified in Recommendation IODE-XIII.4;

Invites FAO and UN to co-sponsor a Joint IOC-FAO-UN(OALOS) Group of Experts on ASFIS;

Endorses the proposal of the Committee to organize a study on the state of oceanographic data collection and exchange, and identify ways for better co-operation between oceanographic data centres networks of the whole Europe;

Stresses the importance of implementation of the IODE Strategy for 1990-1995 as shown in Annex I to Recommendation IODE-XIII.7 and the IODE Work Plan and Programme for 1990-1991 as shown in Annex II to Recommendation IODE-XIII.7;

Urges Member States to consider increasing support for the activities of IOC/IODE, including marine information management, as proposed by the Secretary IOC and the Chairman IOC/IODE, and presented in the Annex to this Resolution;

Urges also Member States to increase support for the activities of their National Oceanographic Data Centres and marine information networks so that they could play a more active role in IODE, and to ensure close liaison between their national oceanographic data and marine information management activities and the national committees dealing with the large-scale research programmes;

Invites the Chairmen and the Secretariats of the IOC Regional subsidiary bodies to consider ways and means to strengthen their oceanographic data/information management activities by facilitating the designation of a coordinator for IODE in each region, and to enhance their interaction with IOC/IODE by encouraging Member States who have not done so to: (i) organize NODCs; (ii) establish RNODCs in the region; and (iii) designate a national co-ordinator for IODE.

Annex to Resolution EC-XXIII.6

Possible Ways and Means to Increase National Contributions to IODE Activities

- (i) assistance to developing countries in creating and improving marine data and information management infrastructure, including training, on a bilateral or multilateral basis, or through the Voluntary Co-operation Programme (VCP) of IOC and TEMA;
- (ii) provision of contributions to the IOC Trust Fund for IODE (especially in support of TEMA-related activities);
- (iii) acceptance by NODC or other national organizations, of some responsibilities for implementation of specific tasks proposed by IODE using the RNODC concept (for example, for MEDI, NOP or the GTSP);
- (iv) provision of short-term assistance through consultant services (to be fully or partly supported by Member States);
- (v) secondment of specialists for shorter or longer periods of time to the IOC Secretariat to assist in implementing IODE programmes and projects (particularly in the field of MIM);
- (vi) hosting of IODE meetings and training courses, where possible covering local expenses, including accommodation, and/or providing free travel for participants.

Resolution EC-XXIII.7

TWELFTH SESSION OF THE INTERNATIONAL CO-ORDINATION GROUP FOR THE TSUNAMI WARNING SYSTEM IN THE PACIFIC

The Executive Council,

Having considered the Summary Report and recommendations of the Twelfth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific (ICG/ITSU), and, in particular: (i) the recommendations of the Group on the development jointly with IUGG/TC of the project on Tsunami Disaster Mitigation; (ii) the ITSU programme in the area of public education and awareness on Tsunami and the programme in the field of real-time telemetry, seismic and tsunami data exchange between various national centres; (iii) the establishment of the ad hoc groups needed for development of these programmes,

Noting with satisfaction the progress in the development of the Tsunami Warning System through the concerted efforts of the Member States, and the development of the UNDP project for the Sub-Regional Tsunami Warning System in the Southwest Pacific,

Further noting the relevance of the activities of ICG/ITSU to Unesco Programme on Natural Disaster Reduction,

Emphasizing that the activities of the ICG/ITSU related to the reduction of the tsunami hazards constitute a major component of IOC contribution to the International Decade for Natural Disaster Reduction (IDNDR),

Accepts the Summary Report and approves the Recommendations of the Twelfth Session of the ICG/ITSU;

Requests the Chairman and the Secretary to bring to the attention of the Director-General of Unesco, and other relevant UN bodies, the activities of ICG/ITSU as an IOC contribution to the IDNDR with a view to seeking additional resources from Unesco for these activities;

Urges Member States to increase support for the activities of ICG/ITSU, by providing financial contributions and/or by bilateral/multilateral assistance to other Member States.

Resolution EC-XXIII.8

WORK OF THE IOC SUB-COMMISSION FOR THE WESTERN PACIFIC

The Executive Council,

Having considered the Summary Report of the First Session of the IOC Sub-Commission for the Western Pacific (WESTPAC), Hangzhou, People's Republic of China, 5-9 February 1990,

Noting that the Sub-Commission became operative with the convening of its First Session,

Accepts the Summary Report and approves the Recommendations therein;

Also approves the Medium-Term Programme and Intersessional Work Plan for WESTPAC as a general guideline for the work of the Sub-Commission, subject to further refinement and adjustment in accordance with availability of required resources;

Urges all interested Member States to continue and increase contributions to the development of WESTPAC;

Welcomes with appreciation the offer of Malaysia to host the International IOC-WESTPAC Marine Science Symposium planned to be held in 1991 or 1992;

Invites regional and global international bodies to co-operate with the Sub-Commission and in particular to support the International IOC-WESTPAC Marine Science Symposium.

Resolution EC-XXIII.9

THE STATUS OF THE IOC AND ITS FUNCTIONAL AUTONOMY

The Executive Council,

Recalling that through Article 1, para 1(a) of its Statutes, IOC is established as a body with functional autonomy within Unesco, as approved by the 24th Session of the Unesco General Conference through Resolution 10.4,

Further recalling that IOC, with its own membership of 118 states covering all major oceanic regions, is recognized by the UN Convention on the Law of the Sea as "the competent international organization" for marine scientific research,

Taking into account that IOC operates, *inter alia*, as a joint specialized mechanism for co-ordination of marine science and related matters within the UN system and assists the UN Member Organizations of the Inter-secretariat Committee on Scientific Programmes Relating to Oceanography (ICSPRO) in discharging certain of their functions under the ICSPRO Agreement,

Reiterating its view that IOC should serve Unesco as its marine science arm through which the widest spectrum of marine-related activities, both coastal and open-ocean, can be effectively undertaken through the concerted action of all IOC Member States,

Bearing in mind the definition of IOC functional autonomy and its implications as approved by the Assembly at its Fifteenth Session, as recorded in Annex VI of its Summary Report,

Being aware of the steps taken by the Director General to introduce, with a view to implementing the Third Medium-Term Plan, reforms that affect IOC,

Being concerned that the announced arrangements within Unesco, with respect to the status of the Commission and the functioning of its Secretariat, apparently reflect neither the constitutional texts of IOC nor the stated wishes of its Member States,

Wishing to contribute to the process of reorganization in a positive and constructive manner, and to express its appreciation to the Director General for his decision to bring all activities related to the Oceans under a single structure, as recommended by the Governing Bodies of IOC,

Requests the Chairman IOC, with appropriate assistance of the Vice-Chairman, to meet with the Director General at the earliest opportunity to discuss the position of IOC within Unesco with a view to giving effect to the Commission's functional autonomy, and arriving at written arrangements with respect to the relationship of IOC to Unesco and the organizational position and functions of the IOC Secretariat, taking into account the documents referred to in the above-mentioned paragraphs;

Requests the Director General to provide clarification and undertake structural adjustments to adequately reflect the appropriate hierarchical level for IOC as an intergovernmental body with functional autonomy established within Unesco and having broad responsibilities within the United Nations system and to the scientific community;

Further requests the Chairman IOC to report as soon as possible to the Member States of the Commission on the results of his negotiations.

ANNEX III

ADDRESSES

**A. Opening Address by Professor Ulf Lie,
Chairman of the Intergovernmental Oceanographic Commission (IOC)
on 7 March 1990**

Mr. Assistant Director General for Science,
Distinguished Delegates,
Ladies and Gentlemen,

I want to express, on behalf of the IOC Member States, our appreciation that you, Mr. Badran, have taken time off from your heavy duties as the new Assistant Director General for Science to participate in the Opening Session of the Twenty-third Executive Council of the IOC. This is in the best tradition of the special relationship between IOC and Unesco, and I anticipate close co-operation with you on matters relating to the marine science activities of Unesco.

This is the third time I have the honour as Chairman to address the Delegates to a Governing Body of the IOC, and I must admit that I have to a certain extent the feeling of an old teacher who once a year has to turn his lecture notes over and start again. The teacher has in fact the advantage that he faces a new group of students in his class every year. But then on the other hand, the fact that the chairmen of IOC in their welcome addresses to the Delegates to the Governing Bodies have directed their remarks on more or less the same major issues, demonstrates that those issues are basic for the promotion of marine sciences and that there is still much to be done.

The programmes of the Commission have continually developed and matured, and each of them are of importance for all Member States. An analysis of the programmes in science and services as designed by Member States in the IOC Governing Bodies, shows that we are on one hand preoccupied with opportunities for rational and equitable utilization of the ocean resources for human development, and on the other hand, we are concerned about the continuing deterioration of the marine environment.

In recent years the role of the oceans in the maintenance of the life supporting system of our globe as a whole has received particular attention. Humanity may for the first time in history face destruction of the global environment as a consequence of man-made activities. Or perhaps not. Are the global changes we are facing and that concern us all, merely recurring natural phenomena on which we have little influence? We don't know, and only strengthened scientific studies of the global natural systems can give the answer.

The ocean resources are often referred to as "the last resources", and this term applies particularly to the non-renewable resources. As the easily accessible land-based resources become depleted, we turn to the ocean. Some of those resources are located in the part of the oceans outside of national jurisdiction, and the world community has attempted to regulate their sustainable and just utilization in the Convention on the Law of the Sea.

Other resources are located within the Exclusive Economic Zones of coastal states, and the future utilization of those resources may result in significant shifts in the world economy. Particularly for many developing Member States this could lead to unprecedented opportunities for rational development, provided the utilization be rational and within the concept of sustainable development. IOC's Programme Group on Ocean Science in Relation to Non-Living Resources (OSNLR) is now engaged in important activities related to detection and mapping of non-living resources in various parts of the ocean.

Although marine non-living resources, including energy sources, will be of considerable future importance, the more immediate concern of IOC Member States is concentrated on the living resources. This was clearly demonstrated during the Fifteenth Session of the Assembly of the IOC, when no agenda item for Ocean Science in Relation to Living Resources was planned. On the initiative of developing Member States such an agenda item was added, and the Assembly had a broad discussion about this important issue. This demonstrates the importance that Member States attach to this programme, and rightly so, because we are there dealing with the role of ocean science in enhancing the sustainable food production from marine living resources. It is often stated that food from the sea contributes only about 5-10% of the human nutrition, and one might therefore ask if the emphasis on marine living resources is worth its while. The fact remains, however, that in many coastal and island

states food from the sea already plays a much more dominant role in nutrition. I am personally convinced that improved management, application of modern biotechnology and food technology as well as rational utilization of hitherto untapped resources could significantly increase the marine food production. Such development is, however, strongly dependent on improvements in marine science and technology.

The on-going OSLR Programme includes the Sardine Recruitment Project and the Tropical Demersal Recruitment Project, and in recent years the studies of the Algal Blooms have also been arranged under this programme. The programme is strongly dependent upon other relevant ocean science aspects such as physical oceanography, particularly coastal oceanography, marine biology, fisheries biology etc., and the co-sponsoring by FAO of the programme guarantees close links to the international efforts in fisheries development and improvement.

In our preoccupation with increasing food production from marine living resources, we are facing serious limitations to growth from the increasing destruction of the marine environment from various sources of pollution. Pollution was long considered a nuisance of local or national concern, but this is no longer the case. The contiguous nature of the ocean leads to transboundary pollution, which calls for negotiations among neighboring states, and we are now in fact facing pollution problems which include ever larger parts of the world ocean. This fact, and the need for promotion of standardized methodologies in the scientific studies and monitoring of marine pollution, call for global intergovernmental measures. The IOC Technical Committee on Global Investigations on Pollution in the Marine Environment (GIPME) has long been engaged in the development of relevant methodologies, and at the same time the United Nations Environment Programme (UNEP) through their Regional Seas Programmes has sensitized governments to take actions to control marine pollution. The parallel and complementary activities of IOC and UNEP in the area of marine pollution call for co-ordination, and as decided by the Fifteenth Session of the Assembly of IOC, the Twenty-third Session of the Executive Council of the IOC will discuss proposals for a mechanism for such co-operation through IOC-UNEP co-sponsoring of the GIPME Programme.

The environmental issue which dominates our attention today is the prospect of major global changes resulting from the so-called "greenhouse effect". The prospects of global warming and major changes in the atmospheric system as we know it today may have far reaching repercussions on the very life-supporting system of our globe, and scientists have become increasingly concerned with the role of the ocean in control of climate. The ocean's vast capacity for heat storage and the redistribution, uptake and release of heat to the atmosphere through ocean-atmosphere interaction is decisive for the global heat budget. Furthermore, the ocean contains more than 90% of the moveable carbon on earth, and any changes in the ocean's capacity to store carbon will therefore influence the balance of carbon dioxide between ocean and atmosphere, and hence contribute to the green-house effect. The SCOR-IOC Committee on Climate Changes and the Oceans (CCCCO) has contributed greatly to the development of major research programmes such as the Tropical Oceans and Global Atmosphere (TOGA) project and the World Ocean Circulation Experiment (WOCE) which address the role of the ocean in the control of climate. The IOC is also prepared to play a role in development and implementation of SCOR's Joint Global Ocean Flux Study (JGOFS), as well as in other activities defined by ICSU in the International Geosphere-Biosphere Programme.

In addition to those global scientific programmes there is a need for continuing observations on ocean phenomena and the decision of the Fifteenth Session of the Assembly of the IOC to establish a Global Ocean Observing System is of particular importance in this regard. This IOC service will, when it becomes operational, provide the necessary data for modelling of major processes and systems and also for monitoring possible changes in the ocean parameters. In addition, on-going IOC service activities such as the programmes of the Technical Committee for International Oceanographic Data and Information Exchange (IODE), the Technical Committee for Integrated Global Ocean Services System (IGOSS), and the Global Sea-Level Observing System (GLOSS) will continue to play their important roles in support of international marine science.

I have tried to demonstrate that our attention to the ocean's opportunities as well as our concerns for the ocean environment have a global dimension, but it is equally obvious that the implementation of programmes must be carried out in national or regional activities. Thus, a real partnership which involves all IOC Member States must be developed in order to ensure a truly global attention to our programmes. This means that we must continue to strengthen the marine science capabilities of developing countries through the programmes of the Technical Committee for Training, Education and Mutual Assistance (TEMA), while at the same time develop strong training components in all the on-going programmes.

During the Fifteenth Session of the Assembly of the IOC, some concern was expressed regarding the presentation of the programmes of the IOC in the draft Medium-Term Plan of Unesco, and therefore in a circular letter of August 1989, I contacted heads of IOC Delegations in order to obtain support for IOC activities in the national delegations to the Unesco General Conference. I take the strong support of the IOC programmes as expressed in the discussion on Environment and Natural Resources Management in Commission III at the General Conference and as reflected in the Report of the General Conference as an indication of your successful achievements in this regard. In this connection it is fair to mention the important role played by the Delegate of Portugal, Dr. Mario Ruivo, whose interventions and ability to obtain the support of a number of the delegations in a major way contributed to the success.

In connection with the Unesco General Conference, the First-Vice Chairman, Dr. Murillo, the Secretary and I had an opportunity to meet with the Director General to discuss with him matters of prime concern to the IOC. The Director General assured us that he acknowledged the important role of the oceans in the major environmental issues of our time, and that he intended to strengthen the marine science programmes of Unesco. As concrete measures he promised a substantial increase in the IOC budget, and he agreed that the IOC Secretary outposted in the IOCARIBE regional office in Cartagena, Colombia, would not be transferred to other Unesco posts. I take these measures as proof of the Director General's continual attention to the IOC programmes, and of his determination to strengthen the IOC Secretariat.

In our discussion the Director General also referred to his plans for a restructuring of the Unesco Secretariat, which also would affect the Secretariat of the IOC. Such restructuring, which would increase the role of the IOC in the formulation and execution of Unesco's marine science programmes as proposed by the IOC Secretary, underlines the special status of IOC in Unesco. The IOC Governing Bodies which represent a unique level of competence in the marine sciences would enhance the role of Unesco in the major environmental programmes which are being developed today.

Finally, Distinguished Delegates, it is my impression that the structures and programmes of the Commission have developed and reached a high level of maturity. Further success now depends on the active participation of Member States in the programmes at national, regional and global levels.

**B. Address by Professor Adnan Badran,
Assistant Director-General of Unesco for Science,
on the occasion of the Twenty-third Session of the IOC Executive Council**

Mr. Chairman,

Your kind words of welcome to me as a "new man" to the IOC family are very much appreciated. It is certainly a pleasure for me to be with you today and I will be available for consultation during the Council for any matters where my views and advice may be needed. The Director General has asked me to express his deep regret that he cannot join us due to his participation at the World Conference on Education which is taking place this week in Thailand. Since my joining Unesco, he and I have had several opportunities to discuss matters concerning the IOC and I am most honored to speak to you today on his behalf.

Since the Director General last addressed the Commission, at its Fifteenth Assembly in July 1989, the world both outside and inside Unesco has been undergoing considerable change. We are witnessing marked evolution and adjustment on the international scene, not the least of which is that of European relationships. I am sure you join me in the hope that this will lead to stronger international scientific co-operation in studies such as the Blue Danube Project and facilitate a holistic approach to European regional seas, taking into account the widest spectrum of environmental concerns.

Within Unesco, a number of developments in recent months are especially relevant to the IOC. In the first instance, debate within Commission III during the 25th Unesco General Conference reflected very strong support for the IOC programmes and understanding of the issues raised and transmitted to the Conference through Resolutions XV-10 and 11. Thus, certain adjustments were made to the text of the Third Medium-Term Plan to better reflect the IOC's role and programmes.

Regarding financial support from Unesco, the General Conference was not able to approve the Director General's proposals for budgetary reinforcement of several priority areas, including IOC, as this would have raised the budgetary ceiling of the Organization. However, taking into account the advice which both the Assembly and the Executive Council have provided to him and following the commitments he has made on previous occasions, the Director General has recently decided to provide

a special additional allocation to the IOC of \$500,000 for the 1990-91 biennium. This will be used for programme implementation as well as to strengthen the IOC Secretariat staffing, especially in response to offers from IOC Member States to provide 50% of matching funds for the establishment of posts.

During the General Conference, the Director General also announced his intention to proceed with a restructuring of Unesco so that the framework of the Organization, both at Headquarters and in the field, can better respond to the challenges presented in the Third Medium-Term Plan.

As the Director-General said at the last Assembly, "Thus, positive steps have been taken". At the same time, I am well aware that the momentum of IOC programmes continues to grow and that you, as an intergovernmental Commission, have high aspirations in regard to the vital issues that need to be addressed.

Several of these are included in the preparations for the Second World Climate Conference 1990 and the UN Conference on Environment and Development 1992; suffice it to mention the focus on the ocean circulation and observation development so as to provide an improved basis for climate change predictions and impact studies; on studies of marine resources, and coastal zone problems, which are becoming vital issues now, including contamination and pollution. I know that work is progressing in these areas and I hope that they will be further strengthened. Finally let me mention the strong need for transfer of science methods and technology between areas and nations of different levels of development so as to decrease the gaps, with related reorientation of resource distributions. The TEMA programme of Unesco and IOC is of central importance here and needs to be further strengthened.

ANNEX IV

**IMPLICATIONS OF DECISIONS OF THE EXECUTIVE COUNCIL TO THE
IOC PROGRAMME AND BUDGET 1990-1991**

During the Twenty-third Session of the IOC Executive Council, activities of the Commission having taken place since the Fifteenth Session of the Assembly (July 1989) were considered as items on the Agenda. These included meetings of subsidiary bodies (ITSU, IODE, IOCARIBE, OSLR, WESTPAC and IOCEA) as well as general programme development on topics such as the global ocean observing system, co-sponsorship by IOC and UNEP of GIPME, and the involvement of IOC in the 1992 United Nations Conference on Environment and Development.

Having compared the resource requirements identified during the Council (on the basis of these meetings, related Medium Term Plan proposals and the other proposals) with those forecast in Document IOC/EC-XXIII/7 Annex I, the Secretary IOC offers the following observations:

- (i) Decisions involving possible adjustments to an Action or a Programme of the order of 10% can be responded to by internal increases and decreases to the forecast use of the Director-General's allocation and the IOC Trust Fund. A particular case in point is that of IODE, where the need for an additional \$40,000 does not present a major problem.
- (ii) The implementation rate of all programmes and activities will determine, during the first year of the biennium between now and the Assembly, the requirements for the timing of internal adjustments to the forecast programme and budget. In the case of regional subsidiary bodies, emphasis will be given to implementation of priority activities as the required planning phase is completed. These will be supported by the Director-General's allocation and the IOC Trust Fund, to the extent possible, for funds required over and above the present forecast.
- (iii) The implementation of forecast plans, emerging from the Medium Term Plans of regional subsidiary bodies, will have to depend upon mobilization of substantial extra-budgetary funding for development as well as operational aspects. This is the case in particular for IOCARIBE where the future degree of implementation will depend largely upon the success of IOC and its Member States to mobilize such resources, both through major funding agencies and earmarked contributions to the IOC Trust Fund. The available IOC funding should, to a large extent, be used to secure more funds, using available funding to catalyze much more.
- (iv) In conclusion, the funding identified in Document IOC/EC-XXIII/7 Annex I does provide a satisfactory framework for the basic activities of the Commission as discussed by the Executive Council. The Sixteenth Session of the Assembly will receive a status report on the finances of the Commission, at which time any further adjustments required for 1991 can be taken into account.

ANNEX V

LIST OF WORKING DOCUMENTS

Document Code	Title
IOC/EC-XXIII/1	Agenda
IOC/EC-XXIII/1 Add.	Timetable
IOC/EC-XXIII/2	Annotated Provisional Agenda
IOC/EC-XXIII/3	Draft Summary Report
IOC/EC-XXIII/4	List of Documents
IOC/EC-XXIII/5	List of Participants
IOC/EC-XXIII/6	Report of the Secretary on Intersessional Activities
IOC/EC-XXIII/6 Add.	Addendum to the Report of the Secretary on Intersessional Activities
IOC/EC-XXIII/6 Suppl.	List of Circular Letters, IOC Meetings, Meetings at which IOC was represented, IOC Information Documents
IOC/EC-XXIII/7	Status Report on the IOC Programme and Budget, 1989-1990
IOC/EC-XXIII/8	Action Paper
IOC/EC-XXIII/8 Annex 1	Global Integrated Ocean Observing System Development: Progress Report
IOC/EC-XXIII/8 Annex 1 Add.	Development of a Master Plan for a Long-Term Global Monitoring System for Coastal and Near-shore Zone Observations
IOC/EC-XXIII/8 Annex 2	Proposal for the Co-sponsorship of the GIPME Programme by IOC and UNEP and the Establishment of a Joint IOC-UNEP Intergovernmental Panel for the GIPME Programme
IOC/EC-XXIII/8 Annex 3	Possible IOC Contribution to the 1992 United Nations Conference on Environment and Development
IOC/EC-XXIII/8 Annex 4	IODE Programme and Budget for 1990-91
IOC/EC-XXIII/8 Annex 5	Activities on OSNLR related to Oceanic and Climatic Research in the South-eastern Pacific, accomplished in co-operation between IOC and CPPS on OSNLR
IOC/EC-XXIII/8 Annex 5 Add.	Activities on Ocean Dynamics and Climate, Marine Pollution Research and Monitoring and Ocean Science in Relation to Non-Living Resources, accomplished in the South-Eastern Pacific Region in Co-operation between IOC and CPPS
IOC/EC-XXIII/8 Annex 6	Draft Outline of Medium Term Strategy and Action Plan for TEMA

NB: This list is for reference only. No stocks of these documents are maintained, except for the Summary Report.

ANNEX VI/ANNEXE VI/ANEXO VI/ПРИЛОЖЕНИЕ VI

**LIST OF PARTICIPANTS/LISTE DES PARTICIPANTS/
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Les noms et titres qui figurent dans les listes ci-après sont reproduits dans la forme où ils ont été communiqués au Secrétariat par les délégations intéressées. Les pays sont mentionnés dans l'ordre alphabétique anglais.

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ANNEX VII

LIST OF ACRONYMS

ACMRR	Advisory Committee of Experts on Marine Resources Research (FAO)
ADCP	Acoustic Doppler Current Profilers
ASFIS	Aquatic Sciences and Fisheries Information System (FAO-IOC-UN)
CBS	Commission for Basic Systems (WMO)
CCI	Commission for Climatology (WMO)
CCCO	Joint SCOR-IOC Committee on Climatic Changes and the Ocean
CCOP	Committee for the Co-ordination of Joint Prospecting for Mineral Resources in Asian Offshore Areas
CCOP(SOPAC)	Now called: SOPAC
CEP POL	Marine Pollution Assessment and Control Programme for the Wider Caribbean (IOC-UNEP)
CERESCOR	Centre de Recherche Scientifique de Conakry
CGMW	Commission for the Geological Map of the World
CGOM	Consultative Group on Ocean Mapping (IOC)
CLICOM	Climate Computer
CLS/Service Argos	Collecte-Localisation-Satellite
CPR	Continuous Plankton Recorder
COARE	Coupled Ocean Atmosphere Response Experiment (TOGA-COARE)
CPPS	Permanent Commission for the South Pacific
DBCP	Drifting Buoy Co-operation Panel
ECOSOC	Economic and Social Council (UN)
EEC	European Economic Community
EGOS	European Group on Ocean Stations
EQUARIDGE	International Study of the Equatorial Segment of the Mid-Atlantic Ridge
FAO	Food and Agricultural Organization of the United Nations
FURES	Ad hoc Study Group on Measures to Ensure Adequate and Dependable Resources for the Commission's Programme of Work (IOC)
GEEP	Group of Experts on Effects of Pollutants (IOC-IMO-UNEP)
GESREM	Group of Experts on Standards and Reference Material (IOC-IAEA-UNEP)
GEWEX	Global Energy and Water Cycle Experiment (WCRP)

GFCM	General Fisheries Council for the Mediterranean (FAO)
GF-3	IOC General Format No. 3 (International Oceanographic Data Exchange)
GIPME	Global Investigation of Pollution in the Marine Environment (IOC)
GLOSS	Global Sea-Level Observing System (IOC)
GTSP	Global Temperature-Salinity Pilot Project
HELCOM	Helsinki Commission (Baltic Marine Environment Protection Commission)
IABO	International Association of Biological Oceanography
IAEA	International Atomic Energy Agency
IAPSO	International Association for the Physical Sciences of the Ocean (IUGG)
IBCEA	International Bathymetric Chart of the Central Eastern Atlantic (CGOM)
ICES	International Council for the Exploration of the Sea
ICSEM	International Commission for the Scientific Exploration of the Mediterranean Sea
ICG	International Co-ordination Group
ICSPRO	Inter-secretariat Committee on Scientific Programmes Relating to Oceanography
ICSU	International Council of Scientific Unions
IDNDR	International Decade on Natural Disaster Reduction
IDOE	International Decade of Ocean Exploration (IOC)
IGBP	International Geosphere-Biosphere Programme (ICSU)
IGOSS	Integrated Global Ocean Services System (IOC-WMO)
IHO	International Hydrographic Organization
IMO	International Maritime Organization
IOCARIBE	IOC Sub-Commission for the Caribbean and Adjacent Regions
IOCEA	IOC Regional Committee for the Central Eastern Atlantic
IOCINCWIO	IOC Regional Committee for the Co-operative Investigations in the North and Central Western Indian Ocean
IOCINDIO	IOC Regional Committee for the Central Indian Ocean
IODE	International Oceanographic Data and Information Exchange (IOC)
IPCC	Intergovernmental Panel on Climate Change (UNEP-WMO)
IREP	International Recruitment Programme (OSLR)
ITIC	International Tsunami Information Centre (IOC)
ITSU	International Tsunami Warning System in the Pacific

JOA	Joint Oceanographic Assembly
JSC	Joint Scientific Committee
LEPOR	Long-term and Expanded Programme of Oceanic Exploration and Research
MARPOLMON	Marine Pollution Monitoring System (IOC)
MEDI	Marine Environmental Data Information Referral System (IOC)
MEDPOL	Co-ordinated Mediterranean Pollution Monitoring and Research Programme (UNEP)
NOAA	US National Oceanographic and Atmospheric Administration
NODC	National Oceanographic Data Centre (IODE)
NOP	National Oceanographic Programme (IODE)
OALOS	Office for Ocean Affairs and the Law of the Sea (UN)
OAU	Organization of African Unity
OCE	Division of Marine Sciences (Unesco)
ODAS	Ocean Data Acquisition Systems
OOSDP	Ocean Observing System Development Programme (CCCCO)
OPC	Ocean Processes and Climate (IOC)
OSLR	Ocean Science in Relation to Living Resources (IOC-FAO)
OSNLR	Ocean Science in Relation to Non-living Resources (IOC-UN(OALOS))
RECOSCIX-WIO	Regional Co-operation for Scientific Information Exchange in the Western Indian Ocean
RFS	Research Fellowship Scheme (IOC)
RNODC	Responsible National Oceanographic Data Centre (IODE)
ROSCOP	Report on Observations/Samples collected by Oceanographic Programmes (IOC)
RV	Research Vessel
SARP	Sardine-Anchovy Recruitment Project (IREP)
SCAR	Scientific Committee on Antarctic Research (ICSU)
SCOR	Scientific Committee on Oceanic Research (ICSU)
SEATAR	Joint CCOP-IOC Working Group on post-IDOE Studies of East Asian Tectonics and Resources
SOPAC	South Pacific Applied Geoscience Commission (previously CCOP(SOPAC): Committee for the Co-ordination of Joint Prospecting for Mineral Resources in South Pacific Offshore Areas)
SSG	Scientific Study Group

STAR	Joint CCOP(SOPAC)-IOC Working Group on South Pacific Tectonics and Resources
TC	Technical Committee
TEMA	Training, Education and Mutual Assistance in the Marine Sciences (IOC)
TOGA	Tropical Oceans and Global Atmosphere (WCRP)
TRODERP	Tropical Demersal Recruitment Project (IREP)
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
WACAF	Project on Monitoring of Pollution in the Marine Environment of the West and Central African Region (FAO-IOC-WHO-IAEA-UNEP)
WCDP	World Climate Data Programme
WCRP	World Climate Research Programme (WMO)
WDC	World Data Centre
WESTPAC	IOC Sub-Commission for the Western Pacific
WMO	World Meteorological Organization
WOCE	World Ocean Circulation Experiment (WCRP)
WOW	World Ocean Watch
XBT	Expendable Bathythermograph