

**Intergovernmental Oceanographic Commission**  
*Reports of Governing and Major Subsidiary Bodies*



**Seventeenth Session of  
the Executive Council**

Paris, 31 January-9 February 1984

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**Unesco**

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With reference to the procedure adopted by the Executive Council to incorporate those of its *decisions* and *actions* internal to the Commission into the body of the Summary Report, the relevant paragraphs have been marked by the symbol

 for *decisions* on policy, and

 for calls for *action* (e.g., by the Member States, the governing and subsidiary bodies, the Secretary, Unesco, etc.) required to give effect to policy. Obviously, the distinction is not always clear-cut.

Expressions of general approval or of appreciation are not marked, except that all the positions taken by the Council are indicated by underlining in the text of the Report.

# 1. OPENING

The Chairman, Prof. Innocencio Ronquillo, opened the Seventeenth Session of the IOC Executive Council at 10.00 on Tuesday 31 January 1984. He welcomed the Director-General of Unesco, the Delegates and Observers of the Member States and the Representatives of the international organizations.\* He thanked the Director-General for having honoured the Commission by his presence which he felt was a further demonstration of the Director-General's personal interest in ocean affairs and the work of the Commission. He recalled the fruitful discussions he had had with the Director-General, together with the First Vice-Chairman and the past Chairman of IOC, following the productive and constructive Twelfth Session of the Assembly which had marked the consolidation of on-going marine science programmes and the related ocean services. The Chairman also evoked the firm backing of the Commission's activities by the Assistant Director-General for Science, Prof. A.R. Kaddoura, and the fruitful collaboration with the Division of Marine Sciences. He stressed the development of co-operation with the other UN organizations concerned with various aspects of marine affairs, particularly those that are members of ICSPRO, and the UN Environment Programme, and reported briefly on the positive outcome, for the Commission, of the Twenty-second Session of the Unesco General Conference. The Chairman also stressed the need to bring closer together the scientists and the policy makers dealing with the oceans, stressing the need for improved co-ordinating mechanisms, at the international level and at the national level, for the advancement of the marine sciences and improved liaison with the Commission. The Chairman referred to the celebration of the forthcoming Twenty-fifth Anniversary of the Commission, and, beyond that, to preparing the Commission to respond to the needs of Ocean Science for the Year 2000. He emphasized the role of the Commission as a forum for dialogue among all countries concerned with the oceans. The Chairman's full statement is given in Annex III-B to this Report.

The Director-General of Unesco, Amadou-Mahtar M'Bow, then addressed the Executive Council. He expressed his pleasure at having this opportunity to discuss the future of international co-operation in the marine sciences. He recalled that he had said at the Twelfth Session of the Assembly that the Commission plays an undisputed role in promoting better knowledge of the oceans and a more rational use of their resources. On that occasion he had made particular mention of the Commission's efforts to enable all Member States, especially the developing ones, to participate in the Commission's work and its regional programmes, through the training and educational activities in particular.

In the light of these requirements, the Commission has, the Director-General noted, taken steps towards the adoption of the Comprehensive Plan for a Major Programme of Assistance to Enhance the Marine Science Capabilities of Developing Countries. The purpose of this Plan is to give specific content to the new ocean regime, as codified in the United Nations Convention on the Law of the Sea, by fostering the development of each State's resources with a view to co-operation that will be of benefit to all.

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\* A List of Participants is given in Annex IV to the present Report.

4 The Director-General informed the Council that he had responded favourably to the Resolutions adopted by IOC's governing bodies - the Assembly and the Executive Council - and to the views expressed by the Chairman and the members of the Bureau at the numerous meetings he had had with them to discuss the Commission's programmes and needs. A proposal was accordingly submitted to the General Conference with a view to increasing the IOC budget under Programme X.4 of the Organization; also, a proposal was included in the Draft Programme and Budget for 1984-85 for additional activities to strengthen IOC action - with particular reference to the preparatory stage of the implementation of the Comprehensive Plan for a Major Assistance Programme to Enhance the Marine Science Capabilities of Developing Countries, and the launching of certain scientific programmes, such as the study of ocean dynamics and of the role of the ocean in climatic changes.

5 He recalled that a great many delegations supported these proposals, thereby acknowledging their interest in the problems of the ocean and its resources and in the action undertaken by the Intergovernmental Oceanographic Commission, and he stressed his intention of continuing his efforts to enable IOC to carry out to the best of its ability its increasingly important tasks, in the framework of the Inter-Secretariat Committee on Scientific Programmes Relating to Oceanography (ICSPRO).

6 The Director-General informed the Council of his intention to seek extra-budgetary funds and other resources for the preparatory stage of the Comprehensive Plan and, in due course, to consult the world leaders concerned and the heads of the bilateral and multilateral funding agencies, in order to work out a strategy that will enable us to muster the financial or other resources likely to help developing Member States to broaden and strengthen their own capacities in the marine sciences.

7 He reminded the Council, however, that, in a spirit of compromise and in an effort to reach a consensus, the General Conference of Unesco reduced by approximately 10 million dollars the budgetary proposals recommended by the Executive Board. This has resulted in adjustments that are bound to affect the programmes and activities proposed, and appealed to the Member States of IOC, and to the United Nations bodies and organizations that work jointly with the Commission, to add their weight to Unesco's efforts to increase IOC's resources and strengthen its programmes, so that any difficulties that may arise can be overcome, to the greater benefit of Member States and of the world community as a whole.

8 He believed that the celebration of the Commission's twenty-fifth anniversary next year will afford an opportunity for a detailed assessment of its activities and methods of action, and an appraisal of its future prospects on the threshold of the next millenium. He welcomed the Council's suggestions and opinions when the time comes to formulate the proposals to the General Conference at its Twenty-third Session concerning the Organization's Programme and Budget for 1986-87.

9 In conclusion, the Director-General expressed the hope that the work of this Seventeenth Session of the IOC Executive Council will be particularly rewarding, in pursuit of one of the most lofty aims of all: That of using the ocean as a new means towards world peace, mutual understanding among nations, solidarity among peoples and a spirit of brotherhood uniting all mankind. The full text of the Director-General's statement is given in Annex III-A.

The joint Head of the French Delegation and Managing Director of the Centre National pour l'Exploitation des Océans (CNEXO), of France, Mr. Y. Sillard, requested the opportunity to make a major statement on behalf of the French Government. 10

He expressed his appreciation of the solid foundations laid by the IOC for the international co-ordinating mechanisms required to meet the needs of Member States and the world community, as well as challenges of the new ocean regime and of the scientific study of the oceans, the exploration and exploitation of its resources and the management of the marine environment. The role to be played by Unesco and its Intergovernmental Oceanographic Commission is therefore a key role, within the UN system, given the complexity and the global nature of ocean phenomena, the study of which requires well organized international co-operation. 11

The IOC cannot carry out the role assigned to it without the effective support and participation of its Member States. The Government of France wishes to play its part in that support. This would be along two lines: an increased contribution to sectoral programmes with an improved contribution to regional activities; and support for research conducted by scientists and technicians from countries, especially developing countries, wishing such support. To co-ordinate and organize this contribution, a French National Committee for the IOC, in which all concerned entities and government offices are represented, was created several months ago. 12

The Joint Head of the French Delegation then mentioned some of the specific forms of co-operation proposed by his Government. At the request of the Member States concerned, France was ready to provide technical assistance for: the preparation of a bathymetric chart of the eastern central Atlantic (coast of western Africa); for a multi-disciplinary study of the Red Sea, the adjacent gulfs and the western Indian Ocean; and for the establishment of research centres. The direct and active participation of scientists from these regions is sought, and various forms of training (on board research vessels, university and other courses) are proposed. Similar activities were envisaged for other regions once precise requirements had been identified by the appropriate regional subsidiary bodies of the Commission. On-going work by French marine scientists in various parts of the world ocean will be increasingly organized to support the development of IOC's global ocean science programmes, especially within the oceanographic component of the World Climate Research Programme, marine pollution monitoring and Ocean Science in Relation to Living Resources. 13

The Managing Director of CNEXO finally outlined the means by which France would give effect to these proposals, stressing that this would only be done in close association with the authorities and scientists of the countries of each region. All these activities would, he believed, contribute appreciably to the objectives of the programmes for enhancing the marine science capabilities of developing countries. 14

2. ADMINISTRATIVE ARRANGEMENTS

2.1 ADOPTION OF THE AGENDA

15 The Chairman invited comments on the Provisional Agenda (Document  
IOC/EC-XVII/1 prov.).

16 The Delegate of Japan asked that the term (WESTPAC) be eliminated  
from Agenda Item 7.2.1, since the invitation from CCOP(SOPAC) to form a  
Joint Working Group was addressed to IOC, as indicated in Document  
IOC/EC-XVII/8 Annex 4, it being up to the Executive Council to decide what  
the role of the Programme Group for WESTPAC should be.

17 The Executive Council accepted this proposal.

18 After considering a request from the Delegate of Jordan to take  
Agenda Item 7.4 earlier than planned, the Executive Council adopted the  
Provisional Agenda as amended (the Agenda is given in Annex I to the  
present Report).

2.2 DESIGNATION OF THE RAPPORTEUR

19 The Chairman proposed the Delegate of India, Dr. S.A.H. Abidi, as  
Rapporteur. This proposal was widely supported, and Dr. Abidi was  
designated Rapporteur for the Session.

2.3 CONDUCT OF THE SESSION

20 The Secretary outlined the proposed modus operandi of the  
Session. Normally, the Council would work in Plenary, with ad hoc  
Sessional Groups being formed to draft contributions to the Summary Report  
and Draft Resolutions, if necessary, for the consideration of the Council.  
The Secretary suggested that such ad hoc Sessional Groups would be needed  
to deal with: the Programme and Budget (Agenda Items 4 and 4.1);  
intergovernmental mechanisms for co-ordination and implementation of  
specific projects in the oceanographic component of the World Climate  
Research Programme and SCOR-IOC co-operation (Agenda Items 5.2.2 and 8.2);  
drifting-buoy activities (Agenda Item 6.1.1); and celebration of the  
twenty-fifth anniversary of the Commission (Agenda Item 9).

21 The Secretary explained some of the difficulties in producing,  
translating, reproducing and distributing some of the documents in a timely  
manner, particularly Reports of recent meetings, and expressed his regrets  
for any problems caused.

22 The Chairman proposed the formation of a Resolutions Committee,  
following the practice established at the Fourteenth Session of the  
Council. The following countries agreed to participate, following the  
Chairman's proposal: Brazil (Chairman), Egypt, France, India, Mexico,  
Netherlands, Senegal, Spain, UK, USA, USSR.

23 The Resolutions are given in Annex II to this Report, and a List  
of Acronyms is given in Annex V.



3. WORK ACCOMPLISHED DURING THE INTERSESSIONAL PERIOD

The Secretary presented his Report (Document IOC/EC-XVII/6 and 6 Suppl.), covering the activities of the Commission from July 1982 to December 1983. He stressed that he would not go into any detail on those items that would be discussed at length under the various Agenda Items. He explained the difficulties facing the Secretariat in compiling the Report, due to the growing number and variety of activities being dealt with by the Secretariat. He informed the Council that, to facilitate the preparation of such reports in the future, it is intended to introduce progressively, insofar as the means are available to the Secretary, a modern system of information management in the Secretariat, to be tested in the preparation of his Report to the Thirteenth Session of the Assembly. He paid tribute to the professional and general service staff for their efforts to implement the programme of the Commission.

24

Regarding Major Programme X.4 (The Ocean and its Resources), the Secretary informed the Council that the Unesco General Conference, at its 22nd Session, approved the proposals submitted by the Unesco Director-General, strongly commended the work of the IOC and approved a substantial increase in the budget, as recommended by the Twelfth Session of the IOC Assembly; this was, he believed, a strong indication of the confidence of the Member States in the role and work of the Commission. However, in anticipation of the need for austerity measures, the Director-General has recently given instructions that the budget for the 1984 programme of work be limited to 45% of the whole available for the biennium, and, at the 118th Session of the Unesco Executive Board, in May 1984, the Director-General will make proposals for the austerity measures that may be required to cope with the situation.

25

The Chairman, the First Vice-Chairman and the Past Chairman of the Commission met the Director-General at the time of the Twelfth Assembly and immediately after the 22nd Session of the Unesco General Conference.

26

Regarding the Commission's programmes of Ocean Science in Relation to Living and Non-Living Resources, plans are well underway for the convening of the First Sessions of the Guiding Group of Experts for each of these programmes, as well as for the initiation of regional components as pilot studies. The Joint SCOR-IOC Committee on Climatic Changes and the Ocean has made considerable progress in developing proposals for large-scale experiments. In marine pollution research and monitoring, steps have been taken to strengthen collaboration with UNEP, through close collaboration with the UNEP Regional Seas Programme, especially in the implementation of the Marine Pollution Monitoring System (MARPOLMON), globally in methodological terms and regionally in implementation terms. Participation of scientists from developing countries in intercalibration exercises, including relevant training, has been actively pursued and will contribute to the development of the Global Investigation of Pollution in the Marine Environment (GIPME) and MARPOLMON.

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- 28        Regarding the ocean services, ocean-data and marine-information management has been consolidated under IODE. Parallel discussions between the UN Organizations Members of ICSPRO have led to proposals aimed at consolidating their information activities, with a view to the progressive transfer of certain information activities, from FAO to the IOC as a joint specialized mechanism, as referred to in the Summary Report of the Twenty-second Session of ICSPRO (Document IOC/INF-561). The implementation of IGOS at the regional level, particularly in the framework of the regional subsidiary bodies of the Commission, has advanced.
- 29        With a view to the progressive improvement of an ocean-monitoring system, related to the oceanographic component of the World Climate Research Programme, steps have been taken in the development of a global network for mean-sea-level measurement based on regional tide-gauge networks; a proposal for the development of such networks was prepared.
- 30        A special effort has been made to promote co-operation amongst the Member States, particularly through the regional subsidiary bodies of the Commission. Preparations for the First Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE), are well advanced. Preparations for a workshop to identify programme elements for the Programme Group for the Central Indian Ocean (IOCINDIO) are under way. A Workshop on Regional Co-operation in Marine Science in the Eastern Central Atlantic (Western Africa) was held in Tenerife, Spain, from 12 to 17 December 1983. Besides identifying promising areas of co-operative marine research in the region, it recognized the need for co-ordination of such research; this Workshop was convened with a view to the formation of a Programme Group for the Eastern Central Atlantic (IOCEA). Following its recent session, the Programme Group for the Western Pacific (WESTPAC) has established various subsidiary bodies for the implementation of its approved programme of work.
- 31        In addition to a considerable expansion in the implementation of a broad programme of training activities under TEMA, in support of the scientific programmes and ocean services of the Commission, the modalities for the implementation of the Preparatory Phase of the Unesco-IOC Comprehensive Plan for a Major Assistance Programme to Enhance the Marine Science Capabilities of Developing Countries has been further elaborated. The methodology for the preparation of Marine Science Country Profiles has been developed and applied, on a test basis, to one Member State; the strengthening of liaison with Member States through the development of existing National Oceanographic Commissions, or equivalent bodies, or assistance in creating such bodies, has been carried out, at the request of interested Member States. Training courses in the fields of data and information management, mineral resources and ocean mining, marine pollution research and monitoring, sea-level observations, and biological oceanography were organized or supported by the Commission. Shipboard training offered by various Member States was supported and study grants were provided.
- 32        Co-operation amongst the UN Organizations Members of ICSPRO was considerably consolidated, as reflected at the Twenty-second Session of ICSPRO; and co-operation between IOC and various other UN bodies, particularly UNEP, through its Regional Seas Programme, and international organizations, such as ICSEM, IHO and SCOR, was defined through Memoranda of Understanding.

An ad hoc meeting to discuss technical assistance that might be provided by IOC and IHO to the Secretary-General of the United Nations to enable him to fulfil his responsibilities with respect to the United Nations Convention on the Law of the Sea, took place at Unesco Headquarters from 18-19 June 1983, as recommended by the Assembly. The role and status of international co-operation in the activities of the UNCLOS Preparatory Commission were discussed with Ambassador Zuleta, the then Under-Secretary-General, UN Law of the Sea Secretariat. As a result of these consultations, the IOC and the IHO were formally invited to be represented at sessions of the Preparatory Commission.

33

The Secretary met with the Secretary-General of ICES in Copenhagen on 9 July 1983 to discuss joint activities by the two Organizations in the implementation of the Memorandum of Understanding between ICES and IOC. The Secretary also had preliminary consultations with senior scientists in Copenhagen on the development of co-operation, particularly with regard to support to IOC marine research and monitoring programmes.

34

In conjunction with his participation in the Inter-Agency consultations on the FAO World Conference on Fishery Management and Development (FAO, Rome, 20-24 May 1983), the Secretary met with the Director-General of FAO, Mr. E. Saouma, and discussed future co-operation between the two organizations, particularly the implementation of the programme on Ocean Science in Relation to Living Resources; this joint venture and other relevant projects were later discussed with the new FAO Assistant Director-General for Fisheries, Mr. Jean Carroz, at the time of the Fifteenth Session of the FAO Committee on Fisheries (Rome, 10-19 October 1983).

35

At the official invitation of the respective Governments, the Secretary visited India from 6 to 15 April 1983, and Pakistan from 16 to 22 April. The development of co-operation between these Member States and the Commission was discussed. As a mark of great interest in international co-operation and the role of Unesco and IOC in the field of marine affairs, the Secretary had the great honour to be received by the Prime Minister of India, Mrs. Indira Gandhi. In Pakistan he had discussions with the Minister of Foreign Affairs, the Scientific Adviser to the President, and senior officials from other departments.

36

During his visit to Sweden in July 1983, the Secretary met the Deputy Prime Minister in charge of scientific affairs; and it was agreed that the Secretary would make an official visit to that country in 1984. A visit was also made to the World Maritime University, established in Malmö by IMO with the support of Sweden, where joint co-operation in training activities was discussed with its Director and senior staff.

37

Taking advantage of his attendance at a Seminar organized by the Law of the Sea Institute in Oslo from 13 to 17 July 1983, the Secretary had preliminary discussions with officials of the Ministry of Foreign Affairs on co-operation between Norway and the Commission.

38

The Commission has continued to benefit from the secondment to the Secretariat, by the United States of America, of Mr. J. Lyons (IGOSS Operations Co-ordinator). It should also be noted that, through bilateral arrangements between France and ICSU, Mr. Robert Molcard is assisting the work of the Joint SCOR-IOC Committee on Climatic Changes and the Ocean

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(CCCCO). Dr. Peter Rothe completed his term of secondment by the Federal Republic of Germany in April 1983 and has continued in an expert capacity to assist IOC, on an ad hoc basis, in the development of the programme on Ocean Science in Relation to Non-Living Resources. Dr. Robert Lankford terminated his period of service (supported by the USA) as IOC Assistant Secretary for IOCARIBE in November 1983 and has been appointed Marine Science Officer for the Regional Office of Science and Technology for Latin America and the Caribbean (ROSTLAC) and as IOC Assistant Secretary for Latin America.

40 Two members of the Secretariat returned to their home country: Dr. Neil Andersen, at the end of September 1983, and Mr. Steven Tibbitt, at the end of July 1983.

41 Under the Unesco internship scheme, five experts from Argentina, China, France (2) and USSR worked for short periods with the IOC Secretariat during the past 18 months and, each in his respective field of competence, contributed to the work of the Commission.

42 The workload of the Secretariat has continued to be adversely affected by the long-term absence of several general service staff on sick leave. Replacement secretaries have been recruited on a temporary basis.

43 As of 1 January 1984, FAO has agreed, in the framework of the ICSPRO Agreement, to reinstate the support of a General Service post (GS-4) and has reimbursed half the funds required for such a post during 1983.

44 The details of the Programme of Work and Financial Requirements are given in Document IOC/EC-XVII/7.

45 At the invitation of the Chairman, fourteen Delegations spoke on the Secretary's Report. While commenting on the good quality of the Report and recognizing the great variety and complexity of the subjects covered by it, a general wish to receive it at least six weeks prior to the Session was expressed.

46 There was a general expression of interest in increasing or enhancing collaboration with UNEP and with other organizations, particularly ICES and CPPS. There was recognition of the need to relate better the programme of work and the resources (human, financial and technical) available to the Commission; this might require an increased consideration of priorities. The need to work closely with the international marine scientific community, so as to mobilize its interest in promoting oceanography in general and in the developing countries, was stressed.

47 There was a call to include in future Reports of the Secretary, a statement of the major difficulties encountered in programme implementation.

48 Some Delegates informed the Council of activities or corrections that should be incorporated into the Report of the Secretary in its final version.

49 The Delegate of Canada informed the Council of the creation of an International Centre for Ocean Development, as an international non-governmental organization, with headquarters in Halifax, Nova Scotia. Its purpose is to help developing countries achieve an optimal return on their marine resources, particularly living resources, through the provision of information, research, training and advice.

Some Delegates asked for more detail on the meetings between Officers of the Commission and the Director-General of Unesco. 50

In reply to this request, the Past Chairman, Dr. Agustin Ayala-Castañares, informed the Council of the discussions that took place following the Twelfth Session of the Assembly. The Director-General was informed of the outcome of the Assembly, particularly the implications of the adopted Resolutions. 51

The Secretary, in responding to the observations made on his Report, stressed the efforts that will be made to set up an information-management system to ensure easier and earlier delivery of the Secretary's reports to sessions of the governing bodies. He invited Member States to consider making an expert available to the Secretary to assist with the development of such a system. 52

With reference to the follow-up of the UN Conference on the Law of the Sea, the Secretary announced that the Third Session of the Task Team on the Implications, to the Commission, of the Convention on the Law of the Sea and the New Ocean Regime\* would now be postponed to 22-27 October 1984, in Paris, Unesco Headquarters, to enable a better preparation of the basic documents for the session. 53

Regarding the setting of priorities, in the programme, the Secretary believed that it was not a matter for the Secretariat to decide, owing to the wide diversity of the Member States' interest; he felt that the machinery existed for this in the form of the principal technical and regional subsidiary bodies, whose Member States could do it when considering the Programme and Budget proposals for these subsidiary bodies of the Commission. 54

The Secretary assured the Council that corrections suggested by the Member States or subsequently noticed by the Secretariat would be incorporated into the final version of the Secretary's Report. 55

The Executive Council expressed its appreciation of the work of the Secretary and staff in preparing his Report on so many widely diversified and complex activities. It urged the Secretary to establish the information-management system he had referred to, and to ensure the availability of his report to Member States as far as possible at least six weeks prior to the Session of a governing body, and suggested that, if necessary, an addendum containing the latest information could be prepared for distribution at the Session. 56

#### 4. PROGRAMME AND BUDGET FOR 1984-85

The Secretary introduced this item. He referred to the background information contained in Documents IOC/EC-XVII/7 (Programme of Work and Financial Requirements), IOC/EC-XVII/6 (Report of the Secretary), IOC/EC-XVII/8 Annex 10 (Preliminary Suggestions on Possible Guidelines for the Preparation of Proposals on the Unesco Programme and Budget for 1986-87), and IOC/INF-550 (Extracts of Recent Decisions and Documents of Unesco Governing Bodies Relevant to the Work of the Commission). 57

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\* The adoption of the Convention rendered the previous name obsolete; hence the renaming.

58 He believed that the Commission has reason to be most gratified by the positive response of Unesco to its request for a substantial increase in the funds allocated to the IOC under the regular programme and budget for 1984-85. The Unesco General Conference, at its 22nd Session, voted a total of \$2,179,300 in operational funds for IOC for the coming biennium. In addition, three new professional posts were approved, of which two are intended to strengthen regional subsidiary bodies and one to assist in the development of the Programme of Ocean Science in Relation to Non-living Resources, and ocean mapping; two general service posts, one of which will be used to strengthen the Secretariat's capacity in marine information management, were also approved.

59 He also explained that certain austerity measures are likely to be applied by Unesco to respond to budgetary restrictions. The Director-General has given instructions that the 1984 budget be based upon a ceiling of 45% of the operational funds allocated for the biennium, and will present proposals to the 118th Session of the Unesco Executive Board in May 1984, with a view to making adjustments to the overall budget, including staff.

60 The Secretary also informed the Council that an adjustment for inflation had not been applied to the IOC proposals for additional activities. He had requested that this decision be reconsidered and hoped that the difference in funding, of about \$80,000, will be reassigned to the IOC programme. Under the circumstances, he was obliged to reduce and, in some cases, postpone activities to 1985 to arrive at the requested ceiling.

61 Turning to an analysis of the biennial budget, he reported that the allocation of funds to each of the Commission's programmes corresponded to the guidelines approved by the Twelfth Assembly. The funds assigned to Ocean Dynamics and Climate have been considerably increased, seed-money has been provided for OSLR and OSNLR, and special efforts made within the TEMA programme to identify funds and other forms of support for the specific purpose of strengthening Member States' participation in IOC activities.

62 He also drew attention to certain structural changes in the 22 C/5, as compared with the C/5's of previous biennia. In the context of an interdisciplinary approach to major world problems approved by the 4th Extraordinary Session of the General Conference of Unesco, a new programme was established entitled "Management of Coastal and Island Regions" (Programme X.5). He emphasized the close relationship between Programme X.4 and X.5, and the fact that many IOC activities will provide scientific input to the management aspects under Programme X.5, in close collaboration with the Division of Marine Sciences.

63 Referring to Document IOC/EC-XVII/8 Annex 10 (Preliminary Suggestions on Possible Guidelines for the Preparation of Proposals on the Unesco Programme and Budget for 1986-87), submitted by the Officers of the Commission, the Secretary explained that these Guidelines would provide the Secretary with valuable advice on the major lines of emphasis to be taken into account when preparing the IOC contribution to the Unesco draft Programme and Budget for 1986-87 (23 C/5). Two major thrusts were envisaged: improving the methodological and technical aspects of the programme; and promoting the implementation of the global scientific programmes and ocean services through the strengthening of their related regional components.

A great majority of Member States expressed their satisfaction with the growth rate accorded to IOC by the Unesco General Conference, even if the initial goal of 50% had not been reached. Many Delegates felt that the Commission should continue its efforts to ensure further strengthening of the IOC Programme and Budget for the 1986-87 biennium, as requested by the Commission through Resolution EC-XIV.1 and Resolution XII-10.

64

The Delegate of Japan stated that his Government accords to IOC the highest priority among all Unesco programmes and would support an increase in the Commission's programme, within the Unesco budget ceiling.

65

Some Delegates emphasized the importance of establishing priorities so as to make the best use of available resources and to ensure that the Commission was in a position to implement its approved programmes. A few Delegates suggested that IOC should consider the phasing of projects within the regional subsidiary bodies according to their particular interest rather than attempt to implement, in the same time frame, regional components of the global programmes in all the ocean regions in which IOC has a subsidiary body.

66

The Delegate of the USA supported the proposal to determine priorities relative to the decisions taken on the Commission's programmes. In giving that support, he expressed concern regarding the trend of increasing budgets and, while agreeing that a number of the Commission's programmes needed strengthening, proposed that reductions be made in programme areas where less pressing needs exist, to compensate for those increases. He also proposed that Document 23 C/5 be developed according to the principle of zero net programme growth.

67

Many Delegates expressed the view that implementation of the IOC programmes, including the determination of priorities, could be improved, through a better identification of priorities within the programmes, by the subsidiary bodies and through the application of modern management principles. This could serve not only to improve the overall performance of the Commission, but would also assist Member States in their commitment of national resources to priority programmes of interest to them. A large number of Delegates took this opportunity to indicate their support of various IOC programmes where their countries were willing to commit national resources.

68

The Delegate of the United Kingdom stated that, in view of the fact that the Commission may be faced with a situation in which the level of funding available for the regular programme of the IOC may be reduced, it is important to give early consideration to the possible consequences and the actions that may be taken to accommodate the changed circumstances. For this, two additional pieces of information are required: (i) a breakdown of the budget for the Commission's programmes and activities which clearly separate that element which is fixed (secretariat costs, etc.) and that which is flexible (holding of meetings, workshops, etc.); (ii) the views of the Chairmen of IOC's subsidiary bodies on how they see the possible implications of a reduced budget and how they might see the priorities of their various activities changing.

69

To facilitate discussion of the subject at the Thirteenth Session of the Assembly, he further suggested that the Secretary, after consultation with the Chairman and the First Vice-Chairman, should prepare the document referred to in (i) above and circulate it to all Member States, requesting their views on whether this document presents the programme and budget information in a helpful way. (This document should be accompanied by a paper, drawn up in a similar format, prepared by the

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Director of the Division of Marine Sciences.) These documents should also be sent to the Chairmen of the IOC's subsidiary bodies. These assessments should be circulated subsequently to Member States. The Delegate believed that these actions are perhaps the minimum that are required, but their implementation is a matter of some urgency. Quite apart from the possibility of the IOC facing reduced circumstances, he believed that such an exercise should be carried out on a regular basis for future Programme and Budget reviews, as part of an in-house streamlining and efficiency study.

71 Some Delegates expressed the view that setting programme priorities was a subject of concern to all the Member States of the IOC and should therefore be taken up by the Assembly.

72 The Representative of Unesco stated that Unesco already has a strong programme in coastal marine science, in marine-science infrastructure development, and a long, successful history in the development and execution of extrabudgetary marine-science development projects. He hoped that the Executive Council, in deciding on the programme of the Commission, would take into consideration the existence of this programme and its accomplishments.

73 The Executive Council expressed its appreciation to the Officers for their successful endeavours to increase the resources available to the Commission and considered that this achievement had provided an essential basis for the consolidation of the IOC programme during 1984-85.

74 The Executive Council recognized the value of improving the identification of programme priorities, while bearing in mind that the great diversity of regional requirements, national needs and levels of programme development, etc., rendered this task particularly difficult.

75 Netherless, the Executive Council agreed that it was also essential to strengthen further the IOC programme of work and budget in the subsequent biennia of the Unesco Medium-Term Plan so that the Commission could maintain momentum in accelerating implementation of its programme. It therefore requested the Chairman to bring this position to the attention of the Director-General of Unesco, and instructed the Secretary to take it into account when preparing the IOC contribution to the Unesco draft Programme and Budget for 1986-87 and for 1988-89.

76 Several Delegates expressed their concern regarding the possible dispersal of the Unesco marine science programme into open-ocean and coastal components as a result of the creation of Programmes X.4 and X.5, respectively. While it was clear that the present close relations between the IOC Secretariat and the Unesco Division of Marine Sciences were instrumental in attenuating duplication of effort and other problems, many Delegates restated the position their Governments had taken at the 22nd Unesco General Conference regarding their concern that the existence of the Programmes X.4 and X.5 might lead to an artificial separation of coastal and offshore marine research.

77 The Executive Council recalled its responsibility to advise Unesco on the marine science programme as a whole, as set down in Article 2(h) of its Statutes. With a view to ensuring the optimal use of the Organization's resources, the Executive Council decided to give special attention to the discharge of this responsibility, especially with respect to activities where concerted action between the Division of Marine Sciences and IOC was deemed to be essential to the effective implementation of the Unesco-IOC Comprehensive Plan for a Major Assistance Programme to Enhance the Marine Science Capabilities of Developing Countries.



The Executive Council deemed important the strengthening of the IOC regional structures, if the regional components of IOC global programmes were to be successfully implemented, and encouraged co-operative links between countries on an inter-regional basis to study problems of common concern.

78



To facilitate international co-operation at all levels, the Executive Council agreed that the structure of the Commission should be streamlined, especially through the strengthening of the regional subsidiary bodies. Increased attention should also be paid to other forms of international co-operation transcending the regional level. In this light, the prospects offered by the establishment of mechanisms of co-operation between countries facing similar problems in their efforts to enhance their marine science capabilities, as well as having the same bio-geographical characteristics, should be explored.

79



The Executive Council urged Member States to accelerate development, at the national level, of mechanisms to handle marine science and related aspects, especially through the strengthening or establishment, when required, of National Oceanographic Commissions of an interministerial nature. In carrying out their functions relating to the formulation of national marine science policy, such Commissions could also ensure, through close co-operation with Unesco National Commissions, governmental support for the IOC programme at sessions of Unesco governing bodies.

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Similarly, within the UN System, the Executive Council welcomed reinforcement of the role of ICSPRO so as to ensure that the Commission responds as effectively as possible to its responsibility as a joint mechanism of the UN Organizations Members of ICSPRO. It hoped that the efforts made by the Director-General of Unesco, in his role as Executive Head of the Organization that is depository of the ICSPRO Agreement, to associate UNEP and IAEA more closely with the work of IOC and to become Parties to the Agreement would be successful.

81

In view of the vital interest of Member States in the development of a firm scientific basis for the rational use of marine resources, the Executive Council urged Member States to give special attention, in the programme of the Commission, to the study of the coastal regions within the framework of an integrated approach to ocean space as a whole.

82



The Executive Council called on the Secretary and the Director of the Division of Marine Sciences of Unesco to develop collaboration further, having in mind the new requirements of the world community in the context of the new ocean regime and the desirability of making the optimal use of ways and means available to Unesco, so as to consolidate Unesco's marine science programme. Similar steps would also need to be taken to interact with the other relevant major intergovernmental scientific programmes of Unesco.

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Having noted with satisfaction the numerous offers of support from Member States, the Executive Council nevertheless appealed to Member States, and instructed the Secretary, to explore the possibility of improving the financial support to the Commission through the IOC Trust Fund and other appropriate schemes.

84



The Executive Council agreed that it was not possible to consider the proposed programme and budget of the Commission in great detail. The main programme thrusts could be stressed, and general cost levels estimated. A problem remains in identifying the TEMA elements which are not only grouped under the TEMA programme itself but also in each ocean

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science and ocean service programme. The Executive Council also agreed that a questionnaire exercise would not be effective. It instructed the Secretary to prepare a proposal for activities in the 1986-87 programme and budget with somewhat more information than is currently given in the Programme of Work and Financial Requirements (Document 7 in governing-body documentation).

86            The Executive Council stressed the importance of involving the Chairmen of the Commission's major technical and regional subsidiary bodies in the formulation of the Commission's programme. It recognized the need to give the Secretary adequate flexibility in the execution of the Commission's programme within the general guidelines on programme priorities laid down by the governing bodies.

87            The Executive Council adopted Resolution EC-XVII.1.

88            The Delegate of the USA reserved his position on the Guidelines annexed to this Resolution.

5.           OCEAN SCIENCES

5.1          PLANNING AND IMPLEMENTATION OF THE PROGRAMME OF OCEAN SCIENCE IN  
RELATION TO LIVING RESOURCES (OSLR)

89            Professor R.J.H. Beverton, Chairman of the Workshop on the IREP component of OSLR (Halifax, Canada, 26-30 September 1983), introduced this item. He stressed the results of the Halifax Workshop, recalling that the idea of focussing on recruitment studies in OSLR came first from the SCOR-ACMRR Working Group 67 and was further reviewed and elaborated during the Twelfth Session of the IOC Assembly. He emphasized that, although studies of the processes governing recruitment to fish stocks have been carried out for a number of years, communication between different research groups has not been particularly good and an international effort of co-ordination is needed in this regard. He elaborated on the two main approaches covered by the Workshop: direct observations related to early life-history studies; and inferential approaches. In the first one, he called attention to criteria for an IREP Minimum Plan. The need for supporting experimental and field work on physiology, behaviour, feeding and predation was also emphasized. Finally, Prof. Beverton reviewed the two conclusions and nine recommendations of the Workshop.

90            The IOC Assistant Secretary, Dr. F. Robles, recalling Resolution XII-1, informed the Council that a letter had been sent to the Director General of FAO inviting his Organization to co-sponsor the OSLR programme, and that a positive and encouraging reply had been received recently. The Assistant Secretary also emphasized the need to mobilize financial and other direct forms of support to implement the components emerging from the OSLR programme, particularly from IREP. He announced that, on behalf of, and in consultation with, the Chairman of the Commission, six distinguished marine scientists from various parts of the world had been invited to join the Guiding Group of Experts and had accepted. ACMRR, SCOR, ICES and IABO were also invited to nominate experts to the Group. The Chairmen of Task Teams or other subsidiary bodies in charge of regional components of the programme will also participate in the Group, in accordance with Resolution XII-1.

The Representative of FAO pointed out that FAO had supported the Halifax Workshop by funding the participation of scientists from developing countries. He informed the Council that the OSLR(IREP) programme will be submitted during the next few weeks to an ACMRR group of experts for evaluation and advice, to enable FAO to make a final decision. He pointed out that potential donors to the programme would be linked to the concrete project proposals derived from it. He regarded the interest in the programme shown by the Member States during the discussion of this Agenda Item as most important.

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The Representative of ICES mentioned that preliminary information on the IREP Workshop was made available to the 71st Statutory Meeting of the ICES Council, and the request of IOC for collaboration will be considered by the Bureau of ICES in May. Further development of the programme, he added, will rely on the Guiding Group of Experts established by IOC Resolution XII-1.

92

The President of IABO called the attention of the Council to the input from the IABO ad hoc meeting on Mechanisms of Recruitment to High-diversity Marine Ecosystems (Roscoff, France, 6-9 September 1983) prior to the Halifax Workshop. As a follow-up of this meeting, IABO's aim is to make an active contribution to the solution of basic research problems associated with recruitment in highly diversified coastal ecosystems.

93

Several Delegates emphasized the interdisciplinary and multilateral character of the OSLR(IREP) programme, and stressed the importance of the TEMA requirements involved and the opportunity for close collaboration between IOC, FAO and their advisory bodies in implementing the programme, especially at the regional level. They also stressed the importance of comparative studies and related involvement of scientists of developing countries. This matter will be considered by the Working Committee for TEMA at its Fourth Session.

94

The Delegate of the USSR supported these comments and informed the Council of his intention to submit a specific project proposal in the framework of OSLR for the study of the Norway pout (Trisopterus esmarki), to the First Session of the Guiding Group of Experts, for consideration.

95

The Delegates of Algeria, Egypt and Spain referred to similar concepts and offered to make their marine science laboratories available to contribute to the OSLR programme.

96

The Executive Council noted with satisfaction the progress made in implementing the OSLR programme, particularly its IREP component.

97

It noted also with satisfaction the encouraging reaction of the Director-General of FAO to the invitation to his Organization to co-sponsor OSLR and the support given by FAO so far in the implementation of the programme.

98

The Executive Council expressed its appreciation to the Government of Canada, particularly the Bedford Institute of Oceanography, for the good local arrangements and assistance provided for the Halifax Workshop. It thanked Prof. Beverton for his assistance in the preparatory phase of the Workshop, in its subsequent Chairmanship and excellent review presented to the Council, and Dr. Alan Longhurst, for his excellent work as the General Rapporteur for the Workshop. The Executive Council also thanked FAO for its support for the Workshop.

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100                    The Executive Council endorsed the conclusions and  
D                    recommendations of the Halifax Workshop. It requested the Guiding Group of  
▲                    Experts on OSLR to determine priorities and pursue the implementation of  
                    the programme elements, particularly those recommended by the Halifax  
                    Workshop.

101                    It instructed the Secretary to pursue the implementation of OSLR  
▲                    actively, seeking the collaboration of the Unesco Division of Marine  
                    Sciences and IABO, inter alia, in the study of coastal ecosystems.

5.2                    OCEANOGRAPHIC COMPONENT OF THE WORLD CLIMATE RESEARCH PROGRAMME  
                    (WCRP)

5.2.1                Progress in Planning of Projects and Experiments

102                    The Chairman of the Joint SCOR-IOC Committee on Climatic Changes  
                    and the Ocean (CCCO), Professor Robert Stewart, introduced this Item.

103                    He informed the Council that the CCCO had been very active since  
                    the Sixteenth Session of the Executive Council, as the quantity of material  
                    presented in the Reports of the Fourth and Fifth Sessions of CCCO attests.  
                    The oceanographic component of the World Climate Research Programme  
                    (WCRP-0) is developing and is becoming increasingly well defined. Progress  
                    is not spectacularly rapid, because the programme is a very difficult one,  
                    organizationally and scientifically. The Joint SCOR-IOC Committee has had  
                    to deal with two types of community. The members of the one group are  
                    fully independent; the other group also has a large degree of independence.  
                    The former are the Member States; the latter group is the international  
                    scientific community concerned. A programme of this magnitude cannot be  
                    conducted by any international organization. It can only be carried out  
                    through Member States' contributions, particularly in this period of very  
                    tight budget. Any effort put into a programme can only be at the expense  
                    of some other programmes, and Member States must determine that WCRP-0 is a  
                    programme that merits receiving their resources. Member States cannot be  
                    persuaded to adopt this priority, they must decide themselves. All that  
                    can be done is to present Member States with proposals that they can study  
                    themselves, so that they may conclude that the WCRP-0 is worth their  
                    support. If they choose this course they will be able to work in concert  
                    with other Member States, through an intergovernmental organization. IOC  
                    is the appropriate body.

104                    At the same time, the oceanographic component of the World  
                    Climate Research Programme can only be carried out with the participation  
                    of the very best physical and chemical, and to a lesser but still important  
                    extent, biological and geological, oceanographers. These front-line  
                    scientists constitute the nearly independent group referred to earlier. At  
                    least in many of the scientifically most advanced countries, they determine  
                    themselves which problems are important and tractable and therefore justify  
                    their effort. They will only devote their time and energy to these tasks  
                    if they are convinced that it is here that their efforts will be most  
                    rewarded.

105                    Just as the IOC can play an important role in helping Member  
                    States to become convinced of the value of WCRP-0, so SCOR plays an  
                    essential role in helping scientists to become likewise convinced. IOC and  
                    SCOR can accomplish things neither could do successfully alone. During the  
                    last few years, a major effort of the Joint SCOR-IOC Committee on Climatic  
                    Changes and the Ocean has been entraining an ever expanding group of  
                    outstanding oceanographic scientists, and using their expertise to refine  
                    and develop the elements of the programme.

Although there are several other important elements of the oceanographic component of the WCRP, the three largest are: the Tropical Oceans and the Global Atmosphere (TOGA), the World Ocean Circulation Experiment (WOCE), and the Ocean Observing System (OOS).

106

Professor Stewart reviewed the Study of the Interannual Variability of the Tropical Ocean and the Global Atmosphere (TOGA). This study is an effort to understand, and thus to predict, interannual variations of phenomena, such as El Niño, the Indian Monsoon, and the droughts in the Sahel and north-eastern Brazil, that are correlated with tropical sea-surface temperature anomalies. In contrast to WOCE, which is predominantly oceanographic, TOGA has an at least equally important meteorological component and, therefore, the ICSU-WMO Joint Scientific Committee (JSC) for the WCRP is taking the lead in its development. TOGA is a study embracing all tropical oceans. Although we are studying them somewhat independently, they are linked through the atmosphere. There are indications of links, for example, between the 1982-83 Pacific event and the Atlantic anomalies, and links between tropical ocean anomalies and extra-tropical meteorological events have been documented. The ocean observational element will be concentrated in the tropics and mainly at and near the surface. Although TOGA will begin in 1985, its most intensive period will be during the intensive WOCE period when satellite data are available, particularly for surface winds for determining stress. TOGA is a ten-year programme. An International Conference on the TOGA Scientific Programme will be held at Unesco Headquarters from 17 to 21 September 1984. This Conference is being planned by CCCO and JSC under the joint sponsorship of IOC, WMO and SCOR. The purpose of the Conference is to explain the scientific programme and to provide a means of informing Member States of the programme needs and benefits. The Conference will be addressed primarily to interested scientists not yet involved in TOGA, science managers and administrators, and the staff of private, public and governmental institutions and offices that are likely to be involved in the further planning, conduct and funding of TOGA. The Conference will be announced widely through IOC, WMO, ICSU and SCOR.

107

The Secretary of the Joint SCOR-IOC Committee on Climatic Changes and the Ocean, Mr. B. Thompson, outlined the World Ocean Circulation Experiment (WOCE). WOCE was first identified by CCCO in 1979 as a major element of climate research; it is now in the design stage leading to an intensive observational period from 1988/9 to 1994, a five-year "snap-shot" of the circulation of heat, water and selected chemicals (notably those related to CO<sub>2</sub> distribution) around the world ocean, and their interchange with the atmosphere. The three main goals of WOCE are: (i) to collect the data necessary to develop and test ocean models useful for predicting climate change; (ii) to determine the degree to which specific WOCE data sets represent the long-term behaviour of the ocean; and (iii) to find methods for determining long-term changes in the ocean circulation. Determining what the data sets (Goal (i)) should be is the crux of the WOCE design problems. Determining how these data can be related to longer-term climate variations through the use of tracers and base-line data obtained prior to and after the "snap-shot" is the task to be undertaken to meet Goals (ii) and (iii). The major efforts of the CCCO-JSC WOCE Scientific Steering Group are in modelling and designing the comprehensive data sets. The modelling effort being undertaken by a number of co-operating centres is directed towards the development of general circulation models (GCMs), inverse methods and process modelling. The observational system will involve traditional means, such as XBTs and sea-level stations, and new systems, but all in larger quantities and operating at a higher level of

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precision than ever before. The key systems are: satellites (ERS-1 of the ESA, the French-USA Poseidon/Topex Mission, USA NROSS, and Japan's MOS-2); global hydrography, perhaps with the help of a "smart" CTD; neutrally buoyant, pop-up floats; and tracers (natural, man-made and perhaps purposeful). Should these systems, particularly the satellites, not be available, the WOCE Scientific Steering Group will have a different design problem that could, in fact, preclude attempting the experiment. During 1984, the WOCE Scientific Steering Group will prepare a preliminary Plan for submission to the Joint SCOR-IOC Committee in November 1984 and subsequently to the ICSU-WMO Joint Scientific Committee and then to the governing bodies of IOC, WMO and SCOR. The WOCE Scientific Steering Group will also produce a popular description of WOCE for wide distribution and publication in the IOC Technical Series.

109

The Secretary of the Joint SCOR-IOC Committee informed the Council that the international TOGA programme office established in the USA, by agreement with WMO, will become operational upon the arrival of two experts to be seconded as staff and whose employment is now being negotiated. Its main function is to support the JSC-CCCO TOGA Scientific Steering Group in programme planning. The Office reports to the Director of the WCRP in Geneva on organizational matters and receives its specific tasks through that office. A similar arrangement is being made for the WOCE Office (Institute of Oceanographic Sciences, Wormley, U.K.) under the CCCO-JSC WOCE Scientific Steering Group. It is intended that these offices be truly international and persons seconded by other Member States or arranged through IOC and WMO should be assigned to these offices as soon as possible. An exchange of letters formally linking the WOCE Office with the IOC will be arranged in the near future.

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The Delegate of the USSR restated the view expressed by USSR participants in the Fifth Session of CCCO that the programme offices should be situated at IOC and/or WMO Headquarters.

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The Fourth Vice-Chairman of IOC, Dr. K. Voigt, informed the Council of the "Action Plan for an Ocean Observing System" developed by the Joint SCOR-IOC Committee at its Fourth and Fifth Sessions. Besides the observational strategy and scientific reasons for data requirements, the new "Action Plan for an Ocean Observing System" provides guidance to Member States and concerned international organizations on how effectively to channel contributions to the most important observational elements that go to make up an observing system relevant to the study of the role of the ocean in short-term climatic variations. To monitor the recommended actions and to develop further the various stages of an ocean observational system, and to advise on new technological developments, including the assessment of existing ocean-data-management systems, the Joint SCOR-IOC Committee on Climatic Changes and the Ocean formed an ad hoc Group for the Ocean Observing System, led by Dr. K. Voigt, with representatives of the IOC-WMO Working Committee for IGOSS and the IOC Working Committee on IODE, and active participants in WCRP-O Programmes such as WOCE and TOGA.

112

The Chairman of the IOC-WMO Working Committee for IGOSS, Mr. G.L. Holland, referring to the WCRP as IGOSS's most demanding client, welcomed the decision of the Joint SCOR-IOC Committee to rely on the ocean data-management systems within IGOSS and IODE, enhanced and improved as necessary. A linkage between research and operational data systems must be pursued by correlating the WOCE and TOGA data sets with the IGOSS operational data set. He noted that excellent liaison had been established between the Working Committee for IGOSS and the Joint SCOR-IOC Committee on Climatic Changes and the Ocean(CCCO).

The Director of the WCRP, Prof. Pierre Morel, informed the Council that WMO and ICSU have acknowledged the excellent co-operation between oceanographers and meteorologists in the WCRP. Climate is basically the product of a coupled system (ocean-atmosphere), so that such co-operation is essential. The WMO can provide technical expertise to assist in developing the oceanographic component; for example, its special expertise in satellite-data collection and interpretation. He cited the co-operation already achieved by WMO and IOC in IGOSS. Prof. Morel stressed the particular interest of the ICSU-WMO Joint Scientific Committee in TOGA.

113

The Representative of SCOR, Dr. T. Wolff, noted that the SCOR Executive Committee had (in September 1983) reviewed the reports of the Joint SCOR-IOC Committee and endorsed the recommended programme (including TOGA, WOCE and the Ocean Observing System). Other SCOR Working Groups, such as WG 68 (North Atlantic Circulation) and WG 74 (General Circulation of the Southern Ocean), are addressing climate-related matters and are working with CCCO in programme design and implementation. He stated that the WCRP-O will retain its priority in the activities of SCOR and that funding support will continue.

114

In response to a request to identify the main area of support for the WCRP that should be organized by the IOC, Prof. Stewart indicated that, in his view, they were: the expansion of the global mean-sea-level (MSL) network, including selected high-precision stations to be used for calibration purposes; greatly improved XBT-data exchange through IGOSS; and the use of IODE and IGOSS centres for data assimilation and the timely distribution of their products. He emphasized that the present activities within these systems must be upgraded in terms of the amount and quality of data provided.

115

Several Delegates mentioned climatic events that had ravaged their countries in recent years and looked to the WCRP-O to contribute to developing the measures required to mitigate the effects of similar future events.

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Several Delegates indicated specific additional contributions they were prepared to make to WCRP-O. These are briefly summarized, as follows:

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- Argentina - A National Oceanographic Data Centre to handle physical and chemical data, as part of the IODE system and relevant to the WCRP.
- Brazil - Participation in the Tropical Atlantic Climate Studies.
- Canada - A \$15,000 contribution to the IOC Trust Fund to support CCCO activities for 1984-85.
- China - Interest in participating in TOGA, in hosting a climate-data-management meeting in 1985 and in providing training in sea-level measurement and data processing.
- Cuba - Sea-level data compiled by the National Tide Service for past and future years as needed by WCRP-O.
- France - The establishment of a regional data centre in Brest which could support the oceanographic component of the WCRP.
- Jordan - Sea-level data for the past 3 to 4 years and

- Spain - Sea-level data from its mainland coastal regions and the Canary Islands.
- Sweden - Participation and possible assistance in the transfer of technology to developing countries.

118 The Delegate of the USSR, emphasizing the importance of the further development of the oceanographic component of the WCRP, reminded the Council that, as far back as 1979, the Soviet Union proposed a project on ocean monitoring aimed at improving long-range forecasting of climate changes and existing methods of weather forecasting. This project was planned to be implemented under the auspices of the IOC. On the basis of this project a programme has been developed known as SECTIONS, which is now being successfully implemented by oceanographers from the German Democratic Republic, Poland, Bulgaria and the USSR. He supported the recommendation of the Fifth Session of the Joint SCOR-IOC Committee on Climatic Changes and the Ocean to use existing observational and data-management systems, as IGOS and IODE, for the implementation of ocean-monitoring programmes. Referring to the development of TOGA and WOCE, the Delegate of the USSR reserved the position of his country on its participation in their implementation until their observational components have been finally formulated. He noted that additional qualified experts were needed within the Secretariat to support the work of the Joint SCOR-IOC Committee and informed the Council that his Government was prepared to second an expert to the IOC for this purpose, in 1984. The Delegate restated the importance of establishing a Unesco P-5 post in the IOC with the Terms of Reference for Secretary of CCCO, funded by Unesco/IOC.

119 The Executive Council expressed its great satisfaction with the progress made by the Joint SCOR-IOC Committee on Climatic Changes and the Ocean (CCCO) in co-operation with the ICSU-WMO Joint Scientific Committee (JSC) for the World Climate Research Programme (WCRP) and relevant IOC subsidiary bodies in developing the oceanographic component of the WCRP. It acknowledged the importance of the programme to all mankind and the responsibility of the Commission to support the WCRP vigorously.

120 The Executive Council recognized that the global nature of the WCRP demands that all countries be involved and it noted that developing countries were still not involved to a great enough extent.

121 The Executive Council stressed the need to ensure the success of the ocean-climate programme and for that reason it will be essential to create an appropriate intergovernmental mechanism to ensure the maximum benefit to Member States in this important field (see Section 5.2.2, below).

122 The Executive Council urged the Member States through the Working Committee for TEMA, to define a TEMA component for WCRP-0 including the identification of needs and offers through the IOC Voluntary Assistance Programme (VAP). It recognized that the WCRP could serve as the catalyst for changing VAP into an effective TEMA component, as the Global Atmospheric Research Programme (GARP) was for the WMO Voluntary Co-operation Programme (VCP). The Executive Council urged the Member States to pursue this line of development of international co-operation actively. The Executive Council instructed the Secretary to develop appropriate training programmes.

123 The Executive Council recognized the need for co-operation and co-ordination with other relevant bodies pursuing studies related to WCRP-0. Specifically, it identified programme-oriented bodies, such as the Comisión Permanente del Pacífico Sur (CPPS) and the IOC-WMO-CPPS Joint



Working Group on the Investigations of El Niño. It stressed the importance of co-ordination with WMO, ICSU and SCOR, and their relevant subsidiary bodies, and decided to seek closer co-operation with them.

The Executive Council endorsed the programme of work described in the Reports of the Fourth and Fifth Sessions of CCCO and re-confirmed its position that CCCO is the principal body of the Commission for ocean climate research.

The Executive Council urged its subsidiary bodies, particularly the Working Committees for IGOS, IODE and IEMA, to work closely with CCCO in developing a comprehensive programme in which all Member States could participate.

The Executive Council welcomed the additional contributions to the oceanographic component of the World Climate Research Programme indicated by the Delegates of Argentina, Brazil, Canada, China, Cuba, France, Jordan, Spain and Sweden, and the decision of the USSR to second an expert to the IOC Secretariat to deal with the development and implementation of IOC activities in the field of ocean dynamics and climate.

#### 5.2.2 Intergovernmental Mechanisms for Overall Co-ordination and for Implementation of Specific Projects and Experiments

The Chairman of the Joint SCOR-IOC Committee on Climatic Changes and the Oceans (CCCO), Professor R. Stewart, introduced the proposal to establish an IOC Programme Group on Ocean Processes and Climate (Document IOC/EC-XVII/8 Annex 1). The Programme Group is intended to promote and co-ordinate those elements of the oceanographic component of the World Climate Research Programme (WCRP-0) that require the concerted action of Member States. An essential activity of the programme group would be to oversee the activities of the work of the Commissions' technical and regional subsidiary bodies concerned with ocean processes and climate. Professor Stewart noted that one important task would be to facilitate ocean climate research by other Member States in the waters of national jurisdiction of a given Member State. He stressed that no immediate need existed to form the Programme Group, but that it was time to decide on whether such a mechanism would be useful. He suggested that, if formed, the First Session of the Group be just prior to the Thirteenth Session of the Assembly in 1985.

There was a general agreement with the proposal to form a Programme Group, but some Delegates stressed that its functions should be clearly defined, so as to avoid creating a situation in which the existing subsidiary bodies and the new Group would have conflicting Terms of Reference and authority.

Taking into account the suggestions of Member States for revisions to the proposed Terms of Reference, the Executive Council decided to create a Programme Group on Ocean Processes and Climate. The Executive Council adopted Resolution EC-XVII.2. The Terms of Reference for the Programme Group are attached to this Resolution.

The Executive Council recognized that the Programme Group would be most effective if its Member States were to be represented at sessions of the Group by science administrators, directors of oceanographic laboratories, science-programme managers and others responsible for the commitment of resources.

131        The Executive Council expressed the view that developing Member States would have the opportunity to participate in the World Climate Research Programme (WCRP-0) through their membership of the Programme Group, which, it believed, should provide a forum for all interested participants to exchange experience and harmonize actions.

132        The Executive Council invited the Fourth Vice-Chairman to assist in the organization of the First Session of the Programme Group.

5.3        DEVELOPMENT AND CO-ORDINATION OF THE COMMISSION'S ACTIVITIES IN OCEAN MAPPING

133        The Permanent Secretary of the General Bathymetric Chart of the Ocean (GEBCO), Mr. D.P.D. Scott, introduced this item. He first presented the main results of the Ninth Session of the Joint IOC-IHO Guiding Committee for GEBCO (Wormley, Surrey, United Kingdom, 4-6 May 1983). He announced that the GEBCO world sheet at the scale of 1:35 million, together with an accompanying supporting volume, would be published in the next few months. He also gave details of the work accomplished by the Sub-Committees on Geographical Names and Nomenclature of Ocean Bottom Features and on Digital Bathymetry. In all these initiatives he called attention to the excellent collaboration with the International Hydrographic Organization.

134        Mr. Scott informed the Council of the ongoing activities in the preparation of the Geological and Geophysical Atlases of the Pacific and Atlantic Oceans, and the most unfortunate loss of the Deputy Editor of GAPA, Professor E.S.W. Simpson. The date for finalizing the compilation work has been set at the end of 1984, so that the Atlases could be published by the end of 1986.

135        He presented a list of the benefits arising from the on-going and planned activities to develop regional bathymetric charts and overlay sheets, as follows:

- (i)        A considerable amount of oceanographic and hydrographic data collected over the last twenty years will be presented in a consistent legible form.
- (ii)       The mapping of the deep ocean adjacent to the countries will be brought to the same level as that of the best-mapped oceanic areas of the world, and will provide a data base for any offshore work carried out on behalf of a country wishing to exploit its EEZ - including environmental studies, mineral and oil exploration and cable and pipe laying.
- (iii)      Knowledge of the configuration of plate boundaries will contribute to an understanding of seismic risk.
- (iv)       A standard reference to the morphology of the area will be provided including the correct positions and names of features.

136        The precursor of this type of regional chart was the International Bathymetric Chart of the Mediterranean (IBCM) published about two years ago, with the support of the USSR. The corresponding six overlays of this chart are to be published within the next three years, the first during 1984. In addition, plans are in hand to initiate similar regional charting schemes: in the Caribbean and the central eastern Pacific coast of Central America, with the support of Mexico; in the

central eastern Atlantic, with the support of France; in the central western Indian Ocean, with the support of the Federal Republic of Germany; in the Red Sea and the Gulf of Aden, with the possible support of the United Kingdom and of ALECSO/PERSGA.

With regard to the experience gained with IBCM and ongoing activities of its Disciplinary Group on Overlay Sheets, the Permanent Secretary for GEBCO emphasized the need, for this and future exercises, to retain the corresponding Editorial Boards until all sheets in the particular regions have been published. A specific Recommendation addressed to the Executive Council was formulated during the Fourth Session of the IBCM Disciplinary Group on Overlay Sheets in Marine Geology and Geophysics (Paris, 14-16 December 1983) that the Disciplinary Group be replaced by an Editorial Board for the IBCM and Overlay Sheets, constituted, for the time being, by the members of the present Disciplinary Group.

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Finally, Mr. Scott referred to the CCOP(SOPAC) project to prepare an Atlas of the Southwest Pacific; he reported that Sheet 1 of the Bathymetric Chart, which will be used as a base for that project, has recently been published. Stressing that there are no plans for IOC to develop an ocean-mapping project in that area, he recalled that the Programme Group for WESTPAC had requested the IOC Secretariat to conduct a review of the bathymetry efforts and projects that are active in the WESTPAC area. He suggested that the Chief Editor of the CCOP(SOPAC) project might be invited to attend meetings of the proposed IOC Consultative Group on Ocean Mapping (para. 155 below).

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Having reviewed all these mapping activities of the Commission, he called attention to the urgent need to improve the formal and technical links among them as well as with bodies sponsoring similar projects, such as the IHO and the Commission for the Geological Map of the World (CGMW). The proposed mechanism for this purpose was; he noted, proposed in Document IOC/EC-XVII/8 Annex 2.

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Mr. Scott concluded his review by drawing attention to the complementary and supportive advantage of establishing an International Ocean Mapping Unit. The establishment of such a unit had been urged by the Guiding Committee for GEBCO and by the IBCM Disciplinary Group. Negotiations would be started shortly with a Member State on the provision of offices and overhead costs for such a unit, but extrabudgetary funds will have to be found for its operation.

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The Secretary thanked Mr. Scott for this invaluable help in this field of IOC activities. He also thanked the USSR for its continuous support to the IBCM and the GAPA projects and expressed the Commission's regret over the death of Dr. Victor Faleev, Chief Editor of IBCM. He extended his appreciation to the continuing assistance provided by Canada for the publication of GEBCO, and to the offers made by Mexico, France and the Federal Republic of Germany regarding future regional projects. He emphasized the small financial implications for IOC compared to the results obtained.

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Several Delegates expressed their satisfaction with, and support for, the proposed subsidiary body.

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The Representative of IHO joined these favourable comments and said that the establishment of an IOC subsidiary body on ocean mapping will further improve the liaison and co-operation with his Organization. He

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proposed that in the Preamble to the Terms of Reference, reference should be made to consultations between the proposed subsidiary body and other relevant international organizations or bodies.

144 The Delegate of France reaffirmed her support for the bathymetric chart project for the central eastern Atlantic.

145 The Delegate of the Federal Republic of Germany confirmed his Government's support, in principle, for the project in the CINCWIO Region.

146 The Delegate of Mexico restated the interest of his country in the publication of bathymetric charts for the Caribbean and the Pacific coast of Central America.

147 The Delegate of Egypt manifested his interest in the Red Sea and Gulf of Aden regional bathymetric project and offered for that purpose the facilities existing at the Data Centre in Alexandria. He informed the Council that exploratory talks had been held with Saudi Arabia.

148 A similar offer was made by the Delegate of Venezuela for the project covering the Caribbean zone; he expressed the interest of his Government in extending this offer to the IOCARIBE region as a whole.

149 Some Delegates expressed their interest in the possibility of other regional projects, notably mapping of the Arabian Sea and adjacent gulfs, whereas others expressed their concern about the financial implications of the proposed IOC subsidiary body for ocean mapping.

150 The Permanent Secretary GEBCO replied that the implementation of other regional projects would be mainly subject to funds and facilities being made available by interested countries. Regarding the cost of the proposed subsidiary body, he explained that budgetary savings have been and could be made by keeping the cost of meetings to a minimum, by spacing the sessions of the Guiding Committee for GEBCO every two years and by organizing as many meetings as possibly in conjunction with other mandatory meetings.

151 The Executive Council thanked the Permanent Secretary GEBCO for his review of the ocean-mapping activities of the Commission and approved the Summary Report of the Ninth Session of the Joint IOC-IHO Guiding Committee for GEBCO (Document IOC-IHO/GEBCO-IX/3).

152 It expressed its appreciation for the close co-operation on the GEBCO project which had been, and is still being, accorded by the International Hydrographic Organization.

153 The Executive Council also expressed its great appreciation of the considerable support offered by the Governments of the USSR, France, Federal Republic of Germany, and Mexico for on-going and future regional projects in this field of activity.

154 The Executive Council decided to establish an Editorial Board for the IBCM and Overlay Sheets, to replace the existing IBCM Disciplinary Group on Overlay Sheets in Marine Geology and Geophysics, and invited the present members of the Disciplinary Group to be members of the Editorial Board.

155 It also decided to establish an IOC Consultative Group on Ocean Mapping.

156 The Executive Council adopted Resolution EC-XVII.3.

5.4 DEVELOPMENT OF THE MARINE POLLUTION MONITORING SYSTEM  
(MARPOLMON)

The Chairman of the Working Committee for the Global Investigation of Pollution in the Marine Environment (GIPME), Dr. Vladimir Gruzinov, introduced this item. He referred to MARPOLMON as the core element of the GIPME programme which had made considerable progress since the Comprehensive Plan for the Implementation of GIPME was developed in 1976. Of the four components of the Plan the development of sampling and analytical methods, the construction of mass balances of pollutants in the ocean, the assessment of pollutants effects, and the strategy to ensure abatement or regulatory action, the first three were being dealt with in the context of MARPOLMON, the operational component of which had developed successfully from the encouraging results of the former Marine Pollution Monitoring Pilot Project (MAPMOPP) and from a series of regional marine pollution workshops and international intercalibration exercises. He stressed that it was urgent to earmark resources for the implementation of GIPME and MARPOLMON. He also stressed the importance of the work being carried out by the GIPME Group of Experts on Methods Standards and Intercalibration (GEMSI), which he described as the cornerstone of the MARPOLMON System. The close links between the Working Committee for GIPME and those for TEMA, IODE and IGOSS were leading to fruitful results, and GEMSI is playing an active role in support of the implementation of regional components of MARPOLMON, particularly in WESTPAC and IOCARIBE. The MARPOLMON System was also moving forward in many other regions of the world, as witnessed by the numerous activities such as workshops and training courses, many of which were being carried out with UNEP support. The Chairman of the Working Committee for GIPME believed that the signing of the recent Aide-Memoire on co-operation between IOC and UNEP would pave the way to closer relations with UNEP and possibly to joint sponsorship by UNEP of GIPME and MARPOLMON. He thanked the Secretariat for the immense amount of work it had put into recent accomplishments and pointed out that the substantial responsible tasks ahead would require the concerted efforts of the Member States of all the UN Organizations Members of ICSPRO to accelerate the implementation of the GIPME programme, in general, and the MARPOLMON system, in particular.

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An IOC Consultant, and former staff member, Dr. Neil Andersen, described the development of the Marine Pollution Monitoring System (MARPOLMON).

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He recalled that GIPME was created in response to Recommendation 90 of the UN Conference on the Human Environment (Stockholm, 5-16 June 1972). However, there were other recommendations arising from that Conference which also referred to GIPME; namely, 87, 89 and 91. To give effect to them a Comprehensive Plan for GIPME was formulated (IOC Technical Series No. 14), and an IOC Working Committee for GIPME was formed. The Committee's Group of Experts on Methods, Standards and Intercalibration (GEMSI) has developed the sampling and analytical aspects of marine pollution monitoring and otherwise laid a basis for the implementation of the Comprehensive Plan (IOC Technical Series No. 25) in which realistic objectives and priorities are defined, and which are considered to be essential to ensuring the scientific credibility of the products arising from the project.

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It is envisaged that the goal of providing a global assessment of marine pollution will be realized through regional monitoring activities which, when considered as a whole, represent the Marine Pollution Monitoring System (MARPOLMON) and constitute a marine chemical component of the UNEP Global Environment Monitoring System (GEMS) within Earthwatch. These regional activities are seen to be related and comparable to one

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another through the essential use of tested and standardized methods incorporating intercalibration and open-ocean baseline measurements for those pollutants under scrutiny. This latter aspect of MARPOLMON is a direct response to Recommendation 91 of the Stockholm Conference. It must be stressed that MARPOLMON, although being developed in the light of research in the open ocean, as well as in coastal seas, is not an open-ocean monitoring activity.

161 Since its conception, GEMSI has had a very close working relationship with ICES, in general, and with the ICES Marine Chemistry Working Group, in particular. It has also collaborated with GESAMP. With the increasing collaboration with UNEP (see Section 8.3) maximum benefit is being gained by the three organizations from a technical standpoint, and duplication of effort is being kept at a minimum. It is now technically possible to initiate regional monitoring of trace metals and petroleum hydrocarbons, but more methodological development is required for chlorinated hydrocarbons as described in detail in Document IOC/INF-523 (Marine Pollution Research and Monitoring Programme of IOC). Other phases than the aqueous phase are now being considered for monitoring; namely, sediments and mussel tissue, the latter in the context of Mussel Watch.

162 Dr. Andersen then briefly reviewed the main activities envisaged by IOC in 1984 and 1985, and some important activities that it had not been possible to carry out in 1983, owing to lack of funds.

163 The Secretary acknowledged the IMO's valuable support to the IOC, under the ICSPRO Agreement in seconding a fulltime staff member to assist with marine pollution research and monitoring activities of the Commission, and in covering half of the cost of a General Service (GS-4) secretary. He informed the Council that discussions have been held with IMO, with a view to identifying subjects of special interest to IMO which IOC could promote to meet IMO's needs in respect of marine pollution research and monitoring, particularly of petroleum.

164 The Representative of ICES noted with satisfaction the close links between GEMSI and ICES Working Groups on Marine Chemistry and on Marine Sediments, since the study of methods, standards and intercalibration is one of the key elements of the work of both ICES Working Groups. Member States should, he believed, take concerted action to support these programmes, and ICES intends to clarify which of ICES Member States can contribute to MARPOLMON.

165 The Representative of FAO explained his Organization's particular interest in the control of pollution, particularly that which has an impact on fisheries. Referring to the GESAMP Review of the Health of the Oceans, he pointed out that, at a regional level, problems do indeed exist and recruitment and living resources are being affected. He informed the Council of a new GESAMP Working Group on the Methodology and Guidelines for the Assessment of the Impact of Pollutants on the Marine Environment, and this new concept may be of direct interest to GIPME.

166 Twenty-three Delegates spoke on this subject. The considerable progress in developing MARPOLMON was generally commended. Several lines of further development were suggested, reflecting to some extent the particular interests of the Member States. The pursuit of regional development was stressed, even if the long-term goal was a global system, but it was stressed that there is a fundamental research interest in the pollution of the open ocean as a baseline of global pollutant levels, and, for example, in the context of the state of the health of the ocean and in the deep-sea dumping of wastes.

The Delegate of the United Kingdom did not believe that the fourth component of the Comprehensive Plan for GIPME, relating to regulatory action and recommendations to avert the consequences of pollution, was an activity that the Commission should be pursuing; other organizations, such as IMO, have the appropriate expertise and responsibility for this type of work.

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Some Delegates said that there is a need to sharpen the definition of MARPOLMON and to direct it, at least at present, towards acquiring the scientific basis for attaining specific marine environment protection and management goals and solving regional problems; it should, therefore, concentrate on the coastal waters, and even there the mode of development should be through the identification of vulnerable areas and the conduct of case studies, besides the more general mode of intercalibration exercises (which may cover one or more regions at a time), training courses and workshops.

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The Delegate of the USA emphasized the value of, and need for, the continuation of GEMSI support to Member States and expressed concern at what he saw as the still disappointing level of real participation in GIPME and MARPOLMON, particularly in the Caribbean region where the US contribution was, he believed, disproportionately large. At the same time, he thought that the proportion of IOC funds dedicated to GIPME was particularly high and led to imbalance in the funding of programmes.

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Some Delegates stressed the importance of baseline studies to MARPOLMON and other programmes in such fields as air/sea exchange.

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The Delegate of the German Democratic Republic offered to make available to GEMSI results of studies and intercomparison exercises on surface microlayer sampling and analysis for trace metals.

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Several Delegates stressed the importance of the study of the effects of pollutants on marine organisms. The development of such a programme element will require careful preparatory work and should draw upon ICES' experience.

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The Observer of Denmark informed the Council of the concern of ICES over the increasing frequency of algal blooms and fish kills reported in the ICES region. They may indicate changes in the environment or in the ocean climate and therefore be worthy of attention in the context of GIPME.

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Several Delegates stressed the need for increased TEMA activities in support of GIPME.

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The Delegates of Algeria, France and India informed the Executive Council of their countries' readiness to provide training opportunities in this field.



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The Delegate of France also indicated that her country was ready to offer several manuals on methods of analysis, as well as various tools for the acquisition and management of data, to the IOC's Group of Experts on Methods, Standards and Intercalibration, and to interested Member States (particularly developing countries). Moreover, French research teams will participate in intercalibration exercises and will make their results thereof widely available.

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The Delegate of Iraq particularly thanked the IOC for its assistance in the development of the 3-yr research plan of the Marine Science Centre of the University of Basrah and the conduct of a Workshop on the Fate and Fluxes of Oil Pollutants in the KAP Region, also in Basrah.

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- 178 The Secretary informed the Council of the offer of Poland (Polish Academy of Science) to make a research vessel (R.V. PROFESSOR SIEDLECKI) available for marine pollution research in the Atlantic Ocean. Training on board the R.V. PROFESSOR SIEDLECKI, while "en route" between the Canary Islands and the Antarctic, will be made available to two trainees from developing countries to obtain training in physical and chemical oceanography and in pollution analysis. The cruise will take place during the period December 1984 to March 1985 and about ten oceanographic sampling stations will be taken between the Canary Islands and the Antarctic. The offer will be published in the Unesco International Marine Science Newsletter. Requests for fellowships should be addressed to the Secretary of IOC.
- 179 Delegates of Member States from various regions stressed their interest in having the full backing of IOC and its regional subsidiary bodies for developing MARPOLMON, particularly in the Caribbean (IOCARIBE), the Western Pacific (WESTPAC), the Mediterranean, the Gulf (Kuwait Action Plan region) and the Red Sea area.
- 180 The Delegate of Spain expressed his concern over the dumping of radio-active wastes which some countries are carrying out in the Atlantic basin to the northwest of the Iberian peninsula; he was against the continuation of such dumping and appealed for a satisfactory solution to the problem.
- 181 The Delegate of Mexico particularly offered the facilities of one of his country's marine research stations on the Caribbean for one or more GEMSI ad hoc consultations and a meeting of a GESAMP Working Group.
- 182 On the subject of co-operation with other bodies, several Delegates expressed their approval of the development of co-operation with UNEP, ICES and other relevant organizations. In particular, ICES' experience in intercalibration and, more recently, the scientific development of monitoring programmes were considered particularly valuable. It was considered essential, nevertheless, that responsibility for the development of the scientific basis for marine pollution monitoring on a global scale should rest with the IOC. Also, in developing co-operative activities, account needs to be taken of the different mechanisms that each Member State has in dealing with the different international organizations.
- 183  The Executive Council expressed its satisfaction with the appreciable development of GIPME and MARPOLMON, as called for particularly by Resolutions X-7, XI-5 and EC-XV.3, and noted the fact that participation of Member States, in terms of intercalibration exercises, training courses and workshops, was much higher than attendance at sessions of the Working Committee for GIPME would suggest. Nevertheless, it called upon the Working Committee for GIPME, with the collaboration of the regional subsidiary bodies of the Commission, to sharpen the definition of the objectives of MARPOLMON, and the means for its implementation on a regional basis.
- 184  It also called on the Working Committee for GIPME, through its Group of Experts on the Effects of Pollutants (GEPP), to develop further its plans for the eventual monitoring of the effects of pollutants on marine organisms.



The Executive Council urged the regional subsidiary bodies to make a special effort to develop and implement regional components of MARPOLMON and to indicate to the Secretary in a timely and precise manner the means, in terms of facilities, human and financial resources, each could bring to bear on such activities.

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The Executive Council recalled the Assembly's decision, at its Twelfth Session, to support the International Symposium on Integrated Ocean Monitoring, held in Tallinn, USSR, in October 1983. It expressed its appreciation to the Local Organizing Committee for the excellent arrangements made for this major Symposium.

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Having been informed of the scientific content and importance of this Symposium, and of the fact that certain of its recommendations were of an institutional, rather than scientific, nature and relevant to the UN system, the Executive Council confirmed the Commission's intention to build up its Marine Pollution Monitoring System (MARPOLMON) as the system for the integrated global monitoring of the chemical components of the marine environment, and as a component of the UNEP Global Environment Monitoring System (GEMS), as reflected in the recent Aide-memoire signed by the Secretary of IOC and the Director of the UNEP Regional Seas Programme Activity Centre.

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The Executive Council also confirmed its intention to further strengthen, jointly with UNEP, the GIPME Group of Expert on Methods, Standards and Intercalibration as the source of specialized scientific advice in its field, in the development of MARPOLMON.

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The Executive Council expressed its appreciation of the efforts being made to strengthen co-operation between IOC and IMO in the spirit of the ICSPRO Agreement. It stressed the value of such co-operation and requested the Chairman and the Secretary to pursue consultation with the Secretary-General of IMO to this end.

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## 6. OCEAN SERVICES

### 6.1 THIRD SESSION OF THE JOINT IOC-WMO WORKING COMMITTEE FOR THE INTEGRATED GLOBAL OCEAN SERVICES SYSTEM (IGOSS) AND INTERSESSIONAL WORK

The Chairman of the Joint IOC-WMO Working Committee for IGOS, Mr. G.L. Holland, introduced the Summary Report of the Third Session of the Joint Working Committee for IGOS (Paris, 21 February - 2 March 1983), and outlined the intersessional activities since that time.

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The anticipated requirements of the oceanographic component of the World Climate Research Programme have taken up a great deal of the effort of the Joint Working Committee during the past few years, and many steps have been taken to address the problems associated with the establishment of appropriate observing systems. A pilot project for the operational exchange of sea-level data was approved, to start in the Pacific Ocean in 1984. New technologies in automation and data communication were discussed that will greatly enhance the Member State capabilities in the field of oceanographic data collection. Increased quality control will also be necessary and is being considered by the Committee.

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The Chairman of the Working Committee drew the attention of the Executive Council to the Committee's concern that the future budget allocations for IGOS from IOC and WMO are likely to be insufficient, especially in the light of the anticipated increased requirements for ocean

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observing systems. Increased national commitments to IGOSS for data collection, transmission or analysis, or contributions to the IOC Trust Fund, and earmarked for IGOSS activities, could alleviate the shortage of Regular Programme funds to a certain extent, although strong secretariat support is essential.

193 An ad hoc group had worked hard during the Third Session to develop an IGOSS policy document for TEMA; the Working Committee agreed to develop the IGOSS TEMA activities along the lines suggested.

194 In the intersessional period since IGOSS-III, there have been two important meetings of IGOSS bodies. A WMO-IOC Implementation/Co-ordination Meeting for the Extended Pacific Region was held in San Jose, Costa Rica, 21-25 November 1983, and a meeting of the IGOSS Sub-group of Experts on Scientific Matters Relating to IGOSS was held in San Diego, USA, 12-16 December 1983. Both meetings were very successful and arrived at important conclusions and recommendations to be addressed by the Joint Working Committee at its Fourth Session.

195 The Chairman of the Working Committee assured the Executive Council that the Working Committee for IGOSS will maintain close liaison with the Joint SCOR-IOC Committee on Climatic Changes and the Ocean and the IOC Working Committee on IODE, with a view to contributing the required components of IOC's ocean observing systems in the next decade.

196 The Representative of WMO informed the Council of his Organization's satisfaction with the steady development of IGOSS, as expressed by the WMO Executive Council at its Thirty-fifth Session. The WMO Executive Council adopted all the Recommendations of the Joint Working Committee except Recommendation 2 dealing with co-ordination of drifting-buoy activities (see Section 6.1.1 below).

197 The Delegate of France, speaking also as Vice-chairman of the Joint Working Committee, recalled that IGOSS, within the framework of which approximately 40,000 BATHY or TESAC reports were being exchanged yearly, was now adapted to respond to operational and scientific requirements. He expressed his satisfaction with the work accomplished by the Sub-group of Experts on Scientific Matters Relating to IGOSS and emphasized that IGOSS was now ready to plan the role of an integrated system by making use of data gathered in situ (through ships or buoys), or remotely sensed data (through satellites or aircraft) and of new methods such as acoustical tomography. He also paid tribute to the work of the IGOSS Sub-groups of Experts on Operations and on Technical Applications, particularly in the fields of quality control of the data and code development.

198 The Delegate of the United Kingdom, emphasizing the increasing importance of IGOSS in the work of the Commission, particularly in the programmes relating to climate, stressed the importance of IGOSS keeping abreast of new technology for data-gathering. He welcomed the good relationship between IGOSS and IODE and noted that an increasingly large proportion of IGOSS data was finding its way into the IODE data banks.

199 The Executive Council expressed its appreciation of the work accomplished by the Joint Working Committee for IGOSS. It thanked the USA for seconding the IGOSS Operations Co-ordinator, and the UK for supporting this post.

The Executive Council considered that IGOSS had an important role to play in supporting the World Climate Research Programme by providing appropriate data and products. It especially welcomed the IGOSS Sea-level Pilot Project in the Pacific Ocean.

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The Executive Council noted the concern of the Joint Working Committee about the present level of funding by the sponsoring organizations, and encouraged increased national contributions, including those to the IOC Funds-in-Trust, to mitigate the effects of the shortfall.

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The Executive Council noted with appreciation the action already taken by WMO on IGOSS Resolutions, including the publication of the Guide to Data Collection and Location Services Using Service Argos, and the adoption, by WMO governing bodies, of the recommended modifications to code forms FM 63-V BATHY, FM 64-V TESAC and DRIBU.

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6.1.1 Appropriate Cost-effective Mechanism for Co-ordination of Oceanographic/Meteorological Drifting-buoy Activities

The Assistant Secretary, Mr. Y. Treglos, introduced this item. He drew the Council's attention to Documents IOC/EC-XVII/8 Annex 3 (A Proposal for a Cost-effective Mechanism for the Co-ordination of Oceanographic/Meteorological Drifting-buoy Activities), and IOC/INF-557 (Co-ordination of Drifting-buoy Activities and Related Questions: Historical Background). He recalled that the First GARP (Global Atmospheric Research Programme) Global Experiment (FGGE) was the first major international experiment during which a large number of drifting buoys were deployed, and for which a co-ordinating mechanism was needed. The core of that mechanism was the Committee of Participants which was composed of the representatives of participating agencies who wished to attend. That mechanism was disbanded at the end of FGGE, but its structure and functioning should be carefully studied when tackling the question of how to co-ordinate drifting-buoy activities in future. Since that time, a lot of work and reflexion has been devoted to this question by the IOC and WMO, by SCOR and, at the request of the IOC Executive Council, by ECOR. The IOC has considered, at least, the need for an interim international group for undertaking such co-ordination tasks, along the lines suggested by the Joint WMO-IOC Informal Planning Meeting on Drifting-buoy Programmes (Geneva, 3-5 December 1979). For its part, WMO has suggested that: (i) its Members planning to contribute to drifting-buoy programmes should designate national focal points for purposes of information exchange and co-ordination; (ii) that, at this stage of development, its Secretariat should assume the co-ordinating responsibility; (iii) that a global tariff agreement should be negotiated with Service Argos; and (iv) that close liaison with the oceanographic community, in particular with IOC, should be maintained. At the same time, WMO considered that an Interim Drifting-buoy Committee might be established at an appropriate time in the future and co-sponsored jointly by WMO and IOC.

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At the request of the IOC Assembly at its Twelfth Session (Paris, 3-19 November 1982), through Resolution XII-5, the Joint IOC-WMO Working Committee for IGOSS addressed the question of an appropriate cost-effective mechanism for co-ordinating oceanographic/meteorological drifting-buoy activities, and suggested that an IOC-WMO co-ordination group on drifting-buoy programmes be established on the basis of the yearly meeting of the Argos Joint Tariff Agreement (JTA), by expanding the scope of the meeting. As the WMO Executive Council at its Thirty-fifth Session (Geneva, 30 May - 3 June 1983) decided that, pending further study of the question by the Secretary-General, previous arrangements should continue, the IOC Secretary felt it useful to present the IOC Executive Council with


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a more comprehensive proposal than the one put forward by the Working Committee for IGOS. Details of this proposal may be found in the afore-mentioned Document IOC/EC-XVII/8 Annex 3; they include the following: (i) some preliminary steps should be taken regarding the possibility of the IOC and WMO's jointly organizing the meeting on the Argos Joint Tariff Agreement, and the broadening of the WMO concept of National Focal Points for Drifting-buoy Activities, so as to make it equally applicable to meteorological and oceanographic programmes; (ii) in the short term, the embryo of an international mechanism for co-ordination of drifting-buoy activities should be established, either in the form suggested by the Joint IOC-WMO Working Committee for IGOS or as a body separate from the meeting on the Argos JTA; (iii) in the medium or long term, an international mechanism should be established on the basis of an intergovernmental group specifically created for this purpose.

205 The Representative of WMO provided the Council with information on the policy of WMO governing bodies as to the co-ordination of drifting-buoy activities. He stressed that the co-operation between IOC and WMO was considered very successful by WMO. This applied inter alia to the yearly meeting on Argos JTA which has been hosted by WMO and supported by IOC. The Representative of WMO emphasized that co-ordination in the field of drifting-buoy activities required that a permanent organism, such as a secretariat, be made responsible at the initial stage of programme development, so as, for example, to provide Member States with regular and updated information on the state of the activities undertaken. He also stressed that the main purpose of the yearly meeting on Argos JTA was to negotiate as advantageous a tariff as possible for governmental agencies, and that the Argos Global Agreement covers not only drifting buoys but also a wide variety of other platforms.

206 The Secretary of the Joint SCOR-IOC Committee on Climatic Changes and the Ocean referred to the Fifth Session of the CCCO where requirements for surface drifters were expressed, including the need for a panel of experts to study the choice of hull and sensor design, data exchange and analysis, launch sites and launch frequency. The Joint SCOR-IOC Committee recommended that this task be undertaken jointly by IOC and WMO.

207  The Executive Council took the view that the relatively small number of drifting buoys presently in use did not warrant the immediate establishment of an intergovernmental mechanism. The Executive Council did, however, instruct the Secretary to explore with the WMO Secretariat future requirements for the international co-ordination of drifting-buoy activities, in the light of expected scientific and technological developments in this field.

208  The Executive Council requested ECOR and SCOR (through its Working Group No. 66) to assess the use of drifting buoys in experiments, such as TOGA and WOCE, planned under the WCRP-Oceanography, and to deal with the problem of hardware development (hulls and sensors).

209  Having been informed by the Representative of WMO that his Organization plans to convene, in co-operation with SCOR, a meeting of experts to deal with problems of instrumentation and data quality in drifting buoys, the Executive Council offered to make oceanographic expertise from IOC available for such a meeting.

Regarding a question that was raised as to what extent the Joint IOC-WMO Working Committee for IGOSS was able to keep under review questions relating to drifting-buoy activities, the Executive Council took the view that the Joint Working Committee for IGOSS could assist, on an interim basis, at least on some aspects of co-ordination relative to data and technical matters, and should report thereon to the IOC and WMO governing bodies.

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The Executive Council recognized that the joint CNES-NASA-NOAA Service Argos was the only available system for data collection and location by satellite and, therefore, the Commission should pay special attention to any development capable of influencing it. It considered it desirable that the IOC and WMO, as the leading agencies in the UN system for oceanography and meteorology, respectively, should formally and jointly sponsor or at least jointly organize the yearly meeting on Argos JTA.

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The Executive Council noted with appreciation that WMO had hosted, for the last three years, the meeting to negotiate an Argos Global Tariff Agreement, and that the IOC had been fully involved in this negotiation. In view of the considerable benefit the ocean community had derived from this preferential tariff agreement, the Executive Council offered to host the annual meeting in agreement with WMO.

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The Representative of WMO stated that the kind offer of the IOC would be conveyed to the forthcoming session of the WMO Executive Council and that the decision will be taken after consultation with the Chairman of the Joint Tariff Agreement meeting and with Service Argos.

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The Executive Council instructed the Secretary to maintain liaison with WMO and Service Argos to that effect and to keep Member states informed of developments with a view to mobilizing their support.

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The Executive Council paid special tribute to the work undertaken by SCOR and ECOR in the development of drifting-buoy activities. It requested these advisory bodies of the Commission to continue this important work.


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#### 6.1.2 Implementation of the Regional Components of IGOSS

The IGOSS Operations Co-ordinator, Mr. J. Lyons, introduced this item. He stressed the fact that IGOSS is a global system which can contribute significantly to the successful implementation of ocean-monitoring activities and regional projects. However, it has been generally accepted that the most efficient method for the development of IGOSS is through the concerted efforts of Member States in selected ocean regions and, where possible, in the framework of relevant regional bodies and oceanographic programmes. To date, primary emphasis has been placed upon the Pacific Ocean, the Caribbean Basin and the Atlantic waters off West Africa. Missions by experts and members of the Secretariat have been made to the WESTPAC, IOCARIBE and West African regions. Representatives of the Joint Working Committee for IGOSS have participated in several relevant regional meetings. The Working Committee has also been active in the Indian and Southern Oceans. It is anticipated that additional efforts will be made in these areas in the near future.

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217 In the Pacific, co-ordination efforts began with the adoption of the WESTPAC ocean dynamics programme by the IOC Programme Group for WESTPAC at its Second Session. That meeting was closely followed by the Joint WMO-IOC Implementation Co-ordination Meeting on IGOSS in WESTPAC and NORPAX Regions (Tokyo, 9-13 November 1981). Among other things, the Tokyo meeting began formulating a five-year IGOSS Implementation Co-ordination Plan for the Pacific. In order to continue that effort, the Tokyo meeting established an ad hoc Group on Regional Development, under the direction of the Chairman of the IGOSS Task Team of Governmental Experts on the Further Development of the IGOSS Observing System. The Tokyo meeting, recognizing the need to extend IGOSS implementation to the entire Pacific, so as to address such phenomena as "El Niño", recommended the holding of a second meeting to extend the planning for IGOSS implementation into the South-east Pacific. The Joint WMO-IOC Regional IGOSS Implementation Co-ordination Meeting for the Extended Pacific Region was held at the invitation of the Government of Costa Rica in San Jose, 21-25 November 1983.

218  The Executive Council noted that the San Jose meeting formulated several important actions to promote the implementation of IGOSS in the region. It instructed the Secretary to assist Member States in carrying out these actions.

219 The Executive Council also noted that the results of the San Jose meeting, with other information concerning IGOSS activities underway or planned in the region for the near future, will be forwarded to the Chairman of the IGOSS Task Team of Governmental Experts, to be utilized in formulating the final five-year Plan for IGOSS Implementation Co-ordination for the Pacific.

220 The IOC Programme Group for WESTPAC, at its Third Session, besides reaffirming its support for the ocean-monitoring Programme adopted at its Second Session, established a Task Team on the Implementation of IGOSS in the Western Pacific. This Task Team is composed of the IGOSS National Representatives of the WESTPAC Member States. The Task Team is primarily intended to encourage and facilitate participation in IGOSS by Member States of the region by promoting close co-operation between the oceanographic and meteorological communities, and by promoting the insertion of data into the system by individual scientists, programmes and bodies actively gathering oceanic data in the region. The IGOSS National Representative of Australia has undertaken to organize this Task Team and, to that end, has been in contact with the IGOSS National Representatives, or other appropriate individuals, from the WESTPAC Member States.

221 The Executive Council recalled the initiation of the IGOSS Sea-Level Pilot Project (ISLPP) in the Pacific on 1 January 1984, and noted that the implementation of the co-ordination meeting in San Jose had been taken as an opportunity to finalize the Plan for the ISLPP, taking advantage of the presence of several internationally known experts on the measurement and study of sea level and sea-level anomalies. At that meeting, the USA offered to support an IGOSS Specialized Oceanographic Centre for the ISLPP, under the direction of Dr. Klaus Wyrteki of the University of Hawaii, in Honolulu. The revised ISLPP Plan will be distributed with a Circular Letter explaining the Pilot Project and requesting the strong support of Member States in/or bordering the Pacific. Dr. Wyrteki has already begun efforts in support of the ISLPP, taking advantage of his extensive array of tide gauges in the Pacific.

222 The Executive Council believed that it will be necessary to continue efforts within the Pacific, specifically in the completion of the formulation of the final five-year Plan for IGOSS Implementation Co-ordination for the Pacific, support for the ISLPP, the WESTPAC ocean

dynamics programme and other international programmes, such as those being designed by the Joint SCOR-IOC Committee on Climatic Changes and the Ocean. Increased efforts will also be required in the Caribbean and the central eastern Atlantic, and new initiatives will need to be developed and undertaken in other regions such as in the Southern and Indian Oceans.

The Executive Council, referring to discussion under Agenda Item 6.1, restated its view that, if IGOSS is to respond to the greatly increased demands which are being placed upon it by such programmes as TOGA, WOCE, and the ocean observing systems that are being developed in support of the WCRP-0, there will have to be a substantially increased amount of support for them from the Member States. It agreed that the most efficient way to address the implementation of IGOSS is on a regional basis and, whenever possible, to utilize the existing or anticipated regional subsidiary bodies of the Commission. Furthermore, the day-to-day co-ordination of the system within a region must, to a great extent, fall upon a regional organization of knowledgeable, dedicated individuals or groups, such as the Task Team, composed of the IGOSS National Representatives, established by the Programme Group for WESTPAC at its Third Session.

Several Delegates expressed their satisfaction with the efforts made to date and reaffirmed the intention of their governments to continue supporting IGOSS implementation at the regional level.

In particular, the Delegates of Australia and Japan informed the Council of their significant contributions to the implementation of IGOSS in the WESTPAC Region and pledged their continued efforts.

The Delegate of the United Kingdom observed that the increasing scale of the regional components of IGOSS will put a greater burden on the IGOSS officers and trusted that the IOC and WMO Secretariats would be able to accommodate this additional workload.

The Executive Council expressed its support for the activities to date in the regional implementation of IGOSS. It urged Member States to increase their participation in the IGOSS BATHY/TESAC Operational Programmes and to support actively the ISLPP in the Pacific. The Executive Council also encouraged Member States to designate IGOSS National Representatives if they have not already done so.

## 6.2 ELEVENTH SESSION OF THE WORKING COMMITTEE ON INTERNATIONAL OCEANOGRAPHIC DATA EXCHANGE (IODE) AND MARINE INFORMATION MANAGEMENT

The Chairman of the IOC Working Committee on IODE, Mr. Dieter Kohnke, introduced the Executive Summary of the Eleventh Session of the Working Committee (Document IOC/EC-XVII/8 Add.2) and highlighted the main activities of the Committee during the last two years. He emphasized that the major requirements for new initiatives which had emerged during the intersessional period were:

- a new approach to co-ordinating the various marine-information activities of IODE;
- new capabilities to provide large-scale data and information services in support of global international scientific programmes, such as WCRP;

- continued development of the RNOOC system;
- standardization, expansion and acceleration of the international exchange of oceanographic data;
- an increased level of support of training activities through the IOC Training, Education and Mutual Assistance in the Marine Sciences (TEMA).

229 The Chairman of the Working Committee informed the Council that the WDCs A and B, Oceanography, operating in Washington and Moscow, respectively, continued to acquire substantial volumes of marine scientific data. During the report period, data were received from 33 countries, the total number of stations exceeding 160,000; the operational system of RNOOCs, assisting the WDCs in quality control and preparation of products, was steadily developing, with 13 RNOOCs now in operation. Some of these will accomplish their specific tasks within the next intersessional period and new RNOOCs will be required to serve such programmes as Southern Oceans, El Niño, the World Climate Research Programme and MARPOLMON. The publication of the Guide for RNOOCs in 1982, in which the procedures for the accreditation of a new RNOOC were described, will facilitate the nomination of new Responsible National Oceanographic Data Centres.

230 The Delegate of the Federal Republic of Germany informed the Council of the intention to establish a data centre for BIOMASS data in the United Kingdom or his own country.

231 The Observer from the Ukrainian Soviet Socialist Republic stated that his Republic will be ready to provide facilities for RNOOC-MARPOLMON, starting in 1986.

232 The Observer from Cuba stressed the importance his country attaches to the IODE and informed the Council of his country's intention to establish a National Oceanographic Data Centre; he sought IOC's co-operation in this endeavour. He also expressed his country's concern over the difficulties encountered by the Delegate of Cuba to the Eleventh Session of the Working Committee on IODE in obtaining a US visa in time to attend the Session in New York.

233 The Executive Council welcomed the information on the BIOMASS data centre.

234 The Executive Council strongly supported the concept of the existing system for international oceanographic data exchange. It expressed its concern, however, over the fact that, although the number of NODCs and Declared National Agencies (DNAs) is increasing, the geographical distribution of the NODCs is far from being adequate, with big gaps in Africa, Asia and Central America.

235 The Executive Council thanked the Observer of the Ukrainian Soviet Socialist Republic for his offer related to an RNOOC for MARPOLMON.

236 Considerable progress has been achieved in the development of the IOC standard exchange format (GF-3). Standard subsets have been completed and deposited with the RNOOC-Formats (ICES, Copenhagen) for moored-current-meter data, mean-sea-level data, drifting-buoy data, and non-directional wave spectra. Guides on the use of GF-3 have been published in the IOC Manuals and Guides series. GF-3 has reached the stage where it can be widely used for the exchange of a variety of data types. An important effort has been made in the preparation of portable software



for GF-3 which will facilitate reading and writing GF-3 formatted tapes. This comprehensive progress could not be achieved without expertise provided by Canada and the British Marine Information and Advisory Service. The first issue of a Newsletter on Formats for Oceanography has been published by RNOOC-Formats and a popular brochure on GF-3 is in preparation.

Ten Task Teams worked during the intersessional period to meet specific requests for different types of oceanographic data and to deal with other matters related to IODE. The Chairman of the Working Committee on IODE referred to the progress in meeting the requirements of the Joint SCOR-IOC Committee on Climatic Changes and the Ocean (CCCCO) for ocean climate data; of the Working Committee for GIPME, for pollution data; of the programme of Ocean Science in Relation to Non-Living Resources (OSNLR), for geological data; and of the programme of Ocean Science in Relation to Living Resources (OSLR), for biological data; etc. Special emphasis has been put on the co-operation with the Joint IOC-WMO Working Committee for IGOS because of the great difficulties in the establishment of practical, operational data flow between IGOS and IODE data-management systems; the archiving procedures and RNOOC responsibilities for BATHY/TESAC data need to be reviewed and up-dated.

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The Executive Council expressed concern over the fact that a big volume of BATHY/TESAC data does not yet reach the RNOOC-IGOS, and instructed the Secretary to arrange a meeting of IGOS and IODE experts to study means of improving the functioning of the IGOS/IODE interface, particularly with respect to the provision of a complete service to the WCRP.

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The Executive Council emphasized the value of the guidance provided by the Working Committee to deal with new types of marine data. However, it stressed the need to be very careful in including and handling large-volume data sets, such as remotely sensed data.

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The Executive Council recommended that the Working Committee on IODE strengthen the links with international organizations having experience in the management of specialized oceanographic data, such as biological data (FAO), bathymetric data (IHO), non-living marine resources data (UN/OETB and regional programmes), and mineral data (ICES).

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The IOC Assistant Secretary, Dr. I. Oliounine, informed the Executive Council of the major findings of an inter-agency consultation held at UN Headquarters, immediately prior to the Eleventh Session of the Working Committee on IODE, in response to the recommendations of the IOC governing bodies. Representatives of more than ten international agencies participated. This meeting identified the principles of co-operation between international agencies which should be borne in mind in the conduct and further development of oceanographic data and information activities; these principles include, inter alia:

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- Collaboration in sharing information on plans for data activities, so as to avoid unnecessary duplication of effort and to make activities in data management complementary;
- Making maximum use of existing mechanisms for data exchange and archiving, such as the International Oceanographic Data Exchange system and the World Data Centre system;

- Assisting in informing governments of these mechanisms and advising governments of the advantages of providing data to these systems;
- Co-operation in ensuring effectiveness and comprehensiveness of international data referral services such as MEDI, INFOCLIMA, and the CODATA Directories;
- Promoting the better use of existing information systems such as ASFIS.

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The Executive Council noted with interest the outcome of the meeting and recommended that the practice of having inter-agency meetings on information and data management be continued, with at least one meeting being held during the intersessional period to discuss further development of co-operation in this field.

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The Executive Council noted with satisfaction the reference to the importance of improving co-operation between UNEP and IOC in data and information management contained in the Aide-memoire on Co-operation between IOC and UNEP. The Executive Council instructed the Secretary IOC to continue efforts in that direction.

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At its Fifteenth Session the Executive Council expressed its belief that the role of the Working Committee on IODE in information dissemination needs to be expanded and co-operation with other international organizations to be increased. The Chairman of the Working Committee on IODE reported on the numerous actions that have been undertaken during the last intersessional period in this respect. As a result of this, the Working Committee on IODE, in unifying its various activities in the field of marine information management and in aiming at a concentration and strengthening of its efforts, decided to disband its Task Team on IODE's Role in Marine Information Management (MIM). The Working Committee also recommended the disbandment of the Group of Experts on MEDI and the Joint IOC-FAO-UN(OETB) Panel of Experts on ASFIS, and the formation of a new Group of Experts on Marine Information Programmes.

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The Executive Council instructed the Secretary to consult with FAO and the UN(OETB) on the Working Committee's recommendation regarding the Joint Panel.

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The Chairman of the Working Committee informed the Council of the training activities in the framework of data and information management. The Working Committee continued to consider training of marine information and data specialists as one of the most important parts of the development of marine infrastructure in developing countries. To meet these needs, the Working Committee decided to establish a Task Team to deal with IODE training projects, and will make every effort to ensure that the membership of the Task Team will represent various geographical areas so that information on training needs of these areas can be defined and communicated to the Task Team Chairman, who is also the Vice-Chairman of the Working Committee. Training courses have been and will be arranged in France, Japan, UK and USA. Argentina and China have also offered to arrange training courses in data processing and preparation of products.

247

The Executive Council thanked the Delegates of Argentina and China for their generous offers to arrange training for experts from developing countries.

The Executive Council urged Member States to second Associate Experts to the IOC Secretariat to deal with marine information programmes.

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The Executive Council requested the Working Committee on IODE to develop a programme plan for marine information management.

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Recognizing that experience in the development of all similar information plans has shown that a consultant needs about one year to finalize the draft of a programme development plan, the Executive Council instructed the Secretary to engage a consultant to prepare this plan as it was outlined in Annex VI of the Summary Report of the Eleventh Session of the Working Committee on IODE. The Executive Council agreed that the funds for hiring a consultant should be sought from extrabudgetary sources.

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The Executive Council, receiving with appreciation the information from the Delegate of Canada that a contribution to the IOC Trust Fund has been agreed by the International Development Research Centre (IDRC), to cover the costs of engaging a consultant to prepare a Handbook on Marine Scientific and Technical Information, and the costs of publication, thanked the Government of Canada for this generous offer.

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The Executive Council also thanked the USA for having hosted the Fourth Session of the IODE Group of Experts on RNODCs, the USSR for a kind invitation to host the Fifth Session, and the UK for having hosted the Second Session of the IODE Group of Experts on Format Development.

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The Executive Council expressed its appreciation of the efforts, dedication and achievements of the Working Committee on IODE and its subsidiary bodies, and approved the Summary Report and Recommendations of the Eleventh Session.

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## 7. REGIONAL SUBSIDIARY BODIES AND REGIONAL CO-OPERATION

### 7.1 FOURTH SESSION OF THE PROGRAMME GROUP FOR THE SOUTHERN OCEANS (SOC)

The IOC Assistant Secretary, Dr. F. Robles, introduced this item. The Programme Group, at its Fourth Session (Paris, 7-11 March 1983), identified the following priority topics as the basis for an International Programme of Physical and Chemical Oceanographic Investigations in the Southern Oceans: interactions between the Southern Oceans and the subtropical gyres; air/sea/ice interactions in the energetic zones; the Antarctic Circumpolar Current and eddies in the Southern Oceans; subpolar gyres; sea level in the Southern Oceans; monitoring of the ocean climatic and seasonal variability; and Antarctic shelf-slope processes.

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The following types of activities were listed by the Programme Group as being particularly appropriate to an active role by the Commission: organization of a specific ship-of-opportunity programme; improvement of the network of sea-level measurements; promotion of satellite studies of the region; promotion of oceanographic data exchange and products for the SOC region; co-ordination of oceanographic investigations related to the dynamics of Antarctic marine ecosystems; and dissemination of information on SOC activities. These priority topics were mainly recommended by the SCOR Working Group 74 on General Circulation of the Southern Ocean. This SCOR Working Group is charged with identifying major gaps in knowledge of the general circulation of the area, bearing in mind its relevance to biology and climate, and to specify physical and

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chemical projects to investigate these problems. SCOR Working Group 74 will meet in Kiel, Federal Republic of Germany, 15-17 May 1984. To relate its findings effectively to investigations of the dynamics of Antarctic marine ecosystems, a meeting on this specific subject is being arranged jointly by IOC and SCOR for the two days (18-19 May) following the SCOR Working Group meeting.

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Regarding the promotion of data exchange and products for the SOC region, and following the recommendations of the Programme Group (Document IOC/SOC-IV/3), a SOC ad hoc Task Team on Data Management was convened during the Eleventh Session of the Working Committee on IODE (United Nations, New York, 10-18 January 1984). The Task Team's Interim Report is to be sent to the Chairman of the Programme Group for SOC, but was made available informally to the Working Committee on IODE. This Task Team evaluated, in a preliminary way, the need for RNODC(s) in the region, and terms of reference therefor; it agreed that any research programme will benefit from the services provided by one or more RNODC(s). The Task Team will now identify the data-management services and products needed to support physical and chemical oceanography programmes in the SOC region and will develop sample terms of reference for any RNODC-SOC.

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The IOC Assistant Secretary reminded the Council that the Working Committee on IODE had strongly recommended the Programme Group for SOC and its ad hoc Task Team on Data Management to complete their work prior to the next meeting of the Group of Experts on RNODCs, scheduled for the end of 1984.

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He also mentioned that, as part of the co-ordinated efforts of the Commission with other international bodies in the region, the Chairman of the Programme Group for SOC represented the IOC at the First Session of the Commission of the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR; Hobart, Australia 29 August - 9 September 1983), where collaboration with the IOC was encouraged. Recently, the Executive Secretary of the CCAMLR Commission has expressed a particular interest in IOC's addressing the subject of ecosystem management at the next meeting of the Scientific Committee of the CCAMLR Commission.

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As part of the renewal of its activities in this region, the IOC provided support to a SCAR Symposium on Antarctic Biology held in Bariloche, Argentina, in July 1983.

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Several Delegates expressed their approval of the content and Recommendations of the Summary Report of the Fourth Session of the Programme Group for the Southern Oceans and the work accomplished in the re-activation of this area of the Commission's work. They also emphasized the need to strengthen collaboration with SCOR and other relevant organizations, such as SCAR and CCALMR. Many called attention to the need to harmonize research in physical and chemical oceanography with ongoing programmes of biological research, such as BIOMASS.

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The Delegates of Argentina, Brazil, the Federal Republic of Germany, India and the USSR, detailed their ongoing research activities in the region, some of them being in the context of international programmes such as FIBEX and SIBEX (First and Second BIOMASS Experiments).

The Delegate of the Federal Republic of Germany referred in particular to the possibility of future attention being given to eventual OSLR/IREP and OSNLR components of the programme. He also called attention to the TEMA opportunities his country may be able to make available to developing countries, interested in the SOC programme, to train scientists, particularly through their participation in laboratory research teams and on-board research vessels.

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The Delegate of the United Kingdom, while agreeing with the research areas already mentioned, stated that air/sea/ice interaction in Antarctica in the context of the World Climate Research Programme, and base-line studies of marine pollution, were also important.

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The Delegate of Argentina restated his offer of an RNODC for handling physical and chemical data in the region; he said that his country hoped to be able to have, as soon as possible, the terms of reference to be prepared by the ad hoc Task Team on Data Management. The Delegate advocated collaboration rather than duplication in research undertaken by IOC and the CCAMLR Commission. He also expressed his country's interest in the biological aspects of the forthcoming meeting of SCOR Working Group 74 in Kiel.

264

The Chairman of the Working Committee on IGOSS informed the Council that specific requirements had been addressed to him by the Chairman of the Programme Group for SOC, and action had already been taken in relation to the feasibility of an improved ship-of-opportunity programme for the region, as well as requirements for an improved network of sea-level gauges for Antarctic islands and mainland. Requests dealing with extended satellite measurements in the SOC region will be addressed to the corresponding Sub-group of Experts of IGOSS.

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The Executive Council expressed its thanks to Dr. Dietrich Sahrhage (FRG) for his dynamic leadership of the revitalized Programme Group, and its satisfaction with the outcome of the meeting and the steps taken so far in the implementation of the agreed activities.

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The Executive Council accepted the Summary Report of the Fourth Session of the Programme Group for SOC.

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It instructed the Secretary to proceed further in strengthening the collaboration with organizations relevant to the SOC region, particularly with SCOR, SCAR and the CCAMLR Commission.

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## 7.2 THIRD SESSION OF THE PROGRAMME GROUP FOR THE WESTERN PACIFIC (WESTPAC)

The Chairman of the Programme Group for the Western Pacific (WESTPAC), Professor John S. Bunt, introduced this item. He referred particularly to the Summary Report of the Third Session (Document IOC/WESTPAC-III/3) and the Executive Summary thereof (Document IOC/EC-XVII/8 Add. 5). He stressed the appreciable effort that had been made by the Programme Group not only to determine its programme of work more precisely than hitherto but also the mechanisms for carrying it out.

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The Programme of ocean dynamics consists of two subregional studies; two Project Co-ordination Groups (acting as Task Teams) were charged with developing studies in the north-west Pacific and in the tropical Pacific.

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- 271 The WESTPAC Task Team on Coastal and Continental Shelf Oceanography was asked to develop its work further, in support of the ocean dynamics and marine pollution studies.
- 272 To support the IOC's global programme of Ocean Science in Relation to Living Resources (OSLR), the Programme Group created a WESTPAC Task Team on OSLR in the Western Pacific, to concentrate on studies of biological productivity in relation to coastal and oceanic processes. Dr. David Tranter (Australia) was appointed Chairman of the Task Team.
- 273 The Programme Group adopted a programme of marine geology and geophysics consisting of the study of sediments, environments and tectonics (SET), and of margins of active plates (MAP). It also recommended the creation of a Group of Experts on Marine Geology and Geophysics in the Western Pacific to develop and implement this programme, as elements of the programme of Ocean Science in Relation to Non-living Resources.
- 274 The Programme Group also considered the need for a bathymetric chart of the South Pacific, and decided to summarize first the on-going work in this field in the Western Pacific.
- 275 The Programme Group reviewed the intersessional work on marine pollution research and monitoring, particularly the outcome of the Training Workshop on the Use of Marine Organisms in Marine Pollution Monitoring, held in Queenscliff, Australia (20 August to 11 September 1983). This Workshop and the associated intercalibration exercise laid a basis for the development of a regional marine pollution monitoring network in the Western Pacific, in the framework of the IOC's Marine Pollution Monitoring Programme (MARPOLMON). To supervise this, the Programme Group created a new WESTPAC Task Team on Marine Pollution Research and Monitoring in the Western Pacific.
- 276 To improve the Programme Group's contribution to the development of IGOSS, a Task Team on the Implementation of IGOSS in the Western Pacific was formed.
- 277 Regarding International Oceanographic Data Exchange (IODE), special attention was given to the development of National Oceanographic Data Centres (NODCs) and to their relationship to the RNOOC for WESTPAC, and to the exchange of data between the data centres and the World Data Centres.
- 278 The Programme Group gave its firm support to the Unesco-IOC Comprehensive Plan for a Major Assistance Programme to Enhance the Marine Science Capabilities of Developing Countries.
- 279 The Secretary expressed his satisfaction with the excellent arrangements made by the Australian Government for the Third Session of the Programme Group, in Townsville. He noted the vigorous development of the Programme Group's activities, with attention being paid to the implementation of the regional programmes as components of IOC global programmes. He noted certain discrepancies between those identified in the nomenclature of the Programme Group's subsidiary bodies and those identified in the IOC Guidelines on the Structure and Responsibilities of Subsidiary Bodies, in this context. He referred to the Programme Group Chairman's concern about the limited regular programme budget, stressing the fact that it should be considered as catalytic funding to be

complemented by contributions to the IOC Funds-in-Trust, as, for example, the contributions of Japan, or by contributions in kind, as, for example, that made by Australia; moreover, negotiations to mobilize support from other sources were being initiated, and the budget assigned to IOC global programmes will be partly assigned to the WESTPAC region.

Many Delegates congratulated Prof. Bunt on his election as Chairman, and Dr. Piamsak Menasveta, as Vice-Chairman. They also expressed their appreciation of the work of the outgoing Chairman, Dr. Aprilani Soegiarto, and the Vice-Chairman, Dr. T. Hirano. There were numerous positive comments on the Summary Report, which was regarded as indicating a substantial step forward in the implementation of the Programme Group's decisions.

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A few Delegates expressed their concern with the low level of funding for the Programme Group's programme of work and one Delegate sought information on the support provided to the IOC Assistant Secretary for WESTPAC stationed in ROSTSEA, Jakarta, relative to the wide scope of the programme of work. He felt that a deeper analysis of funding requirements and the establishment of priorities still required attention. Another Delegate thought it important to keep in mind the vastness of the WESTPAC region and the many small States, particularly island States, wishing to exploit their marine resources but lacking the means to do so. In his opinion, it was important to inform them as to the possibilities for doing so within available resources.

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The Delegate of Japan recalled his country's longstanding support to the Programme Group through the hosting of its First Session and of four IOC workshops, through the provision of the services of the Japan Oceanographic Data Centre as the RNOOC for WESTPAC, and through an annual contribution of \$30,000 to the IOC Trust Fund, as well as numerous opportunities for training on board Japanese research vessels, and at the JODC. He informed the Council that, in 1984, the Hydrographic Department of Japan will offer study courses to marine scientists from the region, and the S.S. TAKUYO, of the Hydrographic Department, has space available on board for scientists from the region to work in the field of physical oceanography. The R.V. HAKUHO MARU, of the University of Tokyo, also has space available on board for other marine scientists from the WESTPAC region to undertake work in the fields of marine geology and geophysics, and marine biology.

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The Delegate of China offered opportunities for the exchange of scientists as a basis for developing future international co-operation, which, he believed, would facilitate co-ordination amongst the Member States.

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The Delegate of France informed the Council that her country was taking an active part in the study of Tropical Oceans and Global Atmosphere (TOGA), air/sea interaction studies, and biological oceanography, through research teams in New Caledonia and Polynesia; these teams are ready to co-operate with scientists from the region and their installations are open and available for use by scientists from developing countries in the region. French-Indonesian collaboration was an example.

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285 The Delegate of the Netherlands, recalling her country's marine science activities of yester-year in the region (SNELLIUS-I Expedition), informed the Council of plans for a new expedition (SNELLIUS-II) in the framework of which her Government was offering opportunities for training for young scientists from the region.

286 Responding to queries, the Secretary pointed out that the IOC Assistant Secretary for WESTPAC (Dr. J.R.E. Harger) was also the Unesco Marine Science Officer at the Regional Office of Science and Technology for South East Asia (ROSTSEA). As such, he had to deal with the IOC's and Unesco's programmes, not only those of the Division of Marine Sciences but also some aspects of MAB and IHP. In view of Dr. Harger's heavy workload, the IOC Secretariat in Paris provides considerable technical backstopping to the Programme Group, as was the case with other regional subsidiary bodies. The Secretary briefly reviewed again the possible sources of funding, existing or being sought, for the Programme Group's activities, and suggested that one answer was for the Programme Group to phase its activities carefully, with guidance from the Executive Council on this matter.

287 The Executive Council expressed its appreciation to the Member States that had contributed to the IOC Trust Fund, or had provided services, for the execution of the activities of WESTPAC.

288 It also expressed its satisfaction with the vigorous development of the Programme Group's work, and accepted the Summary Report of the Third Session.

289 The Executive Council approved the formation of the Group of Experts on Marine Geology and Geophysics in the Western Pacific.

290 The Executive Council noted the limited resources available for a wide-ranging programme of proposed work. It therefore urged Member States to consider seriously the means they could make available for the implementation of the programme of work (by offering training courses, ship time, contributions to the IOC Trust Fund, secondment of personnel to the IOC, by hosting meetings, and, not least, by the prompt nomination of representatives on Task Teams or of candidates for consideration as members of the Group of Experts on Marine Geology and Geophysics in the Western Pacific).

291 The Executive Council stressed the importance of WESTPAC's providing a mechanism for scientific co-operation for the small Pacific island states, in which their capacities in marine science and related ocean services could be considered with a view to assisting them in their efforts to build them up, and called on the Programme Group to give special attention to this matter.

7.2.1 Formation of a Joint CCOP(SOPAC)-IOC Working Group on South Pacific Marine Geoscience, Tectonics and Resources (STAR)

292 The Secretary introduced this item. He referred to Document IOC/EC-XVII/8 Annex 4 and briefly reviewed the sequence of events leading up to this proposal. He reminded the Council that the Programme Group had recommended IOC co-sponsorship once CCOP(SOPAC) had approved terms of reference, a programme of work and a budget. He pointed out that the CCOP(SOPAC) could offer secretariat support from its office in Suva, Fiji,



and that IOC could provide additional technical backstopping from Paris. To limit costs, it was intended to hold meetings of the proposed Joint Working Group at the same place and at the same time as the annual session of CCOP(SOPAC) itself.

The Acting Director of CCOP(SOPAC), Mr. Cruz Matos, recalled briefly the close collaboration between IOC and CCOP(SOPAC). He informed the Council that the member countries of CCOP(SOPAC), at the Twelfth Session of CCOP(SOPAC) in Tonga, in October 1983, had expressed their great appreciation of the support received from the IOC.

Several Delegates from the WESTPAC region, spoke on this issue. They supported the idea of forming such a Joint Working Group. However, the Delegate of Japan restated his proposal, made at the Third Session of the Programme Group and recorded in paragraph 107 of the Summary Report of that Session, to the effect that thought should be given to IOC's co-operating with CCOP(EA) and CCOP(SOPAC) through a single tri-partite joint working group, and that, in any case, STAR should operate within existing budget.

The Delegate of the USA, while approving the concept of a Joint CCOP(SOPAC)-IOC Working Group on STAR, informed the Council that his Delegation had only received Document IOC/EC-XVII/8 Annex 4 after their arrival in Paris, and he was obliged to get clearance from his Government before final commitment, based on a careful analysis of proposed costs, terms of reference and work plan. He suggested that the Council adopt the proposal, in principle, without prejudice to a first meeting of the Joint Working Group if the Secretary of IOC could find an extrabudgetary source of funds, and to recommend to the Assembly, at its Thirteenth Session, that it confirm the Council's decision once the review had been carried out. The other speakers signified their acceptance of this proposal.

The Executive Council thanked the Acting Director CCOP(SOPAC) for the constructive negotiations with the Secretary of IOC leading to the proposal for a CCOP(SOPAC)-IOC Joint Working Group, reflecting the interests of the two organizations.

The Executive Council decided to co-sponsor, in principle, the CCOP(SOPAC) Working Group on South Pacific Tectonics and Resources (STAR). It noted that possible work programmes for consideration by the Joint Working Group have already been proposed at the following Workshops or meetings:

- i) IOC-CCOP(SOPAC) Workshop on Geology, Mineral Resources and Geophysics of the South Pacific, Suva, Fiji, September 1985 (IOC Workshop Report No. 6);
- ii) IOC-CCOP(SOPAC) Second International Workshop on Geology, Mineral Resources and Geophysics of the South Pacific, Noumea, New Caledonia, October 1980 (IOC Workshop Report No. 27);
- iii) CCOP(SOPAC)-IOC-UNU Workshop on Basic Geo-Scientific Marine Research Required for Assessment of Minerals and Hydrocarbons of the South Pacific, Suva, Fiji, October 1983;
- iv) Third Session of the IOC Programme Group for the Western Pacific (WESTPAC), Townsville, Australia, September 1983.

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The Executive Council adopted Resolution EC-XVII.6.

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The Executive Council instructed the Secretary to report on joint IOC-CCOP(SOPAC) activities to the Thirteenth Session of the Assembly.



7.3 REGIONAL CO-OPERATION IN OCEAN SCIENCE IN THE CENTRAL EASTERN ATLANTIC (WEST AFRICA)

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Professor B.N. Akpati of Nigeria, who had chaired the IOC Workshop on Regional Co-operation in Marine Science in the Central Eastern Atlantic (Western Africa), which was held in Tenerife, Spain, from 12 to 17 December 1983, introduced this item. He pointed out that the Workshop was attended by participants from twelve African coastal countries, including two from non-IOC Member States (Guinea-Bissau and Liberia), who were sponsored by the Division of Marine Sciences of Unesco, and other scientists from IOC Member States with research interests in the central eastern Atlantic. He pointed out that he was speaking in his capacity as Chairman of the Workshop and on behalf of the western African Member States on the Executive Council (Angola, Senegal and Nigeria). Summarizing the Report of the Workshop, Prof. Akpati stressed that scientists from the region agreed on certain areas of co-operation in scientific research, and felt that there was an urgent need to establish a viable IOC subsidiary body for the future development of marine science in the region, as well as the related ocean services and training requirements. The Workshop identified the following activities as being of regional interest:

- (i) establishment of a network of coastal stations to monitor sea surface and subsurface temperatures, mean sea level and other meteorological and oceanographic data;
- (ii) study of the mechanism of upwelling in the Gulf of Guinea and other parts of western Africa and how it is related to various oceanic and atmospheric conditions;
- (iii) preparation of standard bathymetric charts for the region - regional standardization of bathymetric charts and establishment of an intercalibration system for the data;
- (iv) the implementation of recommendations of the IOC-FAO-WHO-UNEP Workshop on Marine Pollution in the Gulf of Guinea and Adjacent Areas (Abidjan, Ivory Coast, 2-9 May 1978);
- (v) encouragement of information flow between scientists and institutions in the region;
- (vi) sharing the use of research vessels.

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The Secretary explained that there was a very acute shortage of marine science infrastructure and trained personnel in all the African coastal states in eastern and western Africa, and that it was with the intention of redressing this weakness that Unesco, through its Division of Marine Sciences, and the Economic Commission for Africa (ECA) had approached UNDP for support for a project on the Development of Marine Science and Technology in Africa, which unfortunately was now beset with financial difficulties. The Workshop in Tenerife took into account previous work done in the region and came to the conclusion that there was a need to facilitate marine science co-operation and promote the related

training, education and mutual assistance so as to enhance the marine science capabilities of Member States of the region. He thanked the Spanish Government for its invaluable support, and France for having made Dr. H. Rotachi available to assist in the preparation of the Workshop.

Welcoming the Report and conclusions of the Workshop, several Delegates congratulated Prof. Akpati for his excellent presentation and conduct of the Workshop. They expressed overwhelming support for the proposed co-operative research projects in the region, as well as for the proposed establishment of an IOC regional mechanism for the promotion and co-ordination of research projects and related aspects. In addition to this, several Delegates offered to provide support to the developing countries of the region and to co-operate with them in the execution of the projects.

The Delegate of Senegal proposed that the above-mentioned mechanism should have the following priorities: (i) the implementation of projects with concrete socio-economic repercussions; (ii) the designing of a training programme for scientists from the Member States of the region; (iii) the promotion of the transfer of technology. He also requested the Secretary of IOC to organize, in a country of the region, the first session of the proposed IOC regional subsidiary body, with a view to sensitizing the Member States concerned.

The Delegate of Brazil offered to assist through the provision of courses and, possibly, ship time for the study of upwelling. He said he would hand details of the offer of courses to the pertinent delegations.

The Delegate of Spain offered the services of the oceanographic centre in Tenerife as a regional data centre for the central eastern Atlantic.

The Delegate of France expressed particular interest in supporting the preparation and production of a continental bathymetric chart of the central eastern Atlantic, as well as to carry out the necessary scientific investigations to fill the gaps in the present bathymetric data.

The Delegate of the USSR promised to communicate the proposals of his country later after further study of the recommendations of the Workshop.

The Delegate of the Federal Republic of Germany expressed interest in continuing its support for training activities, bilaterally and multilaterally.

The Delegate of Canada offered to assist in the development of information and document exchange systems in the region.

The Executive Council recommended that the Commission, with the collaboration of the Unesco Division of Marine Sciences and other concerned organizations, give more emphasis and support to the development of marine science infrastructures. The Executive Council decided that it was necessary to follow up the subsequent deployment of beneficiaries of training courses to ensure that the knowledge so acquired is put to useful service, and that the Working Committee for TEMA should consider this matter at its forthcoming session.

311           The Executive Council thanked the Spanish Government for having kindly hosted the Workshop in Tenerife and for its hospitality to the participants.

312           The Executive Council also thanked Prof. Akpati for his effective Chairmanship, as a key element in the success of the Workshop, and expressed its satisfaction with the results thereof. It recognized that there was still a long way to go to build up the marine scientific capabilities and capacity of the region, but believed that a start must be made now.

313           The Executive Council decided to establish a Programme Group for the Central Eastern Atlantic (IOCEA).

314           The Executive Council adopted Resolution EC-XVII.7.

7.4           FUTURE CO-OPERATIVE MARINE SCIENTIFIC RESEARCH ACTIVITIES IN THE RED SEA, THE NORTH-WESTERN INDIAN OCEAN AND ADJACENT REGIONS

315           The Second Vice-Chairman of IOC, Dr. Ahmed Al-Refai Bayoumi, introduced the item. After giving a brief review of the historical importance of the Mabahiss - John Murray Expedition, he drew the attention of the Council to the main objectives of the Mabahiss - John Murray International Symposium on the Marine Science of the North Western Indian Ocean and Adjacent Gulfs, held at the University of Alexandria, Egypt, 3-7 September 1983. He paid tribute to the Rector of the University of Alexandria, Prof. El Haddari, and to the Co-ordinators of the Symposium, Prof. S.K. El-Wakeel, of Egypt, and Dr. Martin V. Angel, of the United Kingdom, for their role in ensuring the success of the Symposium, and to the co-sponsors - the University of Alexandria, the Academy of Scientific Research, of Egypt, and the Royal Society and the Natural Environment Research Council of the United Kingdom, Unesco, IOC and FAO - for the support provided to this Symposium.

316           The IOC Assistant Secretary. Dr. S.M. Haq, introduced Document IOC/EC-XVII/8 Add.4 and described the salient features of the Symposium. He recalled IOC Resolution XI-19 through which the IOC agreed to co-sponsor the Symposium, and to use its outcome as a basis for the planning of future marine scientific activities of IOC in this region. The Workshop was attended by 100 participants representing 18 countries from within and outside the region. Thirty-two original scientific contributions on the north-western Indian Ocean, the Red Sea and adjacent gulfs were presented. The report of the Symposium will be published soon as a "Unesco Report in Marine Sciences", while the full proceedings, edited by Dr. M.V. Angel, will be published by Pergamon Press as a special issue of the Journal "Deep-Sea Research". The Assistant Secretary also paid tribute to the Unesco Division of Marine Sciences for its leading role in the organization of the Symposium.

317           Pursuant to IOC Resolution XII-17, the Symposium held a special Round-Table Discussion, chaired by Dr. Angel, the purpose of which was to identify gaps in marine scientific knowledge of the region and to recommend marine scientific research projects that could benefit from international co-operation. The discussions were based on the outcome of the previous sessions of the Symposium and a summary (Document IOC/INF-539) of the replies to a questionnaire sent by the Secretary of IOC to the invited speakers and some other experts. To facilitate discussions over such a broad range of disciplines, it was decided to divide up into five working groups on physical oceanography, biological oceanography and fisheries, geology and geophysics, chemistry and pollution and interdisciplinary studies.

The participants in the Round Table recognized that there is a great diversity of problems that require scientific research in the region and that many of the States could contribute not only to a better understanding of the oceanography but also to the application of knowledge to development and management. Implementation of most of the thirty-three proposals identified by the Round Table (listed in Document IOC/EC-XVII/8 Add.4) will depend eventually on the availability of requisite marine scientific infrastructure and related facilities, trained manpower and marine scientific research capabilities of institutions in the coastal and island States of the region. It was therefore decided to list promising proposals and to leave the question of priorities to be decided in the future in the appropriate fora, such as the proposed IOC Workshop on Marine Science Co-operation in the Central Indian Ocean, by the States and the scientific community involved in the co-operative programmes of IOC and other concerned organizations in the region.

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The Representative of FAO said his Organization was pleased to participate in the Symposium and with its outcome. FAO has been actively involved in fishery investigations in the Red Sea, the Gulf of Aden and the north-western Indian Ocean and suggested that another cruise of the R.V. FRIDTJOF NANSEN will be planned for this region.

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The Representative of the Red Sea and Gulf of Aden Environmental Programme (PERSGA) gave a brief account of PERSGA's role within ALECSO and the historical background of PERSGA, embodying Arab States in the Red Sea and Gulf of Aden Region, its activities and its future programme. The Representative also proposed co-operation with IOC, particularly in convening a joint meeting on the development of co-operative marine scientific activities in the Red Sea and Gulf of Aden, prior to the Workshop planned for IOCINDIO in 1985.

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The Delegate of Iraq drew the Council's attention to Document IOC/EC-XVII/Inf.5, outlining a draft proposal to study the chemistry of upwelling in the north-western Indian Ocean; this proposal had been submitted by the Marine Science Centre of Basrah (University of Basrah, Iraq) for IOC's consideration at the proposed IOCINDIO workshop. He indicated that the facilities of the Marine Science Centre, and its research vessel, would be made available for the implementation of such a programme in the region.

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The Delegate of France informed the Council that her country had launched, and will pursue, a major programme of research in the field of marine geology and geophysics, ocean climate and physical oceanography in the areas of the Red Sea and adjacent gulfs. France is willing to expand this programme in co-operation and agreement with the countries of the region. She announced that France would also be willing to consider the possibility of training scientists from the region in the marine sciences, in general, as well as in the use of instruments and other oceanographic equipment on board research vessels, by supporting experts to train scientists of the region in their own institutions and through the provision of assistance to train them in various French institutions, working through the IOC.

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The Delegate of the United Kingdom informed the Council of his country's pleasure in having been able to assist with the financial, scientific and administrative arrangements for the successful Symposium in Alexandria, mentioned above.

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The Delegate of the Federal Republic of Germany stated that his country has been active in the Red Sea area since the International Indian Ocean Expedition particularly in the fields of geoscience and biology. He said that research vessels of his country have been active in the area and that the new R.V. METEOR, when constructed, would undertake work in this region. He informed the Council that his country was involved in bilateral co-operation with Egypt, Sudan and Saudi Arabia in the fields of marine pollution, biology and geology, and would continue to provide assistance in the region.

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The Delegate of Egypt requested the Commission to ensure that the MARPOLMON programme covered the Red Sea. He emphasized the importance of monitoring special areas which should be assigned an order of priority within MARPOLMON. Referring to the influence of various factors on coral reefs in the southern and western parts of the Red Sea, the Delegate informed the Council that the Egyptian Government has recently issued a decree declaring Ras Mohamed a National Park, to conserve the coral reefs there.

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Some Delegates called for co-operation between IOC and ALECSO and for countries of the region to participate fully in future co-operative programmes.

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The Executive Council expressed its satisfaction with the success of the Symposium held in Alexandria and with the basis it had provided for developing future co-operation among the countries of the Red Sea, the north-western Indian Ocean and the adjacent gulfs.

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The Executive Council expressed its thanks to the Unesco Division of Marine Sciences for the support it had provided in the development of marine science infrastructure in the countries of the region.

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The Executive Council agreed that the Member States of the region, or active in marine research in the region, should participate in co-operative programmes of the IOC and those being conducted under the auspices of other international organizations in the region of the Red Sea and north-western Indian Ocean and adjacent gulfs.

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The Executive Council urged those Member States not hitherto involved in IOC activities to participate in the IOC regional programmes, instead of creating a new subsidiary body, as, for example, for the Red Sea and the Gulf of Aden. It suggested that the new IOC Programme Group for the Central Indian Ocean (IOCINDIO) should cover the areas of the northern Indian Ocean, adjacent seas and gulfs.

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The Executive Council called on Member States from the region, or from outside it, that plan to carry out research in the Red Sea, the Arabian Sea or adjacent gulfs to submit details of their programmes to the Secretary of IOC as soon as such details are known, and invited these countries to participate in the IOC Workshop on Marine Science Co-operation in the Central Indian Ocean, proposed to be held in Sri Lanka in 1985, to co-ordinate their national programmes with the IOCINDIO programmes to be developed at this Workshop.

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The Executive Council expressed its appreciation to the Delegates of France, the Federal Republic of Germany and the U.K. for their willingness to assist, through TEMA or bilateral arrangements, the co-operative programmes in the region.

The Executive Council called on the IOC subsidiary bodies in this region to co-operate with other regional organizations in the area, particularly ROPME and PERSEA, and it urged the Programme Groups for the Co-operative Investigations in the North and Central Western Indian Ocean (IOCINCWIO) and for the Central Indian Ocean (IOCINDIO) to assess the problems facing the countries of their respective regions with respect to marine sciences and services, and to pay particular attention to building national capabilities to enhance the Member States' participation in IOC programmes in the Indian Ocean, and adjacent seas (particularly the Red Sea) and gulfs. In particular, the Executive Council endorsed the recommendations made by the Delegates of Member States of the region to promote the necessary support and co-ordination, at the international level, to ensure the effective implementation of marine pollution monitoring in the Red Sea and particularly to develop: (i) mapping of the Red Sea and the gulfs; (ii) the monitoring of oil pollution; (iii) marine scientific research in the fields of geology and mineral resources; and (iv) the scientific basis required for the exploration of living and non-living resources.

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The Executive Council instructed the Secretary to submit the scientific proposals identified by the Round Table organized as part of the Mahabiss-John Murray International Symposium, as well as those of the Joint SCOR-IOC Committee on Climatic Changes and the Ocean through its Indian Ocean Panel, to the scientific Workshop proposed to be held in Sri Lanka in early 1985 to develop a proposal for a work programme for the Programme Group for IOCINDIO, with a view to identifying programmes of particular interest to the Member States concerned, to indicate priorities, taking into consideration the regional setting, the countries interested and the resources required.

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#### 7.5 CO-OPERATION AND JOINT ACTIVITIES WITH THE COMISION PERMANENTE DEL PACIFICO SUR

The IOC Assistant Secretary, Dr.F. Robles, introduced this item. He referred particularly to the Summary Report and Recommendations of the Third Session of the Joint IOC-WMO-CPPS Working Group on the Investigations of "El Niño" (Cali, Colombia, 21-25 February 1983) (Document IOC-WMO-CPPS/El Niño-III/3), supplementing this review with information on on-going and planned co-operative activities between IOC and CPPS. The Session held in Cali was highly successful and in some ways historic, since it was the first time that an extensive international exchange of data and information on the meteorological, oceanographic and biological effects of an ongoing El Niño took place within a few weeks of the time the data were acquired. The CPPS was able to mobilize seven research vessels during the most critical periods of the 1982-83 event. The Session was preceded by the Third Meeting of the CPPS Scientific Committee of ERFEN. The CPPS, IOC and WMO have funded the participation of regional scientists in this Committee since 1977. The Assistant Secretary then reviewed the follow-up of the four Recommendations of the Session.

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The proposal submitted to UNDP for a project on Training, Education, Research and Monitoring in Relation to the El Niño Phenomenon in the Southeast Pacific was thoroughly reviewed by the ERFEN Scientific Committee and approved through Resolution 12 of the Sixteenth Ordinary Session of the CPPS. In January 1983, the proposal was submitted by IOC to UNDP as one of the top-priority Unesco projects in the Latin American region. Owing to severe economic constraints, UNDP was unable to fund the project at the requested level. Instead, a preparatory assistance project is under negotiation as means of implementing the most urgent

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components, with a view to subsequent funding of the full-scale project by UNDP and/or other sources. Proposals to cover the initial phase of the project have been also submitted by Unesco/IOC to the Italo-Latin-American Institute and the Department of Technical Co-operation of the Ministry of Foreign Affairs of Italy.

337 Under the IOC TEMA programme, six short-term fellowships for data-management training were awarded to individuals from ERFEN institutions, and support was provided for the attendance of three ERFEN scientists at the El Niño Rapid-Response Planning Meeting, held in Miami, in September 1982.

338 Three scientists from the CPPS region attended the Halifax Workshop on IREP with the support of IOC, FAO and the German-Peruvian Co-operative Programme (PROCOPA). They played an active role in developing the Sardine-Anchovy Recruitment Programme (SARP) proposal for the eastern Pacific to be considered by the OSLR Guiding Group of Experts. A course on methods of estimating the spawning biomass and egg production of some pelagic fishes is being organized in the region jointly by IOC and PROCOPA for 1985.

339 Similarly, the Joint IOC-WMO-CPPS Working Group considered a number of activities co-ordinated with the TOGA Study, particularly its Pacific component, being developed by the Joint SCOR-IOC Committee on Climatic Changes and the Ocean.

340 The Working Group examined the needs for data processing and exchange in the CPPS region with a view to establishing an RNO DC and/or a specialized system of RNO DCs for the El Niño investigations. The necessary studies will be done by a joint IODE-IGOSS-CPPS mission to be implemented in the first half of 1984.

341 The Assistant Secretary also informed the Council that the IOC had co-sponsored and presented a technical paper to a Regional Workshop on El Niño 1982-83, held in Guayaquil, Ecuador, 12-16 December 1983 and organized by the CPPS. An IOC Consultant will help the CPPS Secretariat in Quito to formulate the CPPS-UNEP Action Plan for the Southeast Pacific region. Taking into consideration the forthcoming International Scientific Conference on TOGA (Paris, 17-22 September 1984), and the fact that the Fourth Meeting of the Scientific Committee of ERFEN will be held in Lima, Peru (28-30 May 1984), in conjunction with a Seminar on the El Niño Phenomenon, organized by the National Commission of Sciences and Technology of Peru (CONCYTEC) (4-8 June, 1984), the Chairman of the Joint Working Group has proposed to advance its Fourth Session to 31 May - 2 June 1983. This is mainly to review, in several regional fora, the aspects of the Joint Working Group's activities related to the International Scientific Conference on TOGA.

342 The Representative of CPPS, Ambassador J.M. Bákula, made an extensive review of the present state of the regional research efforts on the El Niño phenomenon, the proposal presented to the UNDP and the international collaboration needed to proceed further with this initiative. He emphasized that, thanks to the tenacious actions of IOC and CPPS, these investigations are now showing solid accomplishments. Recalling the catastrophic consequences of the 82-83 event and their world-wide implications, he emphasized that this is more than ever not only a scientific problem but also one that concerns world public opinion, and now there are millions of persons who are asking themselves what the international organizations are doing about it. The character of those



investigations is certainly very complex and peculiar and demands an extraordinary effort of co-operation at the regional and the international levels, which should be extended to areas related to marine affairs policy and management. The Representative of the CPPS noted with regret that the delay in adequate funding of the IOC-CPPS proposal on Training, Education, Research and Monitoring in Relation to the Phenomenon of El Niño in the Southeast Pacific, was concomitant with the disastrous human and economical consequences of the 82-83 El Niño event. He called attention to the extraordinary and concerted effort made by Colombia, Chile, Ecuador and Peru during the last event which, only in terms of monitoring by research vessels, amounted to two million dollars. For the collaboration received in these investigations and related problems, he particularly thanked the IOC and WMO, as well as FAO and WHO. He also thanked the USA, France, the USSR, the Federal Republic of Germany, Japan and Spain for the permanent interest and help they had shown. Regarding alternative sources of funding for the project, he particularly appreciated the present possibilities being offered by Italy. He informed the Council that the Second Meeting of Ministers of Foreign Affairs of the CPPS countries (Viña del Mar, Chile, 9-11 February 1984) will consider El Niño investigations and noted that the conclusions of the Executive Council on this subject would be transmitted to that meeting. Finally, taking into consideration the international and regional interests involved, he insisted on the importance of El Niño investigations being funded through the existing international mechanisms represented by the IOC and the CPPS, rather than eventual bilateral arrangements between the countries concerned.

The Chairman informed the Council that a Memorandum of Understanding is being negotiated by both organizations and that the next session of the Executive Council will be informed of developments. The Memorandum will recognize the role of the CPPS as the appropriate regional maritime body for the southeast Pacific.

Several Delegates expressed their satisfaction with the exemplary collaboration developed between the IOC and the CPPS. They also expressed their approval of the Summary Report and Recommendations of the Third Session of the Joint IOC-WMO-CPPS Working Group on the Investigations of El Niño, and their support for the project proposal submitted to the UNDP.

Various Delegates supported the idea of a link between relevant activities of the Joint Working Group and ERFEN and those of a global character planned by the Joint SCOR-IOC Committee on Climatic Changes and the Ocean, particularly TOGA. They emphasized that this collaboration should be placed in an intergovernmental framework.

The Delegate of Italy confirmed the interest of his country in supporting the investigations on El Niño.

The Representative of the Federal Republic of Germany confirmed the present involvement of his country in co-operative marine biological studies in Peru, Ecuador and Chile, stressing their potential importance to OSLR/IREP collaborative regional research.

The Delegate of the USSR, while endorsing the importance of the El Niño investigations and the recommendations of the Joint Working Group, called the attention of the Council to visa problems that had prevented the USSR Delegate from attending the Session held in Cali.

The Executive Council approved the Summary Report and the four Recommendations of the Third Session of the Joint IOC-WMO-CPPS Working Group on the Investigations of El Niño.

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350        It thanked the Government of Colombia for the local facilities and hospitality provided for that Session.

351        The Executive Council expressed its appreciation to the Representative of the CPPS and the Secretariat for the excellent presentation given to the Council and the appropriate follow-up of the Recommendations of the Working Group. It also expressed its thanks to the Government of Italy for its interest in studying alternative ways of funding the project proposal on Training, Education, Research and Monitoring in Relation to the Phenomenon of "El Niño" in the South-east Pacific.

352        The Executive Council urged Member States of the Commission to seek, through their UNDP representatives, a rapid approval and integral funding for the El Niño project proposal, as well as to consider alternative ways of funding the project.

353        It instructed the Secretary to convey its support for the El Niño investigations to the Second Meeting of Ministers of Foreign Affairs of the CPPS countries, to be held in Viña del Mar, 9-11 February 1984.

#### 8.        CO-OPERATION WITH UN ORGANIZATIONS AND OTHERS

##### 8.1       TWENTY-SECOND SESSION OF THE INTER-SECRETARIAT COMMITTEE ON SCIENTIFIC PROGRAMMES RELATING TO OCEANOGRAPHY

354        The Chairman introduced this item. He noted that the conclusions of the Twenty-Second Session of the Inter-secretariat Committee on Scientific Programmes Relating to Oceanography (Document IOC/INF-561) provide useful guidance to the Member Organizations on future collaboration on selected topics of common interest where the Commission, as a joint specialized mechanism, could assist in implementation. The discussions centred on information management, updating of LEPOR and the furthering of regional co-operation in marine scientific research and related aspects. He reported that, during the Session, he had drawn attention to the fact that the Commission, as stated in para. 395 of the Summary Report of the Twelfth Session of the IOC Assembly, attaches the greatest importance to an active and effective ICSPRO, particularly with regard to its role in the development of co-operation amongst the Organizations Members of ICSPRO and to their use of the Commission as a joint specialized mechanism. He was pleased to note that the Inter-secretariat Committee recognized that such an approach contributes to the mutual strengthening of common aspects of the work of IOC and of the participating Organizations and thus to the optimization of the ways and means available to them for the implementation of their respective programmes.

355        The Secretary elaborated further on certain aspects of the Summary Report, in particular the endorsement of the Unesco-IOC Comprehensive Plan for a Major Assistance Programme to Enhance the Marine Science Capabilities of Developing Countries, the joint development of Marine Science Country Profiles, and the planned analysis of the types of action that could lead to more concerted action at the regional level. Also, on behalf of the Commission, he expressed appreciation of the close co-operation between IOC and the Organizations Members of ICSPRO and of the excellent support they provided IOC through secondment of staff (by FAO, WMO and IMO), and/or hosting of meetings and joint sponsorship of programmes (e.g., UN(OETB)).

The Representative of the United Nations drew attention to the fact that, at the present time, ICSPRO offers the only institutionalized forum within the UN System for regular inter-agency co-ordination of marine affairs. He endorsed the view of the Chairman that the Twenty-second Session of ICSPRO had been most fruitful in strengthening this co-ordination which, during the present period of budgetary restrictions, was a particularly essential element in assisting the Members in making the best use of available resources. He also reminded the Council that, once the UN Convention on the Law of the Sea entered into force, a number of new opportunities and responsibilities would no doubt emerge for IOC and ICSPRO as well. In conclusion, he informed the Council of his Organization's interest in contributing to the proposed Marine Science Country Profiles which would be a valuable source of information for Member States as well as for the UN System as a whole.

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The Executive Council took note of the Summary Report of the Twenty-second Session of ICSPRO, and approved of the positive steps that were being taken to reinforce the role of the IOC as a joint specialized mechanism within the UN system, in concert with the general evolution of the Commission, and to consolidate and strengthen its programme.

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The Executive Council thanked FAO for having kindly hosted the Twenty-second Session of ICSPRO, and for the excellent facilities provided.

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8.1.1 Plans and Arrangements for Updating the Long-term and Expanded Programme of Oceanic Exploration and Research (LEPOR)

The IOC Assistant Secretary, Mrs. Natalie Philippon-Tulloch, provided additional information on plans to update the Long-term and Expanded Programme of Oceanic Exploration and Research (LEPOR), and informed the Council that, owing to budgetary restrictions, the activities envisaged by ICSPRO at its Twenty-second Session had been somewhat delayed. The circulation to Member Organizations of the report on Ocean Science for the Year 2000 and receipt of their comments would be completed by June 1984. A consolidated document, including proposals for the convening of an inter-agency expert group, will be presented to the Twenty-third Session of the Committee (September 1984) and forwarded to the Thirteenth Session of the Assembly.

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Several Delegates recalled the impetus that had been given to the IOC programme by the Commission's formulation of LEPOR and its subsequent endorsement by the UN General Assembly. Mention was made of the responsibility of IOC to co-ordinate the implementation of LEPOR and to ensure its periodic updating. Attention was drawn to the fact that the signing of the UN Convention on the Law of the Sea and the emergence of a new ocean regime offered an appropriate opportunity to the Commission to review LEPOR within the general context of the report on Ocean Science for the Year 2000. Noting that this report, like LEPOR, had been elaborated by scientists from all the major marine scientific disciplines, some Delegates emphasized the value of developing a more operational approach which should be directly related to the future programmes of the Commission as well as to those of the concerned UN organizations and the marine scientific community as a whole.

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The Delegate of Mexico pointed out the importance of updating LEPOR on the basis of the report on Ocean Science for the Year 2000, but believed that it was very important to include the coastal zone which is particularly important for developing countries, especially in the light of the UN Convention on the Law of the Sea and the new ocean regime.

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362 In response to a general query regarding the use that the Commission could make of an updated LEPOR, the Secretary pointed out that the exercise, beyond its obvious scientific and programmatic benefits, would serve to reaffirm the central role of IOC within the UN System, in the field of marine science, ocean services and related training, education and mutual assistance, at a time when developments related to implementation of the UN Convention on the Law of the Sea were evolving very rapidly.

363  The Executive Council took note of the revised plans to update LEPOR in close collaboration with the Organizations Members of ICSPRO and instructed the Secretary to report to the Thirteenth Session of the Assembly, following consideration by ICSPRO, at its Twenty-third Session.

8.2 MEMORANDUM OF UNDERSTANDING BETWEEN SCOR AND IOC ON THE JOINT SCOR-IOC COMMITTEE ON CLIMATIC CHANGES AND THE OCEAN (CCCCO)

364 The Representative of SCOR, Dr. T. Wolff, presented the Memorandum of Understanding which had been signed by the Chairman of IOC and the President of SCOR. Dr. Wolff indicated SCOR's general satisfaction with the Memorandum and expressed the hope that the Council would endorse it as well.

365 The Secretary of IOC indicated that IOC also shared SCOR's satisfaction and referred to the Memorandum as an honest agreement which ensured the independence of the scientific community while forming the basis for intergovernmental participation and support. He stressed the Commission's great appreciation of the co-operative efforts of ICSU, Unesco and SCOR in developing the Memorandum.

366 Several Delegates suggested that several items were perhaps open to varying interpretation and requested some clarifications.

367 The Chairman informed the Council that the Chairman of SCOR had, in fact, informed him of SCOR's interpretation of two items, as follows:

- Paragraph 2.3(i): the text does not inhibit annual meetings of the CCCC. Meetings, however, shall be held at the Headquarters of IOC or ICSU, alternatively, every two years.
- Paragraph 2.4(i): authorization for CCCC to form subsidiary groups is continued when the Memorandum has been signed.

368 The Delegate of the USA stated that he was impressed and concerned by the manner in which the Memorandum has been handled, since it had already been signed by the Chairman of IOC and the President of SCOR. He asked that his interpretation of several points in the Memorandum be included in the Summary Report of the Session. He first expressed his appreciation of the fact that the Memorandum reflects the high priority that the Secretary and the Officers of IOC attach to this programme. The USA therefore looks forward to additional staff resources being made available for secretariat support to the Joint SCOR-IOC Committee. The USA considers that the CCCC Secretariat must be primarily responsible to the Joint Committee and its Chairman on all issues within the purview of the Joint Committee, including its interaction with other relevant bodies. The Delegate of the USA called upon the Council to put on record its recognition of the co-operation of the World Meteorological Organization and the Joint ICSU-WMO Scientific Committee in the management and supervision of specific components of the World Climate Research Programme.

Regarding the provision in the Memorandum concerning the frequency of the meetings of the Joint Committee, the Delegate of the USA urged the Council to view the reference to meeting every two years as the maximum interval rather than a rigid requirement. He also called on the Commission to play a positive and active role, rather than a passive one, in dealing with agreements and major interaction with organizations co-operating with the Commission in the oceanographic component of the World Climate Research Programme (WCRP-O).

369

The Executive Council endorsed the Memorandum of Understanding between the Scientific Committee on Oceanic Research (SCOR) and the Intergovernmental Oceanographic Commission, and expressed its great appreciation to SCOR for the constructive manner in which SCOR had assisted in the preparation of the Memorandum.

370

The Executive Council looked forward to active co-operation between the Commission and SCOR in the conduct of the oceanographic component of the WCRP.

371

The Executive Council also expressed its appreciation of the work undertaken by the World Meteorological Organization and the ICSU-WMO Joint Scientific Committee in the management and supervision of specific components of WCRP.

372

### 8.3 CO-OPERATION WITH UNEP IN MARINE POLLUTION RESEARCH AND MONITORING

The Chairman introduced this item. He noted that many Delegates had already commented on this topic during the discussions on Agenda Item 5.4.

373

The Secretary reported on the co-operation between IOC and UNEP in marine pollution research and monitoring and drew the Council's attention to the Aide-memoire recently signed by the Director of the Regional Seas Programme of UNEP and the Secretary of IOC, following the meeting in Geneva, 16-17 January 1984 (see Section 3, above). The purpose of the meeting was to review on-going co-operation and possible steps aimed at developing it further, pursuant to IOC Resolution XII-20, and Decision 11/7 Pt.4 of the Governing Council of UNEP. The negotiations resulted in the following decisions, among others, which are embodied in the Aide-memoire.

374

- IOC and UNEP will work jointly in the development of MARPOLMON as the ocean chemistry component of the Global Environment Monitoring System (GEMS);
- IOC and UNEP will jointly co-sponsor the GIPME Group of Experts on Methods, Standards and Intercalibration (GEMSI);
- IOC and UNEP will co-sponsor a "mussel watch" as a joint inter-regional activity through the regional components of the UNEP Regional Seas Programme and IOC's Marine Pollution Monitoring System (MARPOLMON).

The Executive Council was also informed that the IOC and the UNEP Regional Seas Programme have been collaborating specifically in the following activities:

375

(i) in connection with global pollution monitoring, a First Symposium on Integrated Global Ocean Monitoring was held in Tallin (USSR) with the support of IOC, UNEP, FAO and WMO; (ii) a Seminar on Biological Monitoring Using Bivalve Molluscs (Mussel Watch II) was held in Honolulu (USA), from 7 to 11 November 1983, with the support of IOC and UNEP; (iii) during 1983, IOC acted as executing agency for specific projects within the following Regional Sea Action Plan Programmes - Co-ordinated Mediterranean Pollution Monitoring and Research Programme (MEDPOL), Monitoring of Pollution in the Marine Environment of West and Central African Region (WACAF) and Kuwait Action Plan (KAP), and contributed in various ways to the Regional Sea Programmes for the East Asian Seas and the South East Pacific; (iv) within GESAMP, a continuous collaboration occurs between the sponsoring UN agencies (IMO, FAO, Unesco, WMO, WHO, IAEA, UN, UNEP) with specific involvement of IOC/Unesco, as lead agency, in the GESAMP Working Groups on the Health of the Oceans and on Riverine Input to Ocean Systems, with UNEP financial support.

376 The Director of the Regional Seas Programme Activity Centre of UNEP, Dr. Stjepan Keckes, said he had little to add to what the Secretary of IOC, the Chairman of the Working Committee for GIPME, Dr. Gruzinov, and Dr. Andersen, the IOC Consultant, had said when reviewing the marine-pollution activities of IOC (Agenda Item 5.4) and co-operation with UNEP. He appreciated their fair recognition of the role played by UNEP in this co-operation and emphasized that the Aide-memoire signed after the aforementioned meeting in Geneva formalized a co-operation which had existed since UNEP had been created. The Aide-memoire clearly recognizes the desirability of strengthening co-operation between IOC and UNEP, taking into account the programmes approved by the governing bodies of the two organizations. This co-operation will be achieved through joint projects which will be implemented as part of MARPOLMON and of the Regional Seas Programme of UNEP.

377 The agreement to strengthen co-operation in the development, testing and intercalibration of analytical techniques which are of mutual interests to UNEP(RSP) and IOC(MARPOLMON) is of particular importance, since it will ensure full global comparability of data obtained through these programmes. It is hoped that GEMSI will play a major role in achieving this goal and therefore UNEP is happy to co-sponsor GEMSI's activities.

378 The Director of the UNEP Regional Seas Programme Activity Centre said that UNEP still has problems in seeing clearly the role of the IOC's Global Investigation of Pollution in the Marine Environment in UNEP's Regional Seas Programme. The regional approach was and remains the cornerstone of UNEP policy in this field. The problems are primarily in coastal waters, they differ from region to region and, therefore, he believed that they should be solved on a regional basis. Also, the strategy and priorities of the eleven UNEP regional programmes were determined and financed by the users or "customers".

379 The legal and budgetary structure within which the Regional Seas Programmes operates make it relatively easy to co-operate in specific, well-defined activities pursued through GEMSI and MARPOLMON. He hoped that this co-operation would lead to better understanding of what GIPME could and should do, keeping particularly in mind the work carried out through GESAMP.

380 For the time being UNEP considered GESAMP, which is sponsored by eight UN organizations, as the most appropriate interagency body for advice on, and review of, all matters related to the scientific aspects of marine pollution.

Dr. Keckes expressed the hope that the Executive Council shared his view that there is good will in the Secretariats of IOC and UNEP to co-operate on programmes of mutual interest. The recently signed Aide-memoire is a formal expression of this good will. Nevertheless, we should recognize that problems may arise from the different geographic coverage of the IOC regional subsidiary bodies and of UNEP's regional structures, as well as from their respective mandates.

381

The Delegate of Peru and Representative of CPPS, on behalf of the four CPPS Member Countries, commended the formalization of co-operation between UNEP and IOC embodied in the Aide-memoire and referred to the particular value CPPS attached to this co-operation in the light of the development of an Action Plan for his region and the desirability of permanent IOC backstopping in the programme.

382

The Executive Council welcomed the Aide-memoire on co-operation between the IOC and UNEP, and called on Member States to make increased efforts to ensure co-ordination between the IOC and UNEP constituencies at the national level.

383

The Executive Council instructed the Secretary to keep the UNEP Governing Council informed of IOC's activities in marine pollution research and monitoring, to pursue the implementation of the objectives of the IOC-UNEP Aide-memoire, with a view to making GIPME and MARPOLMON joint IOC-UNEP programmes, as called for by Resolutions EC-XV.3 and XII-20, and to keep the Executive Council informed of developments, including new initiatives for IOC-UNEP co-operation.

384

#### 8.4 MEMORANDUM OF UNDERSTANDING WITH THE INTERNATIONAL COMMISSION FOR SCIENTIFIC EXPLORATION OF THE MEDITERRANEAN SEA (ICSEM)

The Secretary introduced this item. He informed the Council that, although the negotiation of the Memorandum of Understanding had been completed, the Secretary-General of ICSEM had still to sign it; he was expected to attend the Council, in which case the signed Memorandum would be circulated to participants. Meanwhile, co-operation with ICSEM had continued. The IOC had co-sponsored the ICSEM-UNEP-IOC Journée d'études sur la pollution en Méditerranée.

385

He also recalled the work of the IBCM Disciplinary Group on Overlay Sheets in Geology and Geophysics, as part of IOC activities in the Region. The Group had held its Fourth Session in Paris, from 14 to 16 December 1983, and will meet at the time of the next session of the ICSEM Assembly in Lucerne in October 1984, at which time some of the overlay sheets, now nearing completion, will be displayed. Dr. Yuri Ionov, who is seconded by the USSR to the ICSEM-IOC Operational Unit, has acted as a Technical Secretary for IBCM. Negotiations between the Secretary of IOC and the USSR authorities are proceeding with a view to formalizing Dr. Ionov's status as a seconded IOC staff member.

386

Various Delegates from the region, and one Observer, of Member States active in ICSEM, welcomed the co-operation between the two organizations and the Memorandum of Understanding designed to formalize that co-operation.

387

The Delegate of Spain informed the Council of the ICSEM decision to promote a regional study of the continental margin and suggested that the IOC join efforts with ICSEM so as to determine the required resources available to both organizations.


388


389 The Delegate of France stressed the limited means available to ICSEM, and asked the IOC to keep this in mind in carrying out IOC-ICSEM activities.

390 The Observer from Greece, stressing his country's support for IOC-ICSEM co-operation, informed the Executive Council that, at the last meeting of the Bureau of ICSEM (18-21 January 1984), the Bureau had adopted a Greek proposal on procedures governing marine scientific research, whereby such research in the exclusive economic zone and on the continental shelf has to be planned and conducted with the consent of the coastal state. He thought that this should be taken into account in IOC-ICSEM co-operation.

391 The Delegate of Turkey indicated that this was a legal matter with political implications which should be settled or discussed in a forum other than Unesco or IOC, and which, in his view, was not relevant to the Agenda Item under discussion.

392 The Chairman, emphasizing the scientific and technical nature of the Commission, ruled out discussion on this subject.

393  The Executive Council welcomed the efforts of the Secretary to develop co-operation with ICSEM and instructed the Secretary to submit the IOC-ICSEM Memorandum of Understanding, when signed, to the Thirteenth Session of the Assembly, for information.

394  It also instructed the Secretary to continue to make efforts to improve the ICSEM-IOC Operational Unit for the Mediterranean and to identify possible future joint activities between the two organizations.

#### 8.5 MEMORANDUM OF UNDERSTANDING WITH THE INTERNATIONAL HYDROGRAPHIC ORGANIZATION (IHO)

395 The Secretary introduced this item. He informed the Council of the ease of the negotiations he had had with the Directors of the International Hydrographic Bureau, and the active role played by Vice-Admiral Amaral Affonso; this he believed was due, in large measure, to Admiral Affonso's long and active participation in IOC affairs in various capacities. Also, IOC's collaboration with IHO in GEBCO provided a solid link. The Memorandum of Understanding codifies present co-operation as well as providing a basis for the future development of such co-operation.

396 The Representative of IHO, Vice-Admiral Orlando Amaral Affonso, pointed out the fact that the Memorandum of Understanding was a more complete document than the two Letters of Agreement that preceded it. It called for the exchange, between both organizations, of information on plans and activities in fields of mutual interest, representation at each other's meetings, co-operation between subsidiary bodies of each organization, as appropriate, and co-operation in technical assistance projects, as appropriate. IHO was, he said, pleased with the negotiations and the outcome.

397 The Chairman suggested that the members of the Council were well aware of the contents of the Memorandum of Understanding, which had already been signed by the Secretary of IOC and the President of the IHO Directing Committee, and that its endorsement should not require debate.

398  The Executive Council endorsed the Memorandum of Understanding between IOC and IHO.



9. CELEBRATION OF THE TWENTY-FIFTH ANNIVERSARY OF THE COMMISSION,  
AND TOPICS FOR THE ANTON BRUUN MEMORIAL LECTURES

The Secretary introduced this item. Referring to the suggestions contained in Document IOC/EC-XVII/8 Annex 8 (Celebration of the 25th Anniversary of the IOC), he emphasized the importance of ensuring that all Member States could participate if they so desire.

399

The Executive Council considered a wide spectrum of activities that would give an opportunity to Member States to review the achievements of IOC and to demonstrate the importance they attach to the work of the Commission.

400

The Executive Council strongly encouraged Member States and the Organizations Members of ICSPRO to issue commemorative stamps, because of their value in increasing public awareness of the IOC and in view of the fact that all Member States could participate in this activity, if they so wished. It noted that, since many national postal authorities have already prepared, or will soon be preparing, the themes for 1985 stamps, it would be necessary to inform Member States and the Organizations Members of ICSPRO on this matter, as soon as possible. Depending on the success of this endeavour, a compilation of such stamps might be published in connection with the 25th Anniversary celebrations.

401

The Executive Council recommended activities that would have a long-lasting impact, and proposed the creation of an IOC fellowship. It decided to invite Member States to establish IOC Research Fellowships at national expense for scientists from developing countries. The fellowship(s) should preferably be linked to an IOC regional science programme, based on the interests of the donor State. Each fellowship should be granted for a minimum of nine months so as to provide the research fellow with the opportunity of carrying out a substantial research project in a scientific institution of the donor country. The donor country should provide all necessary funds and technical means needed for covering costs of transportation and subsistence of the research fellow and for the implementation of the research project. The research fellow should be prepared to present a lecture on the research project at the IOC Assembly or at regional conferences of the Commission.

402

The Executive Council instructed the Secretary to announce the fellowship(s) in due course and undertake the selection of candidates in co-operation with the appropriate regional body and in consultation with the donor Member State. It also instructed the Secretary to elaborate details of the IOC Research Fellowship Programme in consultation with the Chairman of the Working Committee for TEMA. He should make an outline of the proposed fellowship scheme available at the Fourth Session of the Working Committee for Training, Education and Mutual Assistance in the Marine Sciences (TEMA), June 1984, Lisbon, and afterwards submit it to Member States. In preparing the outline, the Secretary should also take into account possible ways of identifying financial resources for an enlarged fellowship programme, including special contributions to the IOC Trust Fund, links with bilateral assistance programmes, and shared expenses between IOC and donor countries. The Executive Council instructed the Secretary to investigate the possibility of arranging for guest scientists on sabbatical leave to spend a year working with a Member State(s) in support of an IOC regional research or service programme.

403

The Executive Council invited Member States to announce the establishment of their contributions to the IOC Research Fellowship Programme at the Thirteenth Session of the Assembly on the occasion of the 25th Anniversary of the Commission.

404

405        The Executive Council expressed the view that the organization of an exhibit, composed of national stands, at the Thirteenth Session of the Assembly, presented logistical problems that would place an undue burden on the Secretariat.

406        As a contribution to the celebration, the Delegate of France offered to organize an IOC exhibit outside Unesco Headquarters, perhaps in one of the French Museums, and to assign a liaison officer to work with the Secretariat on this and other public information projects. He suggested that other Member States might wish to display their own material within the context of the host country's exhibit which would enhance its international character.

407        The Executive Council noted the success of a series of posters that has been produced by the Unesco Division of Ecological Sciences, in co-operation with the Government of France, on the occasion of the 10th Anniversary of MAB. It considered that a similar project would be a valuable contribution not only to the 25th Anniversary celebration, but as a long-term measure to increase public awareness of the IOC. Two alternate procedures were envisaged:

- (i) A series of posters could be produced in large numbers by a given Member State in consultation with the Organizing Committee (see below) for the celebration of the 25th Anniversary, displayed at the Thirteenth Session of the Assembly, and subsequently given wide distribution to the intergovernmental bodies, national institutions, schools, etc.
- (ii) All Member States could be invited to present designs of posters for display at the Assembly and a selection of these would be subsequently printed, with assistance from donor countries, for distribution as proposed in (i), above.

408        The Executive Council considered that the second approach gave an opportunity for large Member State participation and thus endorsed the idea of soliciting designs from all IOC Member States. It instructed the Secretary to investigate with potential donor countries ways and means of printing the selected posters.

409        The Executive Council decided that appropriate co-ordination mechanisms were essential to the successful planning of the celebrations. Two groups were established for this purpose: an Honorary Organizing Committee, under the guidance of the Chairman IOC, to be composed of the past Chairman and Secretaries of the Commission, as well as the present Officers; and a Logistics Committee under the guidance of the Secretary who would work closely with a person to be designated by the host government, to be composed of national focal points in interested Member States. Both groups would work through correspondence.

410        The Executive Council instructed the Secretary to initiate the work of the two Committees as soon as possible and to inform all Member States of the approved plans for the 25th Anniversary celebrations.

411        The Executive Council accepted with deep appreciation the generous offer of France to arrange a special exhibit and to assist the Secretary on various projects related to the celebration.

412

The First Vice-Chairman introduced the subject of the Bruun Memorial Lectures for 1985. She referred to the steps she had taken to prepare a list of themes, in consultation with the other Officers and a number of individuals who, because of their knowledge of the Commission's work, were considered as being in a good position to provide advice on the matter. The majority of responses indicated agreement that the 1985 Lectures should be linked to the celebration of the 25th Anniversary of the IOC and that the number of lectures should be limited to three.

413

The following themes were submitted to the Council for its consideration and approval.

- (i) What benefits can Man hope to reap from improved knowledge of the oceans?
- (ii) What steps should be taken in the field of ocean services and technology to meet the challenges of the future and to identify the disturbances caused by Man?
- (iii) How can the international scientific community work together in an era of an emerging new ocean regime to help all partners achieve a better understanding of ocean phenomena and their impact on Man?

414

The Executive Council endorsed the suggestions made by the First Vice-Chairman on the topics for the 1985 Bruun Memorial Lectures. It instructed the Secretary to explore the possibility of using the 1985 lectures with a compilation of all previous lectures, including an appropriate preface to relate them to the Work of the Commission and to the trends in marine scientific research embodied within them, as an adjunct to the 25th Anniversary celebrations.




10. DATE AND PLACE OF THE EIGHTEENTH SESSION OF THE EXECUTIVE COUNCIL AND THIRTEENTH SESSION OF THE ASSEMBLY


415


The IOC Assistant Secretary, Mrs. N. Philippon-Tulloch, introduced Document IOC/EC-XVII/8 Annex 9 (A Proposal for a New-Vote Counting System for Elections to the Executive Council) prepared by the Secretary in accordance with the instructions of the Assembly, at its Twelfth Session. She explained that the experience gained during the Twelfth Session of the IOC Assembly had shown that the procedures used for counting votes is time-consuming and perhaps unnecessarily complicated. Suggestions found in the document were made with a view to simplifying the present system, and to reducing the total amount of plenary time required.

416

Many Delegates expressed their appreciation of the interesting proposal developed by the Secretary and felt that it merited being used on a trial basis for elections at the Thirteenth Session of the Assembly. Other Delegates, while recognizing certain advantages in the proposal, expressed their concern regarding potential drawbacks, especially those related to maintaining the secrecy of the voting procedure. Some also pointed out the desirability of holding elections earlier during the Assembly.


417  The Executive Council instructed the Secretary to bear in mind suggestions made for changes to the traditional schedule of the Assembly when drawing up the draft time-table for the Thirteenth Session.

418  The Executive Council felt that the proposal for a new vote-counting system required further review and instructed the Secretary to continue his study of the matter.



419  The Executive Council decided, however, that, in following the existing procedures, found in the IOC Manual, Part I, Section 8, the counting of votes would take place in a separate room in the presence of scrutineers from Member States and members of the Secretariat.

420 Regarding the dates and place of the next session of the Executive Council and the Assembly, the Delegate of the Federal Republic of Germany said he believed that the work of the Assembly at its Thirteenth Session could be accommodated within a time frame of two weeks, including two weekends. He believed that discussion should be held primarily in plenary sessions of the Assembly complemented by ad hoc sessional drafting groups, if necessary; but informal consultations between Delegations should be scheduled outside the working hours of the Assembly sessions.

421 Some Delegates thought that introductions to Agenda Items could be made much shorter than they were currently.

422  The Executive Council instructed the Secretary, in consultation with the Chairman, to study ways and means by which the Agenda of the Assembly might be accommodated in a two-week period, including two weekends, in March 1985, preferably starting on a Wednesday with the commemoration of the 25th Anniversary, preceded by a one day meeting (the Eighteenth Session) of the Executive Council acting as the Steering Committee of the Assembly.

#### 11. ADOPTION OF THE SUMMARY REPORT AND RESOLUTIONS

423   The Executive Council adopted the draft Summary Report of its Seventeenth Session and the seven Resolutions. It instructed the Secretary to undertake the necessary editing and corrections of fact when preparing the definitive version.

#### 12. CLOSURE

424 The Delegate of Brazil said he believed that the approach of the 25th Anniversary called for some soul-searching by the Commission. IOC is a most valuable organization and should be strengthened, but it must take into account the fact that Unesco is facing a situation without precedent. The zero-sum game theory does not apply in the context of IOC: even in the darkest years of the Cold War, IOC served as a forum for international co-operation. Nevertheless, there are different levels of marine scientific and technical capability and disparity of interests among the Member States. IOC endeavours to further science may cause scientific objectives, needs and capacity to become dispersed. The IOC has mechanisms for avoiding this however: the regional and technical subsidiary bodies. Yet there is a need to address the more flagrant needs of some Member States. The gap between developing and developed countries is widening qualitatively and quantitatively. Closing this gap may inhibit the pursuit of high scientific objectives by only a few Member States. The IOC must search for universality of participation.

The past Chairman and Delegate of Mexico, Dr. Agustin Ayala Castañares, said that this Session of the Council has been transcendental; there had been a cordial environment; subtlety in discussing difficult questions; the lesser developing countries had been more active; and there were scientists in nearly all Delegations. He congratulated the Chairman on the conduct of the debate, and the Secretary and the staff in the organization of the Session.

425

The Chairman then paid tribute to Mrs. Femke Groustra de Kat for her long service to the IOC, since this was the last session at which Mrs. Groustra de Kat would be on the Dutch delegation. He also recalled the many IOC subsidiary bodies, particularly on FUROR, ODAS and LOSI, in which Mrs. Groustra de Kat had served.

426

The First Vice-Chairman reviewed briefly some of the highlights of Mrs. Groustra de Kat's professional career, and expressed the hope that she will still be able to give IOC the benefit of her wide experience, particularly on matters relating to the new ocean regime.

427

The Secretary described the efforts Mrs. Groustra de Kat had made to promote co-operation between her country and IOC, and her excellent organization of his visit to the Netherlands in 1983.

428

The Chairman presented Mrs. Groustra de Kat with a gift from her fellow Delegates and friends at this Session of the Council.

429

Mrs. Groustra de Kat, in responding, recalled some of the IOC work she had been closely involved in. The concept of Ocean Data Acquisition Systems (ODAS) was IOC's, for example, and TEMA was started long before other international organizations were paying attention to the training aspects of their international programmes.

430

In closing, the Chairman thanked the Delegates for their co-operation in the conduct of the Session; he also thanked the Secretary and the staff for their effort in ensuring the smooth conduct of the Session and the timely preparation of the Draft Summary Report, and the supporting staff and interpreters.

431

The Delegate of Canada, on behalf of the Members of the Executive Council thanked the Chairman for his excellent management of the Session.

432

The Chairman closed the Seventeenth Session of the IOC Executive Council at 18:45 on 9 February 1984.

433

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
3. WORK ACCOMPLISHED DURING THE INTER-SESSIONAL PERIOD
4. PROGRAMME AND BUDGET FOR 1984-85
  - 4.1 DECISIONS OF THE TWENTY-SECOND GENERAL CONFERENCE OF UNESCO RELEVANT TO THE COMMISSION
5. OCEAN SCIENCES
  - 5.1 PLANNING AND IMPLEMENTATION OF THE PROGRAMME OF OCEAN SCIENCE IN RELATION TO LIVING RESOURCES (OSLR)
  - 5.2 OCEANOGRAPHIC COMPONENT OF THE WORLD CLIMATE RESEARCH PROGRAMME (WCRP)
    - 5.2.1 Progress in Planning of Projects and Experiments
    - 5.2.2 Intergovernmental Mechanisms for Overall Co-ordination, and for Implementation of Specific Projects and Experiments
  - 5.3 DEVELOPMENT AND CO-ORDINATION OF THE COMMISSION'S ACTIVITIES IN OCEAN MAPPING
  - 5.4 DEVELOPMENT OF THE MARINE POLLUTION MONITORING SYSTEM (MARPOLMON)
6. OCEAN SERVICES
  - 6.1 THIRD SESSION OF THE IOC-WMO WORKING COMMITTEE FOR INTEGRATED GLOBAL OCEAN SERVICES SYSTEM (IGOSS) AND INTERSESSIONAL WORK
    - 6.1.1 Appropriate Cost-effective Mechanisms for Co-ordination of Oceanographic/Meteorological Drifting-buoy Activities
    - 6.1.2 Implementation of the Regional Components of IGOSS
  - 6.2 ELEVENTH SESSION OF THE WORKING COMMITTEE ON INTERNATIONAL OCEANOGRAPHIC DATA EXCHANGE (IODE) AND MARINE INFORMATION MANAGEMENT

7. REGIONAL SUBSIDIARY BODIES AND REGIONAL CO-OPERATION

7.1 FOURTH SESSION OF THE PROGRAMME GROUP FOR THE SOUTHERN OCEANS (SOC)

7.2 THIRD SESSION OF THE PROGRAMME GROUP FOR THE WESTERN PACIFIC (WESTPAC)

7.2.1 Formation of a Joint CCOP(SOPAC)-IOC Working Group on  
South Pacific Marine Geoscience, Tectonics and Resources (STAR)

7.3 REGIONAL CO-OPERATION IN OCEAN SCIENCE IN THE EASTERN CENTRAL  
ATLANTIC (WEST AFRICA)

7.4 FUTURE CO-OPERATIVE MARINE SCIENTIFIC RESEARCH ACTIVITIES IN THE  
RED SEA, THE NORTH-WESTERN INDIAN OCEAN AND ADJACENT GULFS

7.5 CO-OPERATION AND JOINT ACTIVITIES WITH THE COMISION PERMANENTE  
DEL PACIFICO SUR

8. CO-OPERATION WITH UN ORGANIZATIONS AND OTHERS

8.1 TWENTY-SECOND SESSION OF THE INTER-SECRETARIAT COMMITTEE ON  
SCIENTIFIC PROGRAMMES RELATING TO OCEANOGRAPHY

8.1.1 Plans and Arrangements for Updating the Long-term and Expanded  
Programme of Oceanic Exploration and Research (LEPOR)

8.2 MEMORANDUM OF UNDERSTANDING BETWEEN SCOR AND IOC ON THE JOINT SCOR/  
IOC COMMITTEE ON CLIMATIC CHANGES AND THE OCEAN (CCCO)

8.3 CO-OPERATION WITH UNEP IN MARINE POLLUTION RESEARCH AND MONITORING

8.4 MEMORANDUM OF UNDERSTANDING WITH THE INTERNATIONAL COMMISSION FOR  
SCIENTIFIC EXPLORATION OF THE MEDITERRANEAN SEA (ICSEM)

8.5 MEMORANDUM OF UNDERSTANDING WITH THE INTERNATIONAL HYDROGRAPHIC  
ORGANIZATION (IHO)

9. CELEBRATION OF THE TWENTY-FIFTH ANNIVERSARY OF THE COMMISSION, AND  
TOPICS FOR THE ANTON BRUUN MEMORIAL LECTURES

10. DATE AND PLACE OF THE EIGHTEENTH SESSION OF THE EXECUTIVE COUNCIL AND  
THIRTEENTH SESSION OF THE ASSEMBLY

11. ADOPTION OF THE SUMMARY REPORT AND RESOLUTIONS

12. CLOSURE

ANNEX II

ADOPTED RESOLUTIONS

<u>Resolution number</u>	<u>Title</u>
EC-XVII.1	IOC Programme and Budget for 1986-87
EC-XVII.2	Programme Group on Ocean Processes and Climate
EC-XVII.3	IOC Consultative Group on Ocean Mapping
EC-XVII.4	Third Session of the Joint IOC-WMO Working Committee for IGOSS
EC-XVII.5	Marine Information Management under IODE
EC-XVII.6	Formation of a Joint CCOP(SOPAC)-IOC Working Group on South Pacific Tectonics and Resources (STAR)
EC-XVII.7	Programme Group for the Central Eastern Atlantic (IOCEA)

It should be noted that, owing to a last-minute decision by the Executive Council to incorporate the formation of the IOC Consultative Group on Ocean Mapping in a Resolution rather than in the body of the Summary Report, the numbers of the Adopted Resolutions differ, after number 2, from those used in the set of Adopted Resolutions handed to participants at the end of the Seventeenth Session. Thus, former numbers 3-6 each increased by 1. Some minor editorial changes have also been introduced.



Resolution EC-XVII.1

IOC PROGRAMME AND BUDGET FOR 1986-87

The Executive Council,

Having been informed that the Twenty-Second General Conference of Unesco responded favourably to the request of the Twelfth Session of the IOC Assembly (Res. XII-11) that the Commission's Programme and Budget for 1984-85 be considerably strengthened, based on recommendations made by the Fourteenth Session of the Executive Council,

Noting that, at the Twenty-Second General Conference of Unesco, strong support was given to ensuring the continued growth of the IOC programme during the next two biennia of the Unesco Medium-Term Plan,

Recalling the concern expressed by the IOC Assembly in Resolution XII-10, and by the Twenty-Second General Conference, regarding the possible dispersal of the Unesco marine science programme between Programmes X.4 and X.5, which might lead to an artificial separation of coastal and offshore marine scientific research,

Expresses its appreciation to the Director-General of Unesco for his understanding of the growing needs of the Commission, and of the role that IOC can play in strengthening international co-operation in marine science and in assisting Member States in their efforts to improve their marine science capabilities;

Invites the Director-General of Unesco, when preparing the Draft 23 C/5, to consider measures to strengthen the IOC Programme of Work and Budget, including the necessary staff adjustments, and to consider possible adjustments in the formulation of the overall marine science programme of the Organization, as contained in the Medium-Term Plan for 1984-89, so as to ensure that its implementation be facilitated through an integrated approach to the study of the ocean, both coastal and offshore, and its resources;

Draws the attention of the Director-General to Resolution XII-10 of the IOC Assembly at its Twelfth Session, recommending that the Unesco Programme on the ocean and its resources be treated as a Major Programme of Unesco in the next Unesco Medium-Term Plan;

Urges Member States to ensure that national response to requests made by the Director-General of Unesco for their views on formulation of the Draft 23 C/5 reflect that a high priority should be accorded to the programme and budget of the Commission, so as to maintain its momentum,

Further urges Member States to continue their support to the Commission, especially through the commitment of national resources to IOC projects and activities of particular relevance to them,

Instructs the Secretary to take into account the guidelines found in the Annex to this Resolution, when preparing the draft IOC Programme and Budget for 1986-87, to be submitted to the Thirteenth Session of the Assembly, with information regarding the status of preparation of the Unesco Programme and Budget for 1986-87 (Draft 23 C/5),

Further instructs the Secretary likewise to take into account the relevant decisions of the governing bodies, and to consult with the Chairman and Vice-Chairmen of the Commission and with the Chairmen of the major technical and regional subsidiary bodies of the Commission.

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Budgetary implications: None.

#### Annex to Resolution EC-XVII.1

#### GUIDELINES ON PREPARATION OF IOC COMPONENT OF UNESCO PROGRAMME AND BUDGET FOR 1986/87

##### Overall Strategy

1. The growing importance of the oceans and their resources is unquestioned. The IOC plays a central role at the intergovernmental level in furthering the scientific understanding that must be the foundation of the wise use of those resources: it carries out this role in close collaboration with the UN Organizations Members of ICSPRO and other International Organizations with an interest in marine affairs.
2. The future strategy of the IOC is to meet that challenge. It is a balanced, closely-knit set of programmes in which the main scientific objectives are supported by the appropriate technical services, training and mutual assistance. They are implemented in ways that enable as many countries as possible, developed and developing, to make an effective contribution at the global and at the regional levels. The following is a brief summary of the main thrusts of the IOC Programme envisaged for the period 1986/87, which takes into account the priorities established by the Commission for each programme and activity.
3. To build on the progress already achieved in the planning and implementation of the ocean science programmes, ocean services, and training, education and mutual assistance (TEMA), the 1986-87 biennium will be a period of consolidation of the work of the Commission, during which its structures and operations, particularly at the regional level, should be strengthened. Special emphasis will continue to be given to the implementation of the programmes and activities through the active involvement of Member States.
4. In view of the vital interest of Member States in developing a firm scientific basis for the use of the marine resources, special attention will be devoted, in the programmes of the Commission, to the study of a coastal ecosystem in close co-operation with the Unesco Division of Marine Sciences, within an integrated approach to marine science as a whole.

### Ocean Science

5. Scientific advances of recent years have left no doubt as to the great importance of the oceans in influencing the world's climate. The international oceanographic community, in partnership with the meteorologists, will be devoting a major part of their future efforts and resources to elucidating the complex interaction between ocean and atmosphere, working towards the goal of climate prediction. Intergovernmental support and co-ordination, by the IOC, of the oceanographic component of the World Climate Research Programme (WCRP-O) is vital to the success of this endeavour. Implementation of the planned large-scale projects (TOGA, WOCE) and development of the required supporting oceanographic observational systems will be accelerated.

6. Conditions in the oceans also have a major influence in determining the production of fish and other living resources of the sea. However, despite decades of research, the processes are still poorly understood and the conventional methods for investigating them are laborious and insufficiently precise. IOC will therefore carry forward the planning and conduct of the study of processes governing the recruitment to fish and shellfish populations through its International Recruitment Programme (IREP).

7. IOC also assists in the scientific study of the sea floor and its mineral resources through the promotion of co-operative geological/geophysical field research in selected regions. In support of this objective, the preparation and printing of new regional bathymetric charts and overlay sheets for existing charts (e.g., IBCM, GEBCO) will be pursued. Because ocean mapping and its related services are fundamental to many aspects of activities in the ocean and on the sea floor, as well as to marine scientific research, these activities must be a continuing IOC commitment.

8. From its work of the past decade on scientific problems of marine pollution, the IOC is now able to carry through a well-focused series of investigations to advance the monitoring of marine pollution. This is a service to Member States and to organizations and programmes directly responsible for the management and protection of the marine environment (e.g., IMO and UNEP). It involves the consolidation of the MARPOLMON System, particularly its regional components, through the development of analytical methods, intercalibration exercises and the establishment of marine pollution monitoring networks.

### Ocean Services

9. To develop effective ocean monitoring giving special attention to the needs of the programme on Climatic Changes and the Ocean, the IOC will build on existing observing and pilot projects, making full use of the latest technologies, including drifting buoys. A new project will be the improvement of a global system of tide gauges to measure sea level. Regional and global participation in these and related IGOS activities will be encouraged so as to achieve better synoptic coverage.

10. The collection, processing and dissemination of oceanographic data, through a world-wide network of national, regional and world data centres, has for long been a central feature of the Commission's technical services and must continue to be a major IOC commitment. The Responsible National Oceanographic Data Centre (RNO DC) system to support regional and problem-oriented programmes will continue to be developed. New mechanisms will be introduced to strengthen the co-ordination and implementation of these and other IODE activities. Plans for the management of marine information will also be developed so as to make data and information available to a wide range of Member States and other organizations concerned with marine affairs.

Training, Education and Mutual Assistance (TEMA)

11. Fundamental to IOC policy is the development, in conjunction with the Division of Marine Sciences, of training, education and mutual assistance in the marine sciences. In this connection, IOC seeks every opportunity to incorporate a TEMA component in all the marine sciences and services activities of the Commission, with the primary objective of assisting developing countries to strengthen their own marine scientific capability and infrastructure.

12. The implementation of the Unesco/IOC Comprehensive Plan for a Major Assistance Programme to Enhance the Marine Sciences Capabilities of Developing Countries will be accelerated in a number of ways, inter alia, by formulating more regional and sub-regional technical assistance projects with their national components, by increasing the promotion of bilateral and multilateral co-operation in oceanography, by providing technical advice and organization of training courses or workshops in key areas of marine science and ocean service development, and by the improved use of research vessels, etc. The Voluntary Assistance Programme will be further strengthened with a view to enabling more Member States to participate in the regional and global programmes of the Commission.

13. Increased attention should also be paid to forms of international co-operation transcending the regional level. In this light, the prospects offered by the establishment of mechanisms of co-operation between countries facing similar problems in their efforts to enhance their marine science capabilities, as well as having the same bio-geographical characteristics, should be explored.

Structure and Machinery

14. To carry out the above-mentioned functions, the structure and machinery of the Commission will be further streamlined and its cost-effectiveness increased. Regional subsidiary bodies will be strengthened and encouraged to carry through actions appropriate to their region in the context of the general IOC strategy. Inevitably, however, an increasingly heavy burden is falling on the staff of the Commission. It is therefore vital that the IOC Secretariat be strengthened, commensurate with the magnitude of the tasks it is facing.

15. In view of the growing importance of the oceans to mankind, it is recommended that the Unesco programme on the oceans and its resources be treated as a Major Programme within the next Medium-Term Plan, in accordance with Resolution XII-10 of the Assembly.

Resolution EC-XVII.2

PROGRAMME GROUP ON OCEAN PROCESSES AND CLIMATE

The Executive Council,

Having reviewed the proposal for a Programme Group on Ocean Processes and Climate prepared by the Chairman of the Joint SCOR-IOC Committee on Climatic Changes and the Ocean (CCCO) in response to Resolution XII.4,

Noting the "Principles governing co-operation between Unesco and the International Council of Scientific Unions (ICSU) on the development of the oceanographic component of the World Climate Research Programme, through the IOC and SCOR" in which ICSU and Unesco agree that the IOC will act as the intergovernmental body responsible for the overall co-ordination of the oceanographic component of the WCRP and related supporting ocean services,

Noting also that the "Principles" indicate that the IOC will establish an intergovernmental subsidiary body for the overall co-ordination as indicated above,

Recognizing the need to provide a mechanism by which all Member States may participate in those activities of the oceanographic components of the WCRP that require the concerted action of Member States and to ensure that the Commission's role in the WCRP is organized in an effective manner,

Decides to establish a Programme Group on Ocean Processes and Climate having the Terms of Reference appended hereto,

Instructs the Secretary to convene the First Session of this Programme Group in 1985 immediately prior to the Thirteenth Session of the IOC Assembly.

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Budgetary implications: None (The costs for convening the Programme Group immediately prior to the Thirteenth Session of the Assembly will be taken from funds originally earmarked for an intergovernmental meeting the purpose of which will be met by the Programme Group).

#### Annex to Resolution EC-XVII.2

### PROGRAMME GROUP ON OCEAN PROCESSES AND CLIMATE

#### TERMS OF REFERENCE

1. To promote, on behalf of the Commission, the necessary support and co-ordination at the intergovernmental level to ensure the effective implementation of the oceanographic component of the World Climate Research Programme, having regard to the recommendations of the Joint SCOR-IOC Committee on Climate Changes and the Oceans, and in consultation with WHO and other agencies and organizations as appropriate.
2. Receive and study regular reports on the programme of work and progress made by the Joint SCOR-IOC Committee on Climatic Changes and the Ocean (CCCO) and advise the Commission on policy matters, budgetary and other forms of support required for the effective implementation of the programme of work recommended.
3. To provide guidance to the Commission on the progressive build-up of an adequate ocean monitoring system, and on other programmes and activities in the general field of oceanography that are complementary to the oceanographic component of the World Climate Research Programme, which require intergovernmental support.

4. Keep abreast of the relevant activities of the appropriate regional and technical subsidiary bodies of the Commission and other interested bodies and encourage their active support and involvement in the oceanographic component of the WCRP.

Resolution EC-XVII.3

IOC CONSULTATIVE GROUP ON OCEAN MAPPING

The Executive Council,

Taking into account the ongoing work on the General Bathymetric Chart of the Oceans (GEBCO), the Geological/Geophysical Atlases of the Pacific and Atlantic Oceans (GAPA), the International Bathymetric Chart of the Mediterranean (IBCM), and other planned regional bathymetric charts,

Recalling that the Assembly, at its Twelfth Session, agreed that the development and the co-ordination of the IOC's increasing activities in ocean-mapping require further study, and instructed the Secretary to prepare a proposal for consideration by the Executive Council at its Seventeenth Session,

Having studied the proposal of the Secretary given in Document IOC/EC-XVII/8 Annex 2,

Decides to create an IOC Consultative Group on Ocean Mapping (functioning as an IOC Group of Experts) with the Terms of Reference and Composition given in the Annex to this Resolution.

Instructs the Secretary to bring this Resolution to the attention of the IHO,

Invites IHO to be represented on, and collaborate closely with, this Consultative Group.

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Budgetary implications: None for 1984; funds for one meeting will be designated in the PAD for 1985

Annex to Resolution EC-XVII.3

IOC CONSULTATIVE GROUP ON OCEAN MAPPING

TERMS OF REFERENCE

- (i) Keep under continuous review all ocean-mapping activities of the Commission, reporting biennially to the Assembly on progress made with each ocean-mapping projects sponsored (or co-sponsored) by the Commission;
- (ii) facilitate the exchange of expertise and experience between the groups supervising each such project;
- (iii) provide a technical link between the groups supervising each such project, so as to ensure that a standard form of presentation is used for all ocean-mapping products published by, or on behalf of, the Commission;
- (iv) encourage subsidiary regional bodies of the Commission to identify their requirements for bathymetric chart series and overlay (overprint) series showing other scientific parameters, including marine resources.

Composition

The IOC Consultative Group on Ocean-Mapping will consist of the Chairmen (or their representatives) of all groups responsible for supervising ocean-mapping projects sponsored (or co-sponsored) by the Commission.

Officers

The Group will elect its own Chairman and Vice-chairman.

Resolution EC-XVII.4

THIRD SESSION OF THE JOINT IOC-WMO WORKING COMMITTEE FOR IGOSS

The Executive Council,

Having Considered the Summary Report of the Third Session of the Joint IOC-WMO Working Committee for IGOSS,

Taking into account WMO Resolution 12 (EC-XXXV) which noted this Summary Report and the attached Resolutions, approved Recommendations 1, 3 and 4 (JWC-IGOSS-III) and noted Recommendations 2 and 5 (JWC-IGOSS-III),

Notes the Summary Report and Resolutions 1 to 5 (JWC-IGOSS-III) attached thereto,

Approves Recommendation 1 (JWC-IGOSS-III) - Drifting buoy programmes and insertion of drifting buoy data onto the GTS, Recommendation 3 (JWC-IGOSS-III) - Implementation of an IGOSS mean sea level pilot project in the Pacific Ocean, and Recommendation 4 (JWC-IGOSS-III) - Implementation of the modified BATHY/TESAC DRIBU codes.

Notes with appreciation the publication of the Guide to Data Collection and Location Services using Service Argos by WMO as Report No. 10 on Marine Meteorology and Related Oceanographic Activities,

Decides to take action on these Recommendations as follows:

Recommendation 3 (JWC-IGOSS-III):

Instructs the Secretary to take all necessary steps to implementing the pilot project,

Recommendation 4 (JWC-IGOSS-III):

(a) Notes, with appreciation, WMO Resolution 4 (EC-XXXV) approving inter alia Recommendation 9 (CBS-VIII) - Modification to code forms FM 63-V BATHY, FM 64-V TESAC and DRIBU adopted by the WMO Commission for Basic Systems,

(b) Instructs the Secretary to bring this modification to code forms to the attention of Member States of IOC,

Notes Recommendation 2 (JWC-IGOSS-III) - Joint Co-ordination Group on Drifting Buoy Programmes,

Instructs the Secretary to explore co-ordination aspects of drifting-buoy programmes with the WMO Secretariat and to report his findings to the Thirteenth Session of the Assembly,

Decides to take into account Recommendation 5 (JWC-IGOSS-III) - Review of previous Resolutions of the IOC Executive Council and the WMO Executive Council relevant to the field of activity of the Joint IOC-WMO Working Committee for IGOSS, when reviewing the status of IOC Resolutions.

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Budgetary implications: None (Consultations required for implementation of Recommendation 3 are foreseen in the Unesco PAD for 1984-85)

#### Resolution EC-XVII.5

#### MARINE INFORMATION MANAGEMENT UNDER IODE

The Executive Council,

Recalling decisions of its Fifteenth Session and of the Twelfth Session of the IOC Assembly to the effect that the role of the Working Committee on International Oceanographic Data Exchange (IODE) in information management needs to be expanded, and co-operation with other international organizations increased,

Noting with satisfaction the acceleration in the development of the Marine Environmental Data Information Referral System (MEDI) by IOC, with the support of other international bodies, and of ASFIS jointly by FAO, UN(OETB) and IOC,

Recognizing the positive role the subsidiary bodies of the Commission have been playing in marine information,



Decides to disband two IOC Groups of Experts: the Joint FAO-IOC-UN(OETS) Panel of Experts on the Aquatic Sciences and Fisheries Information System (ASFIS); and the Group of Experts on Marine Environmental Data Information (MEDI) Referral System, dealing with marine information;

Decides further to establish a Group of Experts on Marine Information Management, with the Terms of Reference contained in the Annex to this Resolution, consisting of no more than eight experts;

Instructs the Secretary to bring this Resolution to the attention of ICSPRO Members and UNEP, and to invite them to be represented on, and collaborate closely with, this Group of Experts,

Further instructs the Secretary to explore with international funding agencies their possible support for development activities relevant to marine information.

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Budgetary implications: None (required funds approved already for disbanded Groups of Experts).

Annex to Resolution EC-XVII.5

GROUP OF EXPERTS ON MARINE INFORMATION MANAGEMENT

TERMS OF REFERENCE

- (i) Advise the Working Committee on IODE on the policy, development and further implementation of an effective international system for scientific and technical information relating to the marine environment by keeping user requirements under continuing review and ensuring that these requirements can be met adequately;
- (ii) identify the policy, technical and financial problems involved in the development and implementation of marine information management systems, and make recommendations concerning solution of those problems;
- (iii) develop programmes to improve the ability of Member States, particularly developing countries, to benefit from, and participate in, marine information management systems and keep Member States informed on how they might best gain access to such systems;
- (iv) report to the Working Committee on IODE on matters related to marine information and services of the UN and the specialized agencies, with special emphasis on ASFIS and MEDI;
- (v) advise the Secretary of IOC on the technical aspects of marine information management, particularly ASFIS and MEDI, maintained or co-ordinated by ICSPRO Members and UNEP.

Resolution EC-XVII.6

FORMATION OF A JOINT CCOP(SOPAC)-IOC WORKING GROUP ON SOUTH PACIFIC  
TECTONICS AND RESOURCES (STAR)

The Executive Council,

Having been requested by the Committee for Co-ordination of Joint Prospecting for Mineral Resources in South Pacific Offshore Areas (CCOP(SOPAC)) to co-sponsor its Working Group on South Pacific Studies on Tectonics and Resources (SOPAC/STAR), with the aim of assisting and promoting research programmes in marine geology and geophysics in the South Pacific,

Recalling with appreciation the close and fruitful co-operation between the Commission and CCOP(SOPAC) over a period of more than 10 years,

Decides to co-sponsor STAR which will be known as "Joint CCOP(SOPAC)-IOC Joint Working Group on South Pacific Studies on Tectonics and Resources", and which will work under the Terms of Reference and Composition annexed to this Resolution.

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Budgetary implications: None (assuming that the Joint Working Group will meet in conjunction with the annual CCOP(SOPAC) sessions, only staff travel needs to be foreseen). Support to experts from developing countries to attend workshops in the region are forecast in the 1984-85 budget).

Annex to Resolution EC-XVII.6

FORMATION OF A JOINT CCOP(SOPAC)-IOC WORKING GROUP ON SOUTH PACIFIC  
TECTONICS AND RESOURCES (STAR)

TERMS OF REFERENCE AND COMPOSITION

The CCOP(SOPAC)-IOC Joint Working Group on South Pacific Tectonics and Resources (STAR) shall:

- i) formulate plans to implement research programmes and projects that are developed by CCOP(SOPAC) IOC or joint workshops for the South Pacific region, and to facilitate the co-ordination of such implementation;
- ii) evaluate, on a regular basis, the results of projects carried out under STAR, and to update the overall programme of research, as appropriate;

- iii) facilitate exchange of the data collected, and ensure dissemination of the scientific results of the agreed projects;
- iv) assess the scientific needs of the participating countries in the region on a continuing basis.

Membership of the Joint Working Group will be open to all member countries of IOC and CCOP (SOPAC).

Resolution EC-XVII.7

PROGRAMME GROUP FOR THE CENTRAL EASTERN ATLANTIC (IOCEA)

The Executive Council,

Recalling the Commission's longstanding interest in the development of marine science co-operation in western Africa (Resolution X-18), the outcome of the ECA-Unesco Workshop on the Present State and Future Development of Marine Science and Technology in Africa (Addis Ababa, 8 - 13 June 1981), and the related decisions of the Executive Council, at its Fourteenth Session, on the need to examine the possibility of establishing a regional subsidiary body for western Africa, similar to that for eastern Africa (PG-CINWIO),

Recalling also that, by Resolution EC-XV.4, it decided to convene a workshop in West Africa in 1983 to develop a basis for marine science co-operation in West Africa,

Having been informed of the successful outcome of the IOC Workshop on Regional Co-operation in Marine Science in the Central Eastern Atlantic (Western Africa), which was held in Tenerife, Spain, from 12 to 17 December 1983, and which recognized the need, in due course, for regional intergovernmental co-ordination of co-operative international marine scientific research,

Expresses its thanks to the Spanish Government and, in particular, the Spanish Institute of Oceanography for the invaluable support in hosting the above-mentioned Workshop;

Decides to establish an IOC Programme Group for the Central Eastern Atlantic (IOCEA) with the Terms of Reference and Composition given in the Annex to this Resolution.

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Budgetary implications: no additional expenses in 1984-85  
(meeting of IOCEA forecast  
in 1984-85 budget)

Annex to Resolution EC-XVII.7

PROGRAMME GROUP FOR THE CENTRAL EASTERN ATLANTIC (IOCEA)

TERMS OF REFERENCE AND COMPOSITION

The Programme Group for the Central Eastern Atlantic (IOCEA), shall:

- (i) prepare a programme of research for the Central eastern Atlantic region, and identify ways and means for its implementation;
- (ii) promote and co-ordinate the execution of the work plan by the Member States;
- (iii) promote exchange of marine scientific information and data within the ocean services of the Commission, particularly in the framework of the IODE System and ASFIS;
- (iv) promote the training, education and mutual assistance required for the enhancement of the national capabilities of the developing countries of the region in marine science and ocean services through co-operation, also with the Member States from outside the region;
- (v) promote and facilitate co-operation within the region in order to make efficient use of existing and new research facilities and expertise;
- (vi) meet at least once every three years to review the progress in the implementation of the agreed programme of work.

Membership of the Programme Group shall be open to IOC Member States of the central eastern Atlantic region and to other interested Member States of the Commission.

ANNEX III

A. ADDRESS BY MR. AMADOU-MAHTAR M'BOW, DIRECTOR-GENERAL OF THE UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION (UNESCO) AT THE OPENING OF THE SEVENTEENTH SESSION OF THE EXECUTIVE COUNCIL OF THE INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION

Mr Chairman,  
Vice-Chairmen,  
Distinguished Delegates, Representatives and Observers,

It gives me great pleasure to welcome you today to Unesco House on the occasion of the seventeenth session of the Executive Council of the Intergovernmental Oceanographic Commission, and to discuss with you the future of international co-operation in the marine sciences.

As I said in November 1982, at the twelfth session of your Assembly, the Commission plays an undisputed role in promoting better knowledge of the oceans and more rational use of their resources. On that occasion I made particular mention of your efforts to enable all Member States, especially the developing states, to participate in the Commission's world and regional programmes, through your training and educational activities in particular.

In doing so you have given full weight to Article 1 of the Statutes of the Commission, which stipulates that its purpose is to 'promote scientific investigation with a view to learning more about the nature and resources of the ocean through the concerted action of its members'.

In today's world, such concerted action is certainly necessary in the increasingly numerous fields of human activity. But it is even more so when it relates to the environment without which mankind cannot exist - space and the ocean.

Transcending all geographical boundaries and all frontiers imposed by history, our planet's ocean is indeed unique. As oceanographers say, it is a geophysical fluid, and can be fully understood only on a world scale. It is also an environment hostile to mankind, and mankind can turn it to advantage only through a combined effort to create, innovate and transform. Finally, it is one of the last territories on earth which remain for us to explore, and in which some of the keys to our future survival lie hidden.

For all these reasons, it is absolutely imperative that states throughout the world co-operate in an effort to husband the resources of the sea, protect its environment, remove any obstacles likely to restrict freedom of research, and undertake to protect persons and property that make use of it. This is also an essential requirement for the scientific development of ocean services, including the establishment of forecasting and warning systems comparable to those already in existence for atmospheric conditions. The plan to set up a world ocean monitoring systems, with all the necessary institutional and logistic infrastructures, obviously calls for active participation by all the countries concerned, their researchers and their specialized agencies, and consequently for a collective effort to enable the developing countries to strengthen their capacities in this field, so that they may share to the full in the rational harvesting of ocean resources.

In the light of these requirements, your Commission has taken steps towards the adoption of the Comprehensive Plan for a Major Programme of Assistance to Enhance the Marine Science Capabilities of Developing Countries. The purpose of this Plan is to give specific content to the new ocean regime, as defined in the United Nations Convention on the Law of the Sea, by fostering the development of each state's resources with a view to co-operation that will be of benefit to all.

For this reason I replied favourably to the resolutions adopted by IOC's governing bodies - the Assembly and the Executive Council - and also to the views expressed by your Chairman and the members of your Bureau at the numerous meetings we have had to discuss the Commission's programmes and needs.

A proposal was accordingly submitted to the General Conference with a view to increasing the IOC budget under Programme X.4 of the Organization. Moreover, as you know, I included in the Draft Programme and Budget for 1984-1985 a proposal for additional activities to strengthen IOC action - with particular reference to the preparatory stage of the implementation of the Comprehensive Plan and the launching of certain scientific programmes such as the study of ocean dynamics and of the role of the ocean in climatic changes.

A great many delegations supported these proposals, thereby acknowledging their interest in the problems of the ocean and its resources and in the action undertaken by the Intergovernmental Oceanographic Commission.

As I have already had an opportunity to tell your Chairman, Professor Ronquillo, your first Vice-Chairman, Ms Martin-Sané and your former Chairman, Dr Ayala Castanares, I have every intention of continuing my efforts to enable IOC to carry out to the best of its ability its increasingly important tasks, in the framework of the Inter-Secretariat Committee on Scientific Programmes Relating to Oceanography.

I also intend to appeal, if necessary, for extra-budgetary funds and other resources for the preparatory stage of the Comprehensive Plan. Furthermore, I hope to consult, in due course, the leading individuals concerned and the heads of the bilateral and multilateral funding agencies, in order to work out a strategy that will enable us to muster the financial or other resources likely to help developing Member States to broaden and strengthen their own capacities in the marine sciences.

You are aware, however, that in a spirit of compromise and in an effort to reach a consensus, the General Conference of Unesco reduced by approximately 10 million dollars the budgetary proposals recommended by the Executive Board. This has resulted in adjustments that are bound to affect the programmes and activities proposed, but we shall do our utmost, within the confines of these adjustments, safeguard as far as possible the activities relating to IOC, especially those concerning which I made additional proposals to the General Conference.

I therefore appeal to the Member States of IOC, and to the United Nations bodies and organizations that work jointly with the Commission, to add their weight to Unesco's efforts to increase IOC's resources and strengthen its programmes. I am sure that, by this means, any difficulties that may arise can be overcome, to the greater benefit of Member States and of the world community as a whole. I also appeal to the Commission to continue to promote dialogue and co-operation among all nations, since dialogue and co-operation are essential at a time when the human race is entering a new stage in its relations with the ocean.

The celebration of the Commission's twenty-first anniversary next year will afford an opportunity for a detailed assessment of its activities and methods of action, and an appraisal of its future prospects on the threshold of the next millennium.

Your suggestions and opinions will in any case be of great help to me when I come to formulate the proposals that I am to submit to the General Conference at its twenty-third session concerning the Organization's Programme and Budget for 1986-1987; indeed, I have just invited Member States, as well as international governmental and non-governmental organizations, to give me their views on the subject.

In conclusion, I hope that the work of this seventeenth session of the IOC Executive Council will be particularly rewarding, in pursuit of one of the most lofty aims of all: that of using the ocean as a new means towards world peace, mutual understanding among nations, solidarity among peoples and a spirit of brotherhood uniting all mankind.

B. OPENING ADDRESS BY PROFESSOR INOCENCIO A. RONQUILLO, CHAIRMAN OF THE INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION, 31 January 1984

Mr. Director-General,  
Distinguished Delegates, Representatives and Observers,  
Ladies and Gentlemen,

It is my pleasure to welcome you to the Seventeenth Session of the Executive Council. We are, Mr. Director-General, most encouraged by your presence; it is, I feel, another demonstration of your personal interest in ocean affairs and the work of our Commission in this complex and burgeoning field of human endeavour, in which Unesco is playing a leading role.

As you know, at the alst Session of the Assembly, we agreed to reduce the number of Council sessions between Assemblies. So as to provide sufficient time to deal properly with all the items on the Agenda, this Session is somewhat longer than usual.

It is appropriate to recall that the Twelfth Session of the Assembly was a very productive and constructive one, with a significant technical content and a spirit of co-operation. The Member States stressed the importance of science and technology in achieving national development goals in marine affairs, and important decisions for the Commission were taken to enable it to assist the Member States with their international co-operation, especially through the IOC's specialized regional and technical subsidiary bodies. The sound guidance provided to the Secretariat helped it greatly in the implementation of the Commission's decisions. As a result we have seen, so far, considerable intersessional activity, the consolidation of on-going programmes, and the laying of a solid basis for new programmes. This same consolidation is also true of the ocean services provided and co-ordinated by the Commission.

Following the Assembly, I had the pleasure of meeting with you, Mr. Director-General, together with the Past-Chairman, Dr. Ayala-Castañares, and the First Vice-Chairman, Mlle Marie-Annic Martin-Sané. We were most encouraged by your enlightened views on furthering international co-operation in marine science and on the role of Unesco and the Commission, especially in the context of the new ocean regime. We were also greatly encouraged by the expression of your intention to continue to assist in the strengthening of the IOC as far as the Unesco budget will allow.

I should like to take this opportunity to express our sincere appreciation of the support we have received from the Assistant Director-General for Science, Professor Kaddoura, and the collaboration we have received from the Division of Marine Sciences, and look forward to further improving this collaboration.

The Commission is also acting as a joint specialized mechanism of the UN organizations members of ICSPRO, and I am pleased to report that the Twenty-third Session of ICSPRO, last July, was a most constructive one, as you will see when considering the Summary Report of its last session. In these times of economic constraint, ICSPRO has paid particular attention to enhancing collaboration amongst its members, through the IOC. Among the

positive trends, you are aware of the fact that the UN, through its Ocean Economics and Technology Branch, co-sponsors OSNLR, and FAO has indicated its intention to co-sponsor OSLR.

Our co-operation with the UN through the Secretariat on the Law of the Sea has, as you all know, suffered a serious setback through the untimely death of Bernardo Zuleta, the Secretary-General's Special Representative to UNCLOS. His contribution to the establishment of the Convention, in particular, and the new ocean regime, in general, is inestimable. His constructive co-operation with the IOC will be hard to replace.

I am pleased with the considerable progress in co-operation between the Commission and UNEP which was reflected at a recent meeting between the Secretary of the Commission and the Director of the UNEP Regional Seas Programme Activity Centre, together with staff members concerned; and the First Vice-Chairman joined this meeting later. The Secretary will report to you on this development. In view of UNEP's significant concern with various aspects of the management and protection of the marine environment, it is not unreasonable to think that co-ordination of activities in marine affairs within the UN system, would be greatly enhanced by UNEP's becoming a member of ICSPRO.

I am also pleased to inform you that, in the context of eight principles agreed by Unesco and ICSU governing their co-operation in the development of the oceanographic component of the World Climate Research Programme, our negotiations with SCOR on the role and functions of the Joint SCOR-IOC Committee on Climatic Changes and the Ocean have led to a Memorandum of Understanding which will, I believe, enhance our co-operation with our oldest advisory body. We were much helped in this task by the First and the Fourth Vice-Chairmen of the Commission.

Since the Twelfth Session of our Assembly, the Twenty-second Session of the General Conference of Unesco has adopted its Programme and Budget for 1984-85. The General Conference approved the Commission's supplementary proposal submitted by the Director-General, in response to the request formulated by the IOC Assembly, adding over half a million dollars to the approved budget of the IOC for the current biennium. This achievement was in no small measure due to the support given to the Commission's programme by the Director-General, who addressed this subject during the General Conference in the context of Major Programme X - The Human Environment and Terrestrial and Marine Resources; and, more especially, X.4 - The Ocean and its Resources, and by many Delegates.

Such support is most encouraging, and, I believe, enhances Unesco's role in the field of marine scientific research, which, I believe, is most appropriate, since Unesco is the home of science in the UN system. We must continue to increase the direct involvement of marine scientists and marine scientific institutions in the activities of the Commission at the national level. We here, the delegates of our respective governments, are not, in most cases, those who formulate new hypotheses of ocean processes, who sample the marine environment, who analyse the data, who propose new natural laws and theorems. We have our role, to plan, to lay down policy,



to co-ordinate at the intergovernmental level, the co-operative international marine scientific research we judge desirable to meet our wide range of national concerns. But the conduct of the agreed programmes rests largely with the scientists and the scientific and technical institutions in each Member State, to which the Commission can make the best scientific and technical advice available through its scientific and technical Advisory Bodies, and facilitate co-operation through its regional and technical subsidiary bodies.

The communication between these two levels of action - policy-making and scientific - must be strengthened as much as possible, at the national and the international levels. A way must be found to enable all Member States of the IOC to participate to the maximum extent possible, consistent with their interests, in international co-operative marine research and to conduct, at the national level, the marine science required to make the best possible use of the oceans and to achieve national goals in marine affairs. It is with this objective in mind that the Commission adopted, by Resolution XII-8 at the last Assembly, a Comprehensive Plan for a Major Assistance Programme to enhance the Marine Science Capabilities of Developing Countries, and I am pleased to see that the launching of this Plan has been the object of appreciable intersessional activity and was accepted by the Unesco General Conference.

One way that we have proposed is to create, where they do not exist, or to strengthen them, where they are weak, National Oceanographic Commissions or equivalent bodies charged with mobilizing national marine scientific activities, with harmonizing and co-ordinating them, and with concentrating available resources - technical, human, financial - on problems of national, regional or international concern, which as we well know in the IOC, are diverse and complex.

As you will recall from the Twelfth Session of the Assembly, we are approaching the Twenty-fifth Anniversary of the Commission, in 1985. It is natural and desirable to celebrate this Anniversary. In doing so - and the way in which we should do it is on our Agenda - we may look backwards to see what we have or have not achieved, and, based on this considerable experience of international co-operation, prepare the Commission to respond to the needs of the year 2000 and beyond.

In this activity and with this magical date in view, I should like to suggest at least two lines in the evolution of the Commission's major scientific programmes - such as Marine Pollution Research and Monitoring, Ocean Dynamics and Climate, Ocean Science and Living Resources, and Ocean Science and Non-living Resources - and of the pilot phase of our ocean services - IGOSS and IODE, in particular - and we are entering a phase of active implementation, of increased international co-operation, in this field of human endeavour at least.

The Commission is a special mechanism within the UN system for facilitating dialogue among all the countries of the world engaged, to whatever degree, in the scientific study of the oceans and their resources. To serve this admirable purpose it must have the active participation and support of the Member States; they must become as fully engaged as possible

in the Commission's programmes.

While the Member States of the Commission do not have to be Member States of Unesco, the regular budget of the Commission is decided by the General Conference of Unesco. The membership of the one body is therefore potentially affected by the membership of the other. This is particularly so of the Member States most actively engaged in marine science and the related services and the other important aspects of co-operative international marine science.

The implications of these trends for the Secretariat are considerable. While responsibility for implementation flows increasingly to scientists and institutions, the Secretariat's responsibility for technical and administrative back-up, for co-ordination and for organization of the related supporting services, training, education and mutual assistance will grow inexorably. I need hardly point out to you how small is the Commission's Secretariat in relation to the work to be accomplished, and how limited the budget on which its actions are based. It was for this reason that the Assembly, and the Executive Council, stressed the need to equilibrate the role and the means, and called on Unesco to consider continuing to strengthen the budget and staff of the Commission. As I have mentioned, a start has been made, by the strong support received at the General Conference. We must maintain the momentum of the new ocean regime and all it offers Member States and all it demands of them. I believe we must, now more than ever, in this period of transition from planning to operational activities, take more and more into account what it is we expect of our Secretariat and the means we provide it to meet the responsibilities we demand of it. I wish to take this opportunity to express our great appreciation for their devotion and hard work.

I look forward to accomplishing our work in the high spirit of collaboration between Member States to which we have become accustomed in the IOC.

ANNEX IV/ANNEXE IV/ANEXO IV/ПРИЛОЖЕНИЕ IV

الملحق الرابع / 附件 IV

LIST OF PARTICIPANTS / LISTE DES PARTICIPANTS/  
LISTA DE PARTICIPANTES/ СПИСОК УЧАСТНИКОВ

قائمة المشاركين / 与会者名单

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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.

Los nombres y títulos que figuran en las listas siguientes se reproducen en la forma en que las delegaciones interesadas los han comunicado a la Secretaría. Los países se mencionan en el orden alfabético inglés.

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ارررت الأسماء والألقاب في هذه القائمة كما  
قدمتها للسكرتارية الوفود المعنية، ورتبت  
أسماء البلاد بحسب الترتيب الهجائي  
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EJECUTIVO DE LA COI/  
НАБЛЮДАТЕЛИ ОТ ГОСУДАРСТВ,  
НЕ ЯВЛЯЮЩИХСЯ ЧЛЕНАМИ  
ИСПОЛНИТЕЛЬНОГО СОВЕТА МОК  
المراقبون من دول غير أعضاء  
في المجلس التنفيذي لكوى**

政府间海洋学委员会执行  
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ORGANOS CONSULTIVOS DE LA COI/  
КОНСУЛЬТАТИВНЫЕ ОРГАНЫ МОК/  
الهيئات الاستشارية التابعة لكو  
政府间海洋学委员会的咨询机构

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الهيئات الفرعية لكو  
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ANNEX V

LIST OF ACRONYMS

ACMRR (FAO)	Advisory Committee on Marine Resources Research
ALECSO	Arab Educational, Cultural and Scientific Organization
ASFIS(FAO-IOC-UN(OETB)- Unesco)	Aquatic Sciences and Fisheries Information System
BATHY (IGOSS)	Bathymograph Report
BIOMASS	Biological Investigation of Marine Antarctic Systems and Stocks; Integrated Programme for BIOMASS
CCAMLR	Convention on the Conservation of Antarctic Marine Living Resources
CCCO	Joint SCOR-IOC Committee on Climatic Changes and the Ocean
CCOP(SOPAC)	Committee for the Co-ordination of Joint Prospecting for Mineral Resources in South Pacific Offshore Areas
CGMW (of France)	Commission for the Geological Map of the World
CNES (of France)	Centre national d'études spatiales
CNEXO (of France)	Centre national pour l'exploitation des océans
CODATA (ICSU)	Committee on Data for Science and Technology
CONCYTEC	National Commission of Sciences and Technology of Peru
CPPS	Comisión Permanente del Pacífico Sur
CTD	Conductivity, Temperature, Depth
DNA	Declared National Agency
DRIBU	Drifting Buoys
ECA (UN)	Economic Commission for Africa
ECOR	Engineering Committee on Oceanic Resources
EEZ	Exclusive Economic Zone
ERFEN (CPPS)	Estudio Regional del Fenómeno "El Niño"

ERS	Earth Resources Satellite
ESA	European Space Agency
FAO	Food and Agriculture Organization of the United Nations
FGGE (WMO-ICSU)	First GARP Global Experiment
FIBEX	First BIONASS Experiment
FUROF (IOC)	Future Role and Functions of the Commission; Working Group on FUROF
GAPA (IOC)	Geological/Geophysical Atlases of the Pacific and the Atlantic Oceans
GARP (WMO-ICSU)	Global Atmospheric Research Programme
GCM	General Circulation Model
GEBCO (IOC-IHO)	General Bathymetric Chart of the Oceans
GEEP (IOC)	GIPME Group of Experts on the Effects of Pollutants
GEMS (UNEP)	Global Environment Monitoring System
GEMSI (IOC)	GIPME Group of Experts on Methods, Standards and Intercalibration
GESAMP (IMCO-FAO-Unesco- WMO-WHO-IAEA-UN-UNEP)	Group of Experts on the Scientific Aspects of Marine Pollution
GF-3 (IOC)	IOC General Format No.3 (International Oceanographic Data Exchange)
GIPME (IOC)	Global Investigation of Pollution in the Marine Environment; Working Committee for GIPME
IABO	International Association of Biological Oceanographers
IAEA	International Atomic Energy Agency
IBCM (IOC)	International Bathymetric Chart of the Mediterranean
ICES	International Council for the Exploration of the Sea
ICSEM	International Commission for the Scientific Exploration of the Mediterranean Sea
ICSPRO (UN-FAO-Unesco-WMO- IMO)	Inter-secretariat Committee on Scientific Programmes Relating to Oceanography
ICSU	International Council of Scientific Unions



IDRC (Canada)	International Development Research Centre
IGOSS (IOC-WMO)	Integrated Global Ocean Services System
IHO	International Hydrographic Organization
IMO	International Maritime Organization
INFOCLIMA (WCP)	World Climate Data Referral System
IOC	Intergovernmental Oceanographic Commission
IOCARIBE	IOC Association (or Sub-Commission) for the Caribbean and Adjacent Regions
IOCINCWIO	IOC Programme Group for the Co-operative Investigations in the North and Central Western Indian Ocean
IOCINDIO	IOC Programme Group for the Central Indian Ocean
IODE (IOC)	International Oceanographic Data Exchange
IOCEA	IOC Programme Group for the Eastern Central Atlantic
IREP	International Recruitment Experiment
ISLPP	IGOSS Sea Level Pilot Project
JSC	ICSU-WMO Joint Scientific Committee
JTA	ARGOS Joint Tariff Agreement
KAP	Kuwait Action Plan
LEPOR (IOC)	Long-term and Expanded Programme of Oceanic Exploration and Research
LOSI (IOC)	<u>Ad hoc</u> Task Team to Study the Implications, to the Commission, of the UN Convention on the Law of the Sea and the New Ocean Regime
MAB (Unesco)	Man and the Biosphere Programme
MAP (WESTPAC)	Margins of Active Plates
MAPMOPP (IOC-WMO)	Joint IOC-WMO Marine Pollution (Petroleum) (Petroleum) Monitoring Pilot Project
MARPOLMON (IOC)	Marine Pollution Monitoring Programme
MEDI (IOC)	Marine Environmental Data Information Referral System
MEDPOL (UNEP)	UNEP Co-ordinated Mediterranean Pollution Monitoring and Research Programme
MIM	Marine Information Management

MOS (Japan)	Meteorological Observation Satellite
MSL	Mean Sea Level
NASA (USA)	National Aeronautics and Space Administration
NOAA (USA)	National Oceanic and Atmospheric Administration
NODC	National Oceanographic Data Centre
NORPAX (WMO)	North Pacific Experiment
NROSS (USA)	Navy Remote Ocean Sensing System
ODAS	Ocean Data Acquisition System, Aids and Devices
OETB (UN)	Ocean Economics and Technology Branch
OOS	Ocean Observing System
OSLR (IOC-FAO)	Ocean Science in Relation to Living Resources
OSNLR (IOC-UN(OETB))	Ocean Science in Relation to Non-living Resources
PERSGA	Red Sea and Gulf of Aden Environmental Programme
PROCOPA	German-Peruvian Co-operative Programme
RNODC	Responsible National Oceanographic Data Centre
ROPME	Regional Organization for the Protection of the Marine Environment
ROSTLAC (Unesco)	Regional Office for Science and Technology in Latin America and the Caribbean
ROSTSEA (Unesco)	Regional Office for Science and Technology in Southeast Asia
RSP (UNEP)	Regional Seas Programme
SARP	Sardine-Anchovy Recruitment Programme
SCAR (ICSU)	Scientific Committee on Antarctic Research
SCOR (ICSU)	Scientific Committee on Oceanic Research
SET (WESTPAC)	Sea-level, Environment and Tectonics
SIBEX	Second BIOMASS Experiment
SOC	IOC Programme Group for the Southern Oceans
STAR	Joint CCOP(SOPAC)-IOC Working Group on Southeast Asia Tectonics and Resources
TEMA (IOC)	Training, Education and Mutual Assistance in the Marine Sciences

TESAC	Temperature, Salinity, Currents
TOGA	Tropical Oceans and the Global Atmosphere
UN	United Nations
UNCLOS	United Nations Conference (or Convention) on the Law of the Sea
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNU	United Nations University
VAP (IOC)	IOC Voluntary Assistance Programme
VCP (WMO)	WMO Voluntary Co-operation Programme
WACAF	Monitoring of Pollution in the Marine Environment of West and Central African Region
WCRP (ICSU-WMO)	World Climate Research Programme
WCRP-O	The oceanographic component of the WCRP
WDC	World Data Centre
WESTPAC	IOC Programme Group for the Western Pacific
WHO	World Health Organization
WMO	World Meteorological Organization
WOCE	World Ocean Circulation Experiment
XBT	Expendable Bathythermograph