Intergovernmental Oceanographic Commission
Reports of Governing and Major subsidiary Bodies

Thirteenth Session of the Assembly

Paris, 12-28 March 1985

Unesco

THE INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION

was established within Unesco in November 1960

The functions of the Commission are to:

(a) define those problems the solution of which requires international co-operation in the field of scientific investigation of the oceans and review the results of such investigation;

(b) develop, recommend and co-ordinate international programmes for scientific investigation of the oceans and related services which call for concerted action by its members;

(c) develop, recommend and co-ordinate with interested international organizations, international programmes for scientific investigation of the oceans and related services which call for concerted action with interested organizations;

(d) make recommendations to international organizations concerning activities of such organizations which relate to the Commission's programme;

(e) promote and make recommendations for the exchange of oceanographic data and the publication and dissemination of results of scientific investigation of the oceans;

(f) make recommendations to strengthen education and training programmes in marine science and its technology;

(g) develop and make recommendations for assistance programmes in marine science and its technology;

(h) make recommendations and provide technical guidance as to the formulation and execution of the marine science programmes of the United Nations Educational, Scientific and Cultural Organization;

(i) promote freedom of scientific investigation of the oceans for the benefits of all mankind, taking into account all interests and rights of coastal countries concerning scientific research in the zones under their jurisdiction.

In carrying out its functions, the Commission is required to bear in mind the special needs and interests of developing countries including in particular the need to further the capabilities of these countries in marine science and technology.

Nothing in the above shall be construed as implying the expression of a position regarding the nature or extent of the jurisdiction of coastal States in general or of any coastal State in particular.

(Statutes, Article 2, November 1970)

In addition to the above, the Commission has a further function which is to act as an effective joint specialized mechanism operating on behalf of certain organizations of the United Nations system substantially concerned with oceanic programmes (United Nations, Unesco, FAO, WMO and IMO), under an agreement developed by the Inter-secretariat Committee on Scientific Programmes Relating to Oceanography (ICSPRO).

SC/MD/79
17 June 1985
Original English

In this Series

Reports of Governing and Major Subsidiary Bodies, which was initiated at the beginning of 1984, the reports of the following meetings have already been issued:

- Eleventh Session of the Working Committee on International Oceanographic Data Exchange
- Seventeenth Session of the Executive Council
- Fourth Session of the Working Committee for Training, Education and Mutual Assistance
- Fifth Session of the Working Committee for the Global Investigation of Pollution in the Marine Environment
- First Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions
- Third Session of the *ad hoc* Task Team to Study the Implications, for the Commission, of the UN Convention on the Law of the Sea and the New Ocean Regime
- Thirteenth Session of the Assembly

PREAMBLE

'The purpose of the Commission is to promote scientific investigation with a view to learning more about the nature and resources of the oceans through the concerted action of its members.' (Statutes, Article 1, paragraph 2).

The Commission held the thirteenth session of its Assembly in Unesco Headquarters in March 1985. Delegates from 86 Member States and representatives from 23 intergovernmental and non-governmental bodies attended.

This Report contains a summary of the discussions that took place during the session. The 20 Resolutions adopted are given in full in Annex II.

During the session, the 25th Anniversary of the Commission was celebrated at a special opening ceremony. The three keynote speeches are given in Annex III, but all the speeches, as well as the messages of congratulations received by the Secretary, will be published in a special supplement to this Report. Also during the session, the traditional Bruun Memorial Lectures were presented; this year the theme was 'Past and Future Perspectives of the Commission'. Abstracts are given in Annex V. The full lectures will be published in the IOC Technical Series.

With a few exceptions, the decisions and actions internal to the Commission have been incorporated 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, 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 Assembly are indicated by underlining in the text of the Report.

During the period covered by this report, i.e. from the end of the twelfth session of the Assembly (20 November 1982) until the end of the thirteenth session of the Assembly (28 March 1985) including the seventeenth and eighteenth sessions of the Executive Council:

(a) the following served as Officers of the Commission:

Chairman: Professor Inocencio A. Ronquillo (Philippines)

First Vice-Chairman: Melle M.A. Martin-Sané (France)

Second Vice-Chairman: Professor A.R. Bayoumi (Egypt)

Third Vice-Chairman: Dr J.A. Galavis-Seidel (Venezuela)

Fourth Vice-Chairman: Professor Dr. sc. Klaus Voigt (German Democratic Republic)

(b) the following served as State-Member Representatives on the Executive Council:

A. Chouikhi	Algeria
D. Van-Dunem	Angola
F. Vila	Argentina
D.G. Keeley	Australia
V. Lisieux Medeiros de Figueredo	Brazil
N.J. Campbell	Canada
Luo Yuru	China
M.M. Murillo	Costa Rica
G. Hempel	Germany, Federal Republic of
V.V.R. Varadachari	India
A. Soegiarto	Indonesia
N.A. Hussain	Iraq
C. Morelli	Italy
N. Nasu	Japan
A. Badran	Jordan
S.O. Allela	Kenya
A. Ayala-Castañares	Mexico
T.F. Groustra-de-Kat	Netherlands
J.G. Tobor	Nigeria
J.M. Bakula	Peru
D.Y. Kane	Senegal
M. Oliver Massuti	Spain
J.O. Stromberg	Sweden
T.I. Balkas	Turkey
R.J.H. Beverton	United Kingdom
E.I. Tolstikov	Union of Soviet Socialist Republics
J.V. Byrne	United States of America

A list of the new officers of the Commission and State-Member Representatives on the Executive Council who will serve until the end of the fourteenth session of the Assembly (March 1987) is given in Annex IV to this Report.

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Annex IV A. List of IOC Member States (as at 25 March 1985)

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1. OPENING

The Chairman, Professor Inocencio Ronquillo, opened the thirteenth session of the IOC Assembly at 10.00 on 12 March 1985. 1

He called on the participants to stand in silence for one minute, to mark the death of the Head of State of the USSR, Mr Konstantin Chernenko. 2

2. TWENTY-FIFTH ANNIVERSARY CELEBRATIONS

The Chairman welcomed the participants to the ceremony commemorating the 25th Anniversary of the Commission. On behalf of the Commission he expressed his pleasure at the presence of numerous personalities at the session for the occasion, notably: the Director-General of Unesco, Mr Amadou Mahtar M'Bow; the Minister of Scientific Research and Technology, of France (as the host country), Mr Hubert Curien; the Secretary-General of the World Meteorological Organization (WMO),* Mr G.O.P. Obasi; the Under-Secretary General of the United Nations (Geneva), Mr Erik Suy; the Assistant Director-General (Fisheries) of the Food and Agricultural Organization of the United Nations (FAO), Mr Jean Carroz; the Assistant Director-General for Science, of Unesco, Mr Abdul Razzak Kaddoura; the Minister of Science and Technology, of Venezuela, Mr Luis Carbonell Izquierdo; the Secretary of State for Ocean Development, of India, Dr S.Z. Qasim; the Secretary of State for Foreign Affairs, of Tunisia, Mr Mahmoud Mestiri; the Representative of the Secretary-General of the International Maritime Organization (IMO), Mr Jerzy Wonau; the Deputy Executive Director of the United Nations Environment Programme (UNEP), Mr Genady Golubev; the President of the International Council of the Exploration of the Sea (ICES), Professor Warren Wooster; the Secretary-General of the Comision Permanente del Pacífico Sur (CPPS), Dr Luis Arriaga; the President of the Scientific Committee on Oceanic Research (SCOR), Professor Gerold Siedler; and the President of the Engineering Committee on Oceanic Resources (ECOR), Professor Ascensio Lara. 3

The Chairman expressed his satisfaction with the high level of representation of the United Nations organizations members of the Inter-secretariat Committee on Scientific Programmes Relating to Oceanography (ICSPRO), and of the Member State Delegations, some of which were represented at ministerial or ambassaderial level. 4

He particularly welcomed the presence of five past Chairmen of the IOC: Dr W. Cameron (1962-1963), Prof. Henri Lacombe (1965-1967), Admiral Langeraar (1967-1973), Dr George Humphrey (1973-1977), and Dr. Agustin Ayala Castañares (1977-1982), and of four past Secretaries: Professor Warren Wooster (1961-1963), Dr Konstantin Fedorov (1963-1970), Dr Sidney Holt (1970-1972), and Mr Desmond P.D. Scott (1972-1980). 5

The full text of the Chairman's statement appears, with the texts of the statements of the Director-General of Unesco and the Minister of Scientific Research and Technology, of France, in Annex III to the present Report; however, all the statements made at this special commemorative 6

* A list of acronyms is given in Annex VIII.

Session will be given in a special supplement to the present Report. The highlights of the Chairman's statement were as follows:

7 Success in IOC's work is due to the candid and open discussion in its governing bodies. It is also due to the deep understanding shown by Unesco and its Director-General of the Commission's needs and goals, and to the co-operation of the United Nations organizations members of ICSPRO, which is an outstanding example of inter-agency collaboration. Credit is also due to the Advisory Bodies - SCOR, ACMRR and ECOR. This 25th Anniversary provides a special opportunity to review the Commission's work critically, and to formulate guidelines for its future work. Co-operation with non-governmental and specialised regional organizations is also mutually beneficial. The demands on the Commission have increased, especially since the emergence of a New Ocean Regime, and have generally exceeded its resources, human and budgetary. The Commission is moving towards a consolidation of its structures and mechanisms of co-operation and the transition from planning to implementation, through the Member States, of its programmes. Unesco has allowed the Commission to grow and now a partnership between developing and industrialized countries is clearly emerging. To support this co-operation, the Commission must strengthen itself, involve the Member States more, at whatever level, and strengthen its relationships with the ICSPRO organizations and others concerned with marine affairs.

8 The Director-General of Unesco, Mr Amadou Mahtar M'Bow, then welcomed the participants. He stressed his and Unesco's constant concern with strengthening the Commission and its links with other relevant organizations of the United Nations system, with other governmental and non-governmental and national organizations concerned with the science of the sea. The IOC was born out of the co-operation between the International Advisory Committee on Marine Science, created in 1955 to advise the Director-General of Unesco on international co-operation in this field, and two years later, a special ICSU Committee which became SCOR, with help of the United Nations, FAO, WMO and IAEA, to which he paid hommage. Unesco has also supported the IOC to enable it to carry out its role as a joint specialized mechanism of the ICSPRO organizations. A major milestone in the development of IOC was the conception of the Long-term and Expanded Programme of Oceanic Exploration and Research (LEPOR). The important responsibilities LEPOR engendered led to an adaptation of the existing statutes to help the IOC to meet its responsibilities more effectively. Among these was the development of ocean services; the Integrated Global Ocean Services System (IGOSS) was created, and this and similar 'operational' activities have proven to be most useful. The most important milestone, however, was the adoption of the United Nations Convention on the Law of the Sea, and the IOC has responded actively to it. Unesco is always attentive to the Commission's work and places great faith in it as the year 2000 approaches.

9 The Minister for Scientific Research and Technology, of France, Mr Henri Curien, then addressed the Assembly. He recalled that France was a founder member of the IOC and one of its most active Member States. These first 25 years practically correspond to the emergence of the New Ocean Regime. The resources of the oceans can only be well known and rationally exploited in the presence of a better scientific knowledge and a mastery of the related technology. The challenge can only be met by international co-operation. The Commission has played, and continues to play, an important role in this. The President of France has declared in a television broadcast that outer space and the oceans are key elements in any foreign

policy. It is not enough for the countries of a region to agree to co-operate; co-operation must be established between developed and developing countries, scientifically and technologically speaking. France is ready to help - to help bring about the participation of all by strengthening national capabilities of each one, in marine science, ocean services and the related techniques. To this end, France has not only been an active sup- porter of IOC, but is rationalizing its own structure through the creation of Institut Français de Recherche pour l'Exploitation de la Mer (IFREMER) and Institut National des Sciences de l'Univers (INSU). And an ambitious programme - OCEAN - has been set up, with a view, inter alia, to helping interested developing countries to acquire modern marine scientific knowledge techniques.

10 The speeches of the Chairman, the Director-General and the Minister of Scientific Research and Technology were followed by statements by other personalities on the podium. The Secretary-General of WMO recalled the fact that this Organization's predecessor - the International Meteorological Organization - was established in 1873 precisely to deal with the international implications resulting from the collection and distribution of nautical and meteorological observations from the world's oceans. Also, the interactions between the oceans and the atmosphere are fundamental to oceanography and to meteorology, which explains WMO's longstanding and close co-operation with the IOC, first through IGOSS and now through the World Climate Research Programme (WCRP), in which the Joint SCOR-IOC Committee on Climatic Changes and the Ocean plays an important role. Moreover, WMO has supported the IOC under the ICSPRO Agreement, since it was adopted in 1969, through the provision of staff to the IOC. He wished the IOC continued growth and success in the next 25 years.

11 The Under-Secretary-General of the United Nations, Mr Erik Suy, brought a message of felicitation from the Secretary-General, Dr Javier Perez de Cuellar. He recalled that international co-operation in marine science dates back to 1853 when a uniform system of ocean data collection was proposed. Such co-operation continued, but, in more recent times, it received a considerable impulse from the International Geophysical Year 1957-1958, which revealed more than ever the need for effective mechanisms for international co-operation. The principal recommendation of an Intergovernmental Conference on Oceanographic Research, in Copenhagen in 1960, was the creation of the IOC within Unesco. To enhance and extend this co-operation further, the IOC has, especially in the last decade, given much attention to increasing the capacity of its developing Member States in the marine sciences, and has played the leading role in the United Nations system in the promotion of marine science, ocean services and the related training, education and mutual assistance. Now, the new ocean regime provides a new impulse to international co-operation in marine affairs. The integrated approach of the United Nations system to the oceans should be preserved so as to defend the moral imperative - human survival - and to ensure a better life for mankind.

12 The Assistant Director-General (Fisheries) of FAO, Mr Jean Carroz, addressed a message from the Director-General of FAO, Mr Edouard Saouma, who regretted not being able to be present personally. FAO's co-operation with the IOC dates back to IOC's beginning, but was reinforced by the creation of ICSPRO. Fishery science is multidisciplinary, but the shortcomings of traditional techniques to assess the state of fish stocks are now recognized. The influence of weather on productivity of the oceans, and the air-sea

interactions, constitute vital information for fishery workers. The IOC-FAO Programme of Ocean Science in Relation to Living Resources (OSLR) is designed to study these questions. Our co-operation is also strong in the operation of the FAO-IOC-UN (OETB) Aquatic Sciences and Fisheries Information System (ASFIS). In the field of training, FAO collaborated with the Commission in the convening and follow-up of a Workshop on Improved Uses of Research Vessels. Mr Carroz noted that the world fish catch has remained relatively steady in the last decade. The stocks appear to have reached their biological limits under exploitation, and the way forward must be through improved management, waste reduction, and more aquaculture. This is why FAO organized the World Conference on Fisheries Management and Development in June/July 1984; he much appreciated the contribution of the IOC to the success of this Conference, which endorsed a Strategy for Fisheries Management and Development, and five Programmes of Action, which will call for even closer collaboration between IOC and FAO. The tragic world food problem could be alleviated by increasing the production of food from the sea, and co-operation in this endeavour is essential.

13 These speakers were followed by congratulatory messages delivered by the Minister of Science and Technology of Venezuela, Mr Luis Carbonell, the Secretary of State of India for Ocean Development, Dr S.Z. Qasim, and the Secretary of State of Tunisia for Foreign Affairs, Mr Mahmoud Mestiri.

14 The Minister of Science and Technology of Venezuela, Mr Luis Carbonell, brought the congratulations of the President of Venezuela on the occasion of the Commission's 25th Anniversary. He recalled Venezuela's longstanding support for IOC, particularly through the Sub-Commission for the Caribbean and Adjacent Regions and its predecessors. He stressed Venezuela's interest in IOC's programmes in relation to non-living resources and in the proposed bathymetric chart of the Caribbean, as well as in the training of scientists.

15 The Secretary of State of India for Ocean Development, Dr S.Z. Qasim expressed his pleasure at being at the present ceremony. He was sorry that two other past Chairmen, Prof. Anton Bruun, and Dr N.K. Pannikar, are no longer with us. He emphasized the role of IOC in the new ocean regime and in co-operation between developing and developed countries. He noted the uniqueness of the Indian Ocean and therefore its considerable marine scientific interest. The IOC is the body in the United Nations system designed to bring together the many countries surrounding the Indian Ocean or conducting marine research in it. To help IOC carry out its responsibilities, the Government of India will contribute to the IOC Trust Fund and provide institutional fellowships and shipboard training.

16 The Secretary of State of Tunisia for Foreign Affairs, Mr Mahmoud Mestiri, expressed the congratulations of his country on this special occasion. He reminded the Assembly of Tunisia's strong interest in marine affairs, having organized a number of major international conferences and symposia on the implications of the United Nations Convention on the Law of the Sea. He stressed the importance of international co-operation in the Mediterranean Sea which is an important semi-enclosed sea.

17 These statements were followed by one from the Head of the Delegation of China, Mr Luo Yuru. He first read a message conveying the warm congratulations from the State Councillor and Minister of Foreign Affairs, Mr Wu Xueqian. Mr Luo then stated that the IOC has had encouraging achievements in the promotion of international co-operation in marine

science and its technology and ocean services, and of assistance to its Member States, especially the developing ones. China will continue to make its contribution to the Commission's development.

Then the Representatives of other organizations co-operating with the Commission delivered short goodwill messages. 18

The Representative of the Secretary-General of IMO, Mr Jerzy Vonau, wholeheartedly congratulated the IOC, and stressed the IMO's need for the results of scientific research to discharge its responsibilities for marine environmental protection and safety, and therefore the importance of co-operation with the IOC. 19

The Deputy Executive Director of UNEP, Mr Genady Golubev, brought the best wishes of the Executive Director, and stressed the growing community of interest between UNEP and the IOC. He hoped that the role of IOC in providing the scientific basis for marine environmental protection and management would grow. 20

The President of ICES, Professor Warren Wooster, brought the best wishes of ICES to the IOC. He remarked on the similarity of concerns in certain fields, especially Ocean Science in Relation to Living Resources, and Ocean Dynamics and Climate, as well as marine pollution research and monitoring and data exchange; IOC's success therefore contributed to ICES' success. 21

The Secretary-General of CPPS, Dr Luis Arriaga, speaking on behalf of the Member States of CPPS - Colombia, Peru, Ecuador and Chile - expressed his Commission's profound satisfaction and congratulations on the IOC's 25th Anniversary. He appreciated the support IOC had given to the development of marine science in his region. 22

The President of SCOR, Professor Gerold Siedler, extended the congratulations of the international marine scientific community, represented by SCOR. He underscored SCOR's role in IOC's life, as one of IOC's advisory bodies, and the importance to SCOR of the IOC's role in mobilizing intergovernmental support for international marine science. This was marked by two milestones: the publication of 'Perspectives in Oceanography' in 1969; and of 'Future Ocean Research' in 1982. 23

The President of ECOR, Professor Ascensio Lara, offered the congratulations of ECOR to IOC and called for even closer links, to blend science and technology so that the two organizations could make a historical leap forward in our knowledge of the ocean and the development and exploitation of its resources. 24

3. BRUUN MEMORIAL LECTURES

The First Vice-Chairman, Ms M.A. Martin-Sané, introduced the Bruun Memorial Lectures on the afternoon of Tuesday, 12 March 1985, on the theme of the Commission's past and its future perspectives. In introducing the three distinguished speakers, she reminded the Assembly that the celebration of the 25th Anniversary of the IOC offered a unique opportunity to evaluate the achievements of the Commission as well as to anticipate how the IOC would evolve in the coming years. She noted that the presence, at the 25

Assembly, of the former Chairmen and Secretaries of IOC was most appreciated and would no doubt provide an additional dimension to the discussion period following the lectures.

26 The speakers and their lectures were:

On the Benefits of Ocean Research, by Professor Warren Wooster (U.S.A.)

Future Challenges in Ocean Science and Technology, by Dr S.Z. Qasim (India)

International Co-operation in Marine Scientific Research under the Emerging Ocean Regime, by Professor Alexander Yankov (Bulgaria)

27 A Discussion Panel, comprising the Bruun Memorial Lecturers, the past Chairmen and past Secretaries of the Commission, was constituted to respond to these comments and questions. Ms Martin-Sané thanked the speakers for their thought-provoking lectures and invited comment and questions from the floor. Many participants commented on the perspectives of ocean research and the relation between these and the future directions of the Commission.

28 Abstracts of the Lectures are given in Annex V. The full texts, including an account of the discussions, will be published in the IOC Technical Series in due course.

29 The choice of Bruun Memorial Lectures and Lectures for the next session of the Assembly is discussed under Agenda Item 14.

4. ADMINISTRATIVE ARRANGEMENTS

30 The Chairman thanked the delegates and other participants for their co-operation in making the celebration of the 25th Anniversary of the Commission a success. He gave special thanks to the Director-General and to the Assistant Director-General for Science, of Unesco. The List of Participants is given in Annex VII hereto.

31 The Chairman then read out the list of those who, having been closely associated with the work of the Commission, had died since the Twelfth Session of the Assembly. He asked participants to stand for one minute's silence for Sir George Deacon (United Kingdom), Dr Victor Faleev (USSR), Mr H. Rombach (Netherlands), Professor Eric Simpson (SCOR), Professor Stanislaw Szumborski (Poland), Professor Etienne Winnock (France), Mr Bernardo Zuleta (UN), Miss Jeanne Saliou (IOC) and Miss Lotti Rudiger (IOC).

32 Resuming, he recalled that the Executive Council had met for one day, on 11 March 1985, as the Steering Committee for the Assembly, and had reviewed the arrangements therefor; he drew attention to the Summary Report of the Executive Council (document IOC/EC-XVIII/3).

4.1 ADOPTION OF THE AGENDA

33 The Secretary informed the Assembly of the observations made by the Executive Council on Agenda Item 7. The proposed changes did not alter the

content of the Agenda but only its presentation, to take into account the view, expressed by the U.S.A.and Canada to the Secretary, that IGOSS was not itself an observing system even if, in its structure, there was one or more such systems, and should therefore not appear under Item 7.1 of the provisional agenda. The new arrangement proposed is:

7. OCEAN SERVICES

7.1 INTEGRATED GLOBAL OCEAN SERVICES SYSTEM (IGOSS)
7.2 OCEAN OBSERVING SYSTEMS
7.2.1 Global sea-level network
7.2.2 Drifting buoys
7.3 INTERNATIONAL OCEANOGRAPHIC DATA EXCHANGE AND MARINE INFORMATION MANAGEMENT
7.3.1 Marine information management
7.4 INTERNATIONAL TSUNAMI WARNING SYSTEM IN THE PACIFIC

The Assembly decided that, to avoid any confusion of cross-reference to the other documentation for the Session, and in the absence of any proposals for an amendment to the substance of the provisional agenda, the provisional agenda should be retained for the Session, but that the reordered provisional agenda, as indicated above, should be used as the basis for the Draft Summary Report and as Annex I thereto. With this proviso, the Assembly adopted the Agenda which is attached as Annex I hereto. 34

4.2 DESIGNATION OF THE RAPPORTEUR

The Chairman informed the Assembly that the Executive Council had designated Dr S.A.H. Abidi (India) Rapporteur for its Eighteenth Session, and had recommended that he be designated as Rapporteur for the Thirteenth Session of the Assembly. 35

The Assembly accepted this recommendation and designated Dr Abidi Rapporteur for its Thirteenth Session. Dr Abidi was obliged to return to India on 19 March and Dr V. Varudachari, also of India, was designated to replace him for the remainder of the session. 36

4.3 CONDUCT OF THE SESSION, TIMETABLE AND DOCUMENTATION

The Secretary reminded the participants that this was a short Assembly, so that it was not feasible to have separate Technical Sessions followed by Plenary Sessions. At the same time, some delegates to the Executive Council, at its Seventeenth Session, had also suggested that supplementary meetings should not be allowed to interfere with the work of the Assembly, and that time should be set aside within the normal session hours for meetings of ad hoc Drafting Groups, if required, rather than having such meetings in parallel with the plenary or at unconventional hours. 37

The Assembly accepted this modus operandi. 38

The Secretary informed the Assembly that problems of documentation (late delivery, lack of some language versions) had been dealt with in detail by the Executive Council. He also informed participants of the situation of certain documents still in preparation, notably documents 39

IOC-XIII/9 (Draft Biennial Report of the Commission (1983-1984)), document IOC-XIII/8 Annex 5 (Proposal for the IOC Programme and Budget 1986-1987) and document IOC-XIII/8 Annex 6 (Membership of the Executive Council - Rule of Procedure No. 18). The purpose of the latter document is to take into account the possibility for increasing the size of the Executive Council according to the increased number of Member States since the last Assembly.

40 The Secretary pointed out the proposed changes in the Timetable (document IOC-XIII/1 prov. Add. rev.2), with a view to facilitating the participation of some of the subsidiary body Chairmen and to allow early consideration of certain topics, notably LEPOR and a possible Draft Resolution on Adjustments to the Statutes; also, delaying consideration of the Draft Biennial Report appeared to be desirable to allow delegates time to formulate views and comments on it.

41 The Chairman informed the Assembly of the composition of the Nominations Committee, for the formation of which the Executive Council is responsible under Rule of Procedure No. 12(2):

Poland (Chairman), China, Egypt, Indonesia, Italy, Kenya, Mexico, Peru, Turkey and the USSR.

42 He also informed the Assembly of the Executive Council's recommendation on the composition of the Resolutions Committee: United Kingdom (Chairman), Algeria, Brazil, Costa Rica, Germany (Federal Republic), Japan, Nigeria, Turkey, U.S.A. and USSR, and any other Member State that had a special interest in any particular draft resolution (e.g., the originating Member State).

43 The Assembly accepted this recommendation and nominated the Resolutions Committee accordingly.

44 The Chairman reminded the Assembly that the United States Delegation had, prior to the session, proposed that consideration be given by the IOC to reviewing its past resolutions to determine which operative paragraphs were now obsolete or contradictory, one with another, and could therefore be formally dropped. The Chairman believed that this would serve a useful purpose and the task would be facilitated by the computerization of all IOC resolutions, which had been completed.

45 The Assembly called on the Resolutions Committee to submit a proposal to the Plenary on guidance to the Secretary to arrange for an assessment of the Commission's previous resolutions, as recommended by the Executive Council at its Eighteenth Session, with a view to keeping IOC resolutions under permanent review in the future.

5. REPORT ON ACTIVITIES OF THE COMMISSION 1983-1984

5.1 SECRETARY'S REPORT ON INTERSESSIONAL ACTIVITIES

46 The Secretary presented his Report, bringing the highlights of intersessional activities to the attention of the Assembly and inviting written comments or corrections during the Assembly to allow a final version to be prepared.

In the intersessional period, the Secretariat has seen the number and variety of its tasks and the involvement of Member States increase, thus laying the foundation for steady growth in activities. Yet, in spite of the appreciable increase in the Commission's Regular Budget for the biennium 1984-1985, voted by the twenty-second session of the General Conference of Unesco, the means available to carry out those tasks have not kept pace. The serious constraints now upon Unesco have obliged it to withhold about 10 per cent of the approved budget, to deal with the new adverse circumstances, and to slow down recruitment to vacant posts, new and old. Three new Professional posts and four new General Service posts have remained unfilled, as well as two vacant General Service posts. And one approved Professional post has been cancelled. 47

The initial impulse required to get new programmes moving, or to maintain the momentum of older programmes has required a considerable effort by the staff, in spite of the efforts of some Member States to assist, by seconding staff members - five at present - and by contributions to the IOC Trust Fund. 48

The ad hoc Task Team to Study the Implications, for the Commission, of the United Nations Convention on the Law of the Sea, and the New Ocean Regime put forward specific proposals to the Assembly to adapt the Commission to the new trends in ocean affairs, and has proposed a careful analysis of the tasks - and the required resources, budgetary and human - that have arisen or will certainly arise from this adaptation. 49

The growth of Member States' interest in marine affairs, as a new ocean regime has emerged, means increased participation in co-operative international marine science as a basis for improved exploration, exploitation and management of marine resources and protection of the marine environment. The IOC being the only body in the United Nations system that deals exclusively with marine science and the related ocean services - and training, education and mutual assistance in the marine sciences - also increases the demands of the system upon it. Any failure to meet these demands will lead to dispersion, duplication and waste of effort, at the Member States' expense. 50

It may be argued that the Commission organizes too many meetings, yet the Member States - notably at sessions of regional subsidiary bodies - stress the importance of the IOC's providing fora for the exchange of ideas and information, and even of data, and for reaching agreement on regional or global objectives and the programmes required to achieve those objectives. 51

It is now clear that unless some Member States or some individual scientists take the lead in the implementation of agreed programmes, the Secretariat - whether in Paris or in the various regions - cannot always undertake to promote or directly supervise the implementation of these programmes. The Programme Group for the Western Pacific is a good example of initiatives being taken by some of the Member States; other examples can be cited, particularly in the field of ocean mapping, IGOSS and El Niño. In the younger and more specialized areas, such as OSLR, Ocean Science in Relation to Non-Living Resources (OSNLR) and Ocean Dynamics and Climate, key individuals are tending to play predominant roles in the formulation and promotion of scientific research projects approved by the Commission. In the Global Investigation of Pollution in the Marine Environment (GIPME), for example, the actual participation of Member States in the Working Committee 52

is comparatively modest, but the participation of individual scientists and institutions is significant.

53 The Joint SCOR-IOC Committee on Climatic Changes and the Ocean (CCCO) has continued to work with the meteorological community to develop the experimental and observational strategies for the oceanographic and boundary-layer components of the World Climate Research Programme (WCRP), and continues to engage a large number of scientists in this process, particularly through its regional Panels on Ocean Climate Studies, and its Scientific Steering Groups for TOGA (Tropical Ocean and Global Atmosphere) and WOCE (World Ocean Circulation Experiment). The Committee has emphasized the preparation of detailed plans as the basis for 'operational' projects to be promoted and developed in the framework of IOC and other appropriate bodies. The Plan for the TOGA Scientific Programme was submitted for critical review to the SCOR-IOC-WMO International Conference on the TOGA Scientific Programme, in September 1984, in Unesco. A WOCE Plan has also been drafted and is undergoing internal review.

54 The IOC Programme Group on Ocean Processes and Climate held its First Session in Paris, 6-8 March 1985, its role is to provide a mechanism by which all Member States of the IOC may participate in those activities of the oceanographic component of the WCRP that require the concerted action of Member States, and, to ensure that the IOC's role in the WCRP is organized in an effective manner. An Executive Summary of the Programme Group's session is before the Assembly.

55 The IOC-FAO Guiding Group of Experts on Ocean Science in Relation to Living Resources (OSLR), at its First Session (Paris, 16-20 July 1984) made nine Recommendations for the development of the programme. It endorsed the Sardine-Anchovy Recruitment Programme (SARP), as a component of the International Recruitment Programme (IREP) under OSLR; a follow-up IOC-FAO Expert Consultation on Operational Aspects of SARP was held in La Jolla, California, in November 1984 and prepared a detailed plan of action for SARP in the eastern Pacific and the south-eastern Pacific, and outlines for other regions.

56 The Guiding Group of Experts recommended the organization of a Workshop Recruitment in Tropical Demersal Communities within the framework of the IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE). It particularly called for IOC co-operation with ICES, to develop OSLR studies in the ICES area, and the reinforcement of co-operation between, on the one hand, IOC and FAO, and, on the other, SCOR; and with the International Association for Biological Oceanography (IABO) in basic ecological studies of relevance to IREP.

57 The First Session of the IOC-UN (OETB) Guiding Group of Experts on Ocean Science in Relation to Non-Living Resources (OSNLR), held at Unesco in January 1985, developed a concept, and formulated elements, of a general strategy for the implementation of the programme. It identified a number of commercially interesting marine non-living materials requiring the development, by the Commission, of an improved scientific basis for their exploration and/or exploitation. The Group particularly recommended a worldwide study of the coastal zone in connection with sea-level changes and neotectonics over the past million years. There is a certain number of activities at the regional level, particularly in the Western Pacific (WESTPAC)

Region, that could form the basis for the development of this new science programme of the Commission..

The General Bathymetric Chart of the Oceans (GEBCO) (5th Edition) World Sheet, on a scale of 1:35 million, was published early in 1984, and the GEBCO Boxed Set, containing all 19 sheets (folded), a supporting volume giving full details of the series and a copy of the Catalogue of Plotting Sheet World Series 1/1,000,000 is on sale. The GEBCO Sub-Committee on Digital Bathymetry has made arrangements for the digitizing of the GEBCO (5th Edition) contours. 58

The Tenth Session of the Guiding Group for GEBCO and the First Session of the IOC Consultative Group on Ocean Mapping will be held in April 1985. 59

Progress with the compilation of the two Geological/Geophysical Atlases of the Atlantic and Pacific Oceans (GAPA) has been slower than expected, owing to difficulties of communication and transmission of draft material as well as the death of the Deputy Editor, Professor E.S.W. Simpson. However, there is no doubt that the quality of the data being assembled is excellent and the Atlases should be of a very high standard. 60

The Editorial Board for the International Bathymetric Chart of the Mediterranean and Overlay Sheets (IBCM) held its First Session, Lucerne, Switzerland, in October 1984. The preparation of the geological/geophysical overlay sheets of the Mediterranean has been proceeding satisfactorily, but the untimely deaths of Dr Victor Faleev, Chief Editor, and Mr Etienne Winnock (Elf-Aquitaine, Pau), a leading member of the Board, has disrupted the production programme. However, the new Chief Editor, Captain Sergei Valchuk, of the Head Department of Navigation and Oceanography, Leningrad, confirmed the willingness of the Soviet Union to print and publish six series of IBCM geological and geophysical maps, a Supporting Volume and an International Bathymetric Chart of the Mediterranean in one sheet at a scale of 1:5 million. 61

In addition to the International Bathymetric Chart of the Mediterranean and Overlay Sheets (IBCM), four other regional bathymetric mapping projects are in the planning stage. They are for the Central Eastern Atlantic, the Central Western Indian Ocean, the Red Sea and Gulf of Aden, and the Caribbean Sea and part of the Pacific Ocean of Central America. 62

The Secretary paid tribute to the great help that he is receiving from his predecessor, Mr Scott, who, in his capacity of Permanent Secretary of GEBCO, has been of invaluable help to the Secretariat, especially since, at the moment, there is no geologist or mapping specialist in the Secretariat. 63

Implementation of the Global Investigation of Pollution in the Marine Environment (GIPME) has proceeded largely as planned, with particular efforts to develop a sound methodological basis for monitoring, and to promote increased capabilities of developing countries to participate in the programme and in its regional components. 64

The Fifth Session of the Working Committee for GIPME, held in Bangkok, in 1984, adopted a revised strategy for the implementation of the Comprehensive Plan for GIPME and advised on the strengthening of the Marine Pollution Monitoring System (MARPOLMON) and the development of regional components. The Working Committee also recommended the promotion of international Mussel Watch programmes in the context of MARPOLMON. 65

66 The Working Committee's Group on Policy, Planning and Strategy (GOPPS), at its Second Session in Paris, 24-25 September 1984, analysed the report of the Fifth Session of GIPME, and decided that MARPOLMON-P (Petroleum) could now be considered as having completed all the initial stages of implementation laid down in the Comprehensive Plan and that it is now up to the Member States to initiate monitoring activities. The Group stressed that the IOC funding level for GIPME is clearly inadequate for effective implementation of the approved tasks.

67 Following negotiations between the Secretary of IOC and the Director of the UNEP Regional Seas Programme Activity Centre, the GIPME Group of Experts on Methods, Standards and Intercalibration (GEMSI) is now formally co-sponsored by UNEP.

68 At its Sixth Session at the Woods Hole Oceanographic Institution last November, GEMSI considered, inter alia, the provision of standard reference materials through a co-ordinated effort by participating institutions and international agencies engaged in the preparation and distribution of certified reference materials.

69 The GIPME Group of Experts on Effects of Pollutants (GEEP) at its First Session, in Plymouth, in December 1984, initiated the preparation of plans and guidelines on a proposed Workshop on Biological Effects Measurements, on the biological aspects of the Mussel Watch Programme, on the identification and classification of vulnerable areas, and on methods for studying effects of pollution at the population level.

70 Using the experience gained from method testing, field work, intercalibration and training exercises, several components of MARPOLMON are becoming operational on a regional basis. Enhanced by the close cooperation with the Regional Seas Programme Activity Centre (RSPAC) of UNEP and with ICES, a number of stages of method development, testing and intercalibration have been completed, particularly in the monitoring of petroleum hydrocarbons in the environment in various regions.

71 The GIPME Group of Experts on Methods, Standards and Intercalibration (GEMSI), has made an appreciable contribution to MARPOLMON, particularly with respect to: sea-surface microlayer sampling; the determination of PCB and of petroleum hydrocarbon components in water; and the use of organisms and of marine sediments in marine pollution monitoring.

72 The IOC Secretariat, on behalf of Unesco, provides the Technical Secretary for the Joint IMO-FAO-Unesco-WMO-WHO-IAWA-UN-UNEP Group of Experts on Scientific Aspects of Marine Pollution (GESAMP). At the Thirteenth Session of GESAMP, the proposal that GESAMP establish a Working Group on Integrated Global Ocean Monitoring was opposed by the Unesco Technical Secretary on the grounds that it duplicated the longstanding efforts of the IOC to establish and develop various ocean monitoring systems, including MARPOLMON; this matter will be taken up at a forthcoming Inter-agency Meeting of GESAMP Technical Secretaries.

73 Efforts continue to be made to strengthen the co-operation with the International Maritime Organization (IMO), particularly in areas of mutual interest related to petroleum pollution monitoring, identification of vulnerable areas, and biological effects of pollutants. The Secretary has

arranged with the Secretary-General of IMO for an inter-secretariat consultation to discuss co-operation between IMO and IOC, particularly in the light of the decision to recall to London the IMO staff member assigned to IOC under the ICSPRO Agreement.

74 The Joint IOC-WMO Working Committee for the Integrated Global Ocean Services System (IGOSS) continued its efforts to define the role of IGOSS in response to the requirements of the World Climate Research Programme. The subsurface thermal data requirement continues to be the most important aspect of the IGOSS. In 1984, some 45,000 BATHY/TESAC data were exchanged over the Global Telecommunications System (GTS); a fundamental weakness, however, is the quantity of data being observed but not transmitted through the System.

75 The provision of monthly products of mean-sea-level anomalies in the Pacific has been received with much enthusiasm by the 22 contributing Member States. The first product was published in July 1984 and has been followed on a regular monthly basis since that time.

76 An accelerated IDPSS plan has been developed in support of the Ocean Observing System Development Programme (OOSDP). The Working Committee for IGOSS has planned to establish a number of Specialized Oceanographic Centres (SOCs) covering all ocean areas and producing a standard suite of ocean-data products: (i) data management charts; (ii) regional data products; and (iii) global data products.

77 Of great relevance to the IGOSS role in the WCRP was the CCCO-IGOSS-IODE ad hoc Meeting on WCRP Ocean Data Management, held in Paris, in October 1984. The general conclusions were that IGOSS can provide a mechanism for collecting and distributing near-real-time subsurface oceanographic data for WCRP purposes if certain improvements are made. The major deficiencies of IGOSS were found to be the lack of data made available, from research vessels, for data exchange; only a few Member States participate in IGOSS, and data availability is poor in many regions, particularly the tropics, for TOGA purposes. Participation in the system is still not adequate to meet WCRP requirements.

78 A Joint IOC-WMO Mission to South-East Pacific Countries (on IGOSS and IODE matters) was organized to foster the development of IGOSS and IODE in this region; the mission, which took place from 23 April to 8 May 1984, was also supported by WMO.

79 With regard to oceanographic data collection, the Working Committee for IGOSS has continued to study the possibilities offered by satellite systems.

80 The development of an IOC Global Network of Sea-level Stations is one of the elements of any future-IOC ocean-monitoring system. The development of this Global Network was recommended by the SCOR-IOC Committee on Climatic Changes and the Ocean (CCCO). The establishment of a Global Sea-level Observing System is required by the oceanographic community for research within the WCRP, as well as for other scienceor service-oriented purposes.

81 Several actions have been taken to initiate implementation of the proposed Sea-level Observing System: (i) a catalogue of Operational Sea-level Stations was prepared with the assistance of the Permanent Service for Mean Sea Level (PSML); (ii) the IGOSS Sea-level Pilot Project for the Pacific

(ISLPP) was launched in 1984 with the preparation of monthly MSL charts by the Specialized Oceanographic Centres in Honolulu; (iii) training courses on sea-level measurement and data analysis were arranged in the United Kingdom and in China; the latter course jointly with the Division of Marine Sciences; (iv) in the IOCINCWIO Region, several developing Member States identified their national needs for technical assistance for the establishment of a tide-gauge network; (v) the Secretary approached several developed Member States with a request to provide assistance in the form of tide gauges or spare parts for existing tide gauges; (vi) a plan for a Network of Sea-level Gauges for the Red Sea and Gulf of Aden was prepared by the Unesco Division of Marine Sciences and discussed with Member States of the Region; and (vii) the establishment of two tide gauges on the Omani coast was discussed with the authorities of Oman in 1984.

82 A Proposal for the Establishment of an International Consortium for the Co-operative Implementation of Drifting-buoy Programmes (before the Assembly in Document IOC-XIII/8 Annex 2 and discussed under Agenda Item 7.2.2) describes the rationale leading to such a concept and suggests possible Terms of Reference for the consortium and its relation to IOC and WMO. A Joint WMO-IOC Preparatory Meeting for the Establishment of a Drifting-buoy Consortium will be held in Geneva from 15 to 19 April 1985.

83 Under the IODE, although the number of National Oceanographic Data Centres 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.

84 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 Responsible National Oceanographic Data Centre-Formats (ICES, Copenhagen) for moored-current-meter data, mean-sea-level data, drifting-buoy data, and non-directional wave spectra.

85 Regarding data exchange for climate studies, the IODE Group of Experts on RNODCs, at its Fifth Session recommended the adoption of a policy whereby, in each country, the NODC should work with the National TOGA or WOCE Committees and assist in designating a national focal point or data centre for data types, regions, platforms or data products.

86 The new IOC Group of Experts on Marine Information Management, at its First Session, at FAO Headquarters, in November 1984, reviewed the marine information needs of developing countries, and prepared an action plan to improve marine information capabilities. The preparation of the Handbook on Marine Scientific and Technical Information Resources (MASTIR) is expected to be an important tool in assisting developing countries in marine information matters.

87 Consultations on marine information management between ICSPRO Marine Information Officers took place in January 1985. The recommendations of the ICSPRO Marine Information Officers were considered at the Twenty-Third Session of the Inter-secretariat Committee on Scientific Programmes Relating to Oceanography (ICSPRO).

88 To assist Member States in strengthening their tsunami warning capabilities, an advisory mission was sent (in January 1984) to selected countries of the Western Pacific, funded through the IOC regular programme

budget with support from the Government of Japan. The mission gathered information on the present state of tsunami preparedness and advised as to how this could be improved by education, training and the establishment of regional warning systems. The need for long-term development of the programme has led to the preparation of a Master Plan for the International Tsunami Warning System.

89 The Past Chairman of the International Co-ordination Group for the Tsunami Warning System in the Pacific (ITSU), Mr G. Dohler, terminated his period of service as Associate Director of the International Tsunami Information Centre (ITIC) in July 1983, and efforts should be made to fill this post, through secondment of staff by Member States.

90 A tide-gauge catalogue will be issued in 1985 as No. 29 of the IOC Technical Series. It provides a list of sources for tidal data which can be used in post-event studies of tsunamis and may also be useful in other branches of oceanographic studies, such as tidal prediction, hydrography, coastal geodesy, storm surges, climatic change, etc.

91 Regarding Training, Education and Murual Assistance (TEMA) in the marine sciences, in 1984, the Commission provided support for the training of thirty scientists from 23 developing countries in areas that are of direct relevance to the ocean science programmes and services of the Commission. While most of the training took the form of group training, individual study grants and shipboard training continue to be major training activities of the Commission. Sixteen scientists from 12 countries were given Study Grants or Fellowships to enable them to participate in symposia and international conferences on themes related to marine science.

92 Pursuant to a decision by the Executive Council, in the context of the plans for the commemoration of the 25th Anniversary of the Commission, a Prospectus on the IOC Research Fellowship Scheme was circulated to all Member States in August 1984. In response to this, the Secretariat received offers of fellowships from several Member States; these are identified in Section 8, below.

93 The IOC, jointly with FAO and with the support of the Norwegian Agency for International Development (NORAD), organized a Workshop on Improved Uses of Research Vessels, in Lisbon, in June 1984. It reviewed the situation confronting countries in the use of research vessels and identified common problems that need to be resolved.

94 Subsequently, with the collaboration of FAO, the IOC convened an ad hoc Expert Consultation on the Preparation of a Guide on the Operation and Management of Research Vessels. The experts formulated two project proposals to NORAD for extra-budgetary funding: one for the Preparation of a Guide on Research Vessel Operation and Management, and one on the organization of a Regional Training Course on Management, Operation and Use of Research Vessels and Cruise Planning.

95 The Task Team to Study the Implications, for the Commission, of the United Nations Convention on the Law of the Sea and the New Ocean Regime pursued the study of the Articles of the Convention as indicators of fields of activity requiring international co-operation in marine sciences and in the development of the related ocean services and training aspects.

96 Among the important considerations, the Task Team recommended specific adjustments to Articles 1, 2 and 3 of the Statutes, for consideration by the Assembly at its Thirteenth Session, with a view to submitting them, if approved by the Assembly, to the twenty-third General Conference of Unesco.

97 There is also an urgent need to improve the liaison between the Member States and the Secretariat. The Task Team considered the practical advantage of each Member State nominating a National IOC Representative, which would greatly enhance the liaison between the Commission and its Member States. If the concept of IOC Representatives is accepted, an amendment to Rule of Procedure No. 26 would be required.

98 With respect to IOC Regional Subsidiary Bodies, the Final Session of the IOC Association and the First Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions were held in Curacao, Netherlands Antilles, in August 1984.

99 Among other things, the Sub-Commission stressed its interest in the processes in the coastal zone and developed a detailed programme of activities as a basis for solving local problems and eventually to contribute to OSNLR.

100 Marine pollution research and monitoring, through CARIPOL, is developing in a satisfactory manner. A CARIPOL Symposium is being organized at the University of Mayaguez, Puerto Rico, in 1985; $30,000 have been provided to the IOC by UNEP to support this Symposium.

101 For the implementation of the Unesco-IOC Comprehensive Plan for a Major Assistance Programme to Enhance the Marine Science Capabilities of Developing Countries, an IOC mission to eight small islands of the Caribbean and Guyana was carried out in January 1985. The purpose of the mission was to evaluate national infrastructure and needs, as a basis for developing a subregional technical assistance project.

102 The Sub-Commission also decided to establish a Regional Network of Higher Educational and Research Institutions in the Region as a means of promoting the implementation of the co-operative international research programmes adopted by the Sub-Commission.

103 The Programme Group for WESTPAC has moved forward vigorously during the intersessional period particularly in the fields relevant to OSLR and GIPME (in which co-operation with the Co-ordinating Body for the Seas of East Asia (COBSEA) has been prominent), and in the development of IGOSS and IODE.

104 A number of WESTPAC-designated cruises were sponsored by Japan and France; they conducted physical, biological, chemical and geological oceanographic studies, and a few scientists from the WESTPAC region were given training in the use of oceanographic techniques.

105 Co-operation with the Committee for Co-ordination of Joint Prospecting for Mineral Resources in Asian Offshore Areas (CCOP), through the CCOP-IOC Joint Working Group on post-IODE Studies on East Asia Tectonics and Resources (SEATAR), and with the Committee for Co-ordination of Joint Prospecting for Mineral Resources in South Pacific Offshore Areas (CCOP(SOPAC)), through the Working Group on South Pacific Tectonics and Resources (STAR),

in the field of marine geology and geophysics, has also progressed satisfactorily.

The Programme Group for the Southern Oceans (IOCSOC) had a very successful Fourth Session in Paris (in March 1983). In the intersessional period, the Commission was represented at meetings of the Commission on the Conservation of Antarctic Marine Living Resources (CCAMLR) in Hobart, Australia, in 1983 and 1984. The IOC and CCAMLR are co-sponsoring a Seminar on Antarctic Ocean Variability and its Influence on Marine Living Resources, particularly Krill, which is planned to take place in Paris, in early 1986. 106

A meeting of experts on Oceanography Related to the Dynamics of the Antarctic Ecosystems was held in Kiel, Federal Republic of Germany, in May 1984, in conjunction with a meeting of SCOR Working Group 74 on General Circulation of the Southern Ocean, as a follow-up of recommendations of the Programme Group. 107

Progress in the work of the Programme Group for Co-operative Investigations in the North and Central Western Indian Ocean (IOCINCWIO) has not been as considerable as desired, but several actions have been undertaken and others are underway. 108

Two Training Courses on Sea-level Measurement and Data Reduction were organized by the IOC, in co-operation with the Government of the United Kingdom, at the Institute of Oceanographic Sciences (IOS), in 1983 and in 1984. 109

Also, an IOC Regional Training Course on Marine Living Resources in the Western Indian Ocean, was organized with the support of the Governments of the Federal Republic of Germany and of the Republic of Kenya, in 1984. 110

A meeting of governmental experts in ocean mapping from the region had to be postponed owing to delayed response by the countries of the region, but preparations are underway for an expert mission to the region to advise Member States on the requirements of the project, as well as on their participation therein. 111

An IOC Workshop on Regional Co-operation in Marine Science in the Central Indian Ocean and Adjacent Seas and Gulfs will be held in Sri Lanka in July 1985 with a view to developing a proposal for a work programme for the Programme Group for the Central Indian Ocean (IOCINDIO). Preparations for the First Session of the Programme Group planned to be held in Pakistan in 1986 are proceeding. 112

Preparations are underway for the First Session of the Programme Group for the Central Eastern Atlantic (IOCEA) to take place in September/October 1985, probably at the Scientific Research Centre of Conakry-Rogbane, Republic of Guinea. 113

Five short-term fellowships for training in physical, chemical and biological oceanograph, including marine geology, tenable in 1984 at the Spanish Institute of Oceanography, were offered by the Government of Spain, in support of IOC activities in the Central Eastern Atlantic. 114

115 The French Government organized two training courses, one at the Centre Océanologique de Bretagne, Brest, in November/December 1983, on the Management of Scientific and Technological Information, and the other at the University of Bordeaux, in October 1984, on the Scientific Aspects and Management of Coastal Zones and Near-continental Shelf.

116 The Fourth Meeting of the Joint IOC-WMO-CPPS Working Group on the Investigations of El Mino was held in Lima, in June 1984, immediately following the Fourth Meeting of the CPPS Comite Cientifico para el Estudio Regional del Fenðmeno El Niño (ERFEN) and immediately preceding a Regional Workshop on Science, Technology and Environmental Effects: the 'El Niño' phenomenon organized by the Consejo Nacional de Ciencias y Tecnología, of Peru. This combination of meetings facilitated a co-ordinated regional expression with regard to the planning of global experiments by the IOC-SCOR Committee on Climatic Changes and the Ocean (CCCO) that are directly relevant to the study of the 'El Niño' phenomenon.

117 Regarding co-operation with other organizations, numerous examples of co-operation between the IOC and other Organizations Members of ICSPRO, others of the United Nations system, and non-governmental organizations have been given through this Report. Since no new Memoranda of Understanding have been negotiated or signed in 1984, no further mention is made here of inter-organizational co-operation in general. However, taking advantage of the presence in Paris at the time of the Third Session of the Task Team to study the Implications, for the Commission, of the United Nations Convention on the Law of the Sea and the New Ocean Regime (17-21 December 1984) of Mr S. Nandan, Special Representative of the Secretary-General to the United Nations Convention on the Law of the Sea, the Secretary IOC had discussions with him on co-operation with respect to marine scientific research under the new ocean regime. It was agreed to co-operate in the publication of a compilation of national legislation in the context of marine scientific research in zones of national jurisdiction.

118 The twenty-third Session of the Inter-secretariat Committee on Scientific Programmes Relating to Oceanography (ICSPRO) at Unesco in January 1985 paid particular attention to marine information management, updating of the Long-term and Expanded Programme of Oceanic Exploration and Research (LEPOR) and the implications of the new ocean regime for collaboration among the organizations Members of ICSPRO. Discussion on the subject of marine information management led to the approval of a list of specific projects of interest to Member States, which are to be undertaken during the intersessional period through the concerted action of the appropriate organizations.

119 Regarding staff, the Secretariat has continued to benefit from the secondment of Mr Jimmy Lyons by the United States, to act as IGOSS Operations Co-ordinator, and it is understood that there is an intention to ensure a replacement in the near future. Administrative arrangements are being made for the secondment of a new staff member, Mr Art Alexiou, who would be assigned to provide support to the Secretary of CCCO and to interact with the IOC Secretariat in the development of ocean-observing systems. Mr Robert Molcard, of France, assigned to provide support to the Secretary of CCCO through ICSU, is also working with the Secretariat. Dr Albert Tolkachev, an old colleague in the Secretariat, has been seconded to IOC by the Soviet Union for two years; he is now dealing with ocean observing systems, tide gauges and tsunamis. The Commission has also benefited from

the secondment, by the Federal Republic of Germany, of Dr Rolf Schneider for a period of nine months. Two new staff members have been recruited; one is Mr T. Saukey, of the United Kingdom, who replaced Mr S. Tibbitt, of the U.S.A., and is dealing with marine information management and certain aspects of data management. Dr G. Kullenberg, of Denmark, will be joining the staff soon, replacing Dr N. Andersen as Head of the Marine Pollution Research and Monitoring Unit. A consultant, Mr Roger Aertgeerts, has provided very useful help with TEMA; and another consultant, Dr Makram Gerges, with preparation for IOCINDIO.

120 The work carried out by the General Service staff has been hampered by prolonged sick leave, in two cases, and by the continuing under-establishment.

121 It is sad to report that one vacancy arose from the untimely death of Miss Lotti Rudiger whose devotion to her duty was exemplary.

122 Following the presentation of the Secretary's Report, some delegates pointed out minor errors or omissions, or provided some additions. Three delegates (U.S.A., Brazil, Sri Lanka) made formal statements, which, because of their relation to the 25th Anniversary, will be included in the special Supplement to this Summary Report.

123 The Delegate of the U.S.A. reaffirmed the United States' intention to remain an active member of the Commission and to participate fully in priority programmes, despite its withdrawal from Unesco. The U.S.A. also intends to fulfil its obligations, including its financial responsibilities. The overall goal of the U.S.A. remains to facilitate international co-operation in oceanographic and marine science and services, and to promote goodwill and improved understanding of ocean-related issues. Its primary objective is to enhance the effectiveness of the IOC framework within which large-scale international ocean science programmes can be conducted. The delegate stressed his government's pride in the achievements of the IOC in facilitating international co-operative oceanographic research programmes.

124 The Delegate of Bulgaria conveyed his government's heartfelt congratulations on the occasion of the Silver Jubilee Session of the IOC Assembly. He expressed his satisfaction with the activities of the Commission and its role in developing international oceanographic programmes, providing assistance to developing countries and facilitating co-operation amongst its Member States, and stressed the importance of full understanding of IOC problems on the part of Unesco and the Director-General of Unesco, in particular. He then illustrated the activities of Bulgaria in the development of its national marine infrastructure and in the conduct of international research and experimental studies carried out in collaboration with six other countries on the interaction between the oceans, the atmosphere and the lithosphere, and on energy-active zones in the oceans in the framework of the multinational programme known as SECTIONS. The study of coastal ecosystems is being carried out successfully, and is closely related to study of the pollution of the marine environment. In 1984, the Bulgarian National Oceanographic Data Centre was established in Sofia.

125 The delegate informed the Assembly of the readiness of the Academy of Sciences of Bulgaria to organize, in October 1986, a short-term training course for specialists from developing countries with an interest in the

interaction between the hydrosphere, the atmosphere and the lithosphere. In 1985, the University of Sofia is ready to provide two nine-month fellowships for specialists from developing countries, in the fields of meteorology, geophysics, hydrology and ichthylogy. Experts from developing countries are invited for training on board the new R.V. AKADEMIK.

126 To mark the 25th Anniversary of the IOC, a poster, a special envelope of a first-day issue and a philatelic block were issued in Bulgaria.

127 The Delegate of Brazil stated that his government is most willing to join all the other Member States in collaborating with the Secretariat to find ways to celebrate the 25th Anniversary with all the special significance it has for the Commission.

128 In the name of his government, the delegate offered the Chairman a special commemorative shield which was made for this auspicious occasion by the Directorate of Hydrography and Navigation, as a token of appreciation of IOC.

129 The Third United Nations Conference on the Law of the Sea has laid upon the international community new responsibilities, besides creating parameters for the exploration and exploitation of the oceans where a virtual void existed before. Brazil gladly accepts her share of responsibility in the new state of ocean affairs. Twenty-five years of existence gives our organization a reasonable historical perspective, so that it may be said, without much risk, that the IOC is today the major instrument of international co-operative oceanographic research. In order to reach this stage, however, the Commission has had to adapt itself. At its origin, only a few countries, the maritime powers, were able to use the IOC mechanisms. Few developing countries, if any, have had, until very recently, the means, in material and in human resources, to look with scientific eyes at the sea, much less to invest in it and still less to look for international co-operation in the field.

130 Developing countries have now come to the conclusion that the sea, as a system, has a direct, meaningful and sometimes decisive influence over their countries. It has become fundamental that we start looking at IOC in the light of the different perceptions that now prevail, or should prevail, in the international community, regarding ocean science. Therefore, we must aim at flexibility in the formulation of IOC's programmes and projects; part of the responsibility for this lies with the developing countries, so that programmes can also be oriented according to their scientific needs. We should grasp the opportunity to review our activities, in a very profound way, setting as our main target the search for that common ground on which research and co-operation can be undertaken to the satisfaction of all. The new Law of the Sea is, in this respect, as in many others, an extremely practical and rich instrument. There is no doubt that IOC can work better within the framework of the new Convention.

131 The Delegate of Sri Lanka also made a formal statement to the Assembly. He expressed the great pleasure and privilege for his delegation to take part in the celebration of the 25th Anniversary of the Commission, and extended the congratulations and best wishes of the Minister of Foreign Affairs of Sri Lanka.

There has been in recent times a quiet revolution characterized by a universal stirring of national interest in the oceans, greatly stimulated by the Third United Nations Conference on the Law of the Sea and the growing economic pressure which besets most States - particularly developing States. The Commission has contributed in no small measure to this process by creating the necessary climate of awareness that marine sciences and ocean services are central elements in the efforts of nations to harness the vast ocean potential for their development. This new focus on marine science and technology and related ocean services is not only embodied in the Convention on the Law of the Sea, but also in a special resolution on the development of national marine science, technology and ocean service infra-structures, adopted by the Third United Nations Conference on the Law of the Sea. The resolution was originally presented by Sri Lanka and later unanimously endorsed by the Group of 77 and then unanimously by the Conference itself. It gives great satisfaction to Sri Lanka to see that, since this first step, the Commission has adopted the Comprehensive Plan for a Major Assistance Programme to Enhance the Marine Science Capabilities of Developing Countries. The Comprehensive Plan will no doubt form the basis of a new framework for international co-operation and mutual assistance. 132

While recognizing the importance of fundamental ocean research, it is necessary to relate programmes more to practical needs, and to look to shorter-term goals, given the relatively close horizons that characterize the political and economic reality of most developing nations. It is with this confiction that the Government of Sri Lanka has established an integrated multidisciplinary institutional framework for aquatic resource management in the form of the National Aquatic Resources Agency (NARA) of Sri Lanka, and the IOC has been closely involved in the strengthening of this framework. 133

Over the last several years, the Government of Sri Lanka has steadily worked towards a framework for regional co-operation in the Indian Ocean. It has now moved towards the convening of the First Conference on Economic, Scientific and Technical Co-operation in Marine Affairs in the Indian Ocean in the Context of the New Ocean Regime, scheduled to meet in Colombo later this year. It is the first consultation of an intergovernmental nature in respect of a major ocean. 134

The Assembly thanked the Secretary for this full and detailed report on intersessional activities. It invited the delegates, representatives and observers to submit any corrections of fact to the Secretary and instructed the Secretary to complete his report in the light of this additional information. The Assembly also expressed its appreciation of the hard work of the Secretary and his staff in the implementation of the Commission's programme of work. 135

The Chairman informed participants of the various visual displays set up by different Member States and organizations near the entrance to the conference room, as contributions to the celebration of the Commission's 25th Anniversary during the present Assembly. 136

5.2 ADOPTION OF THE BIENNIAL REPORT FOR 1983-2984

The Chairman invited the delegates to study the Draft Biennial Report, and to submit corrections or comments to the Secretary during the Session. 137

138 The Assembly accepted the Draft Biennial Report, and instructed the Secretary to make all necessary editorial improvements and submit the Report to the twenty-third session of the General Conference of Unesco in accordance with IOC Rule of Procedure No. 50.

6. OCEAN SCIENCE

6.1 OCEAN SCIENCE IN RELATION TO LIVING RESOURCES (OSLR)

139 The Chairman of the IOC-FAO Guiding Group of Experts on OSLR, Mr A. Bakun, introduced this item.

140 He recalled Resolution XII-1 of IOC (Ocean Science in relation to Living Resources) and the recommendations coming from several meetings that preceded the First Session of the Guiding Group.

141 At its First Session (Paris, 16-20 July 1984), the Guiding Group concurred with the conclusion of the Workshop on the IREP Component of OSLR (IOC Workshop Report No. 33) that recent important technological advances offer substantial promise of a better understanding of the mechanisms of recruitment. These advances include daily aging of larvae and juveniles, starvation histology and the egg-production-rate method of biomass estimation. These techniques are presently developed for sardines and anchovies: these coastal pelagic fishes represent a species complex of great global importance particularly subject to recruitment variability. Therefore, the Guiding Group recommended a Sardine-Anchovy Recruitment Project (SARP) as a pilot exercise of OSLR/IREP.

142 Accordingly, an IOC-FAO Expert Consultation on SARP was held in La Jolla, California in November 1984. A plan was drawn up for a co-ordinated regional exercise in the Eastern Pacific with operational components addressing sardine stocks off CPPS countries and the anchovy stocks shared by Mexico and the U.S.A. This regional exercise would form a base for expansion of SARP to other regions, such as the South-Western Atlantic, the Iberian Peninsula, and North-West and South-West Africa, among others.

143 In addition, actions have been taken to initiate the planning of IREP components for multispecies tropical demersal systems, for penaeids (shrimps) and for squids. ICES has initiated consideration of collaborative investigations of relevant stocks in the North Atlantic region. Regarding tropical demersal systems, the Guiding Group stressed the scientific and socio-economic significance of the coastal systems within the inter-tropical zone (the Caribbean, Western Central Pacific, tropical Indian Ocean, Gulf of Guinea, etc.). The Guiding Group recommended that the Sub-Commission for IOCARIBE, at its First Session (Curacao, 20-25 August 1984), consider the organization of an OSLR/IREP Workshop on Recruitment in Tropical Coastal Demersal Communities. The Sub-Commission accepted this recommendation and, in response to the kind offer of the Government of Mexico, approved the convening of this Workshop at the end of 1985 in the Marine Laboratory El Carmen, of the Instituto de Ciencias del Mar Y Limnologia (of UNAM), in Ciudad del Carmen, in Campeche.

144 Other OSLR activities underway include investigations of red-tide phenomena and studies of processes at the land-sea interface (mangroves, coral reefs and estuaries, for example). Close co-operation with SCOR,

IABO, and the Unesco Division of Marine Sciences, particularly in the context of the Unesco Major Interregional Project for Research and Training Leading to the Integrated Management of Coastal Marine Systems (COMAR) Project is being sought, as recommended by the Commission's governing bodies.

The Representative of FAO pointed out the importance of the OSLR Programme for improving fisheries management, and the vital roles to be played at the regional level by national fishery and academic institutions in the implementation of regional components of OSLR. The role of these institutions was recognized by the FAO World Conference on Fishery Management and Development, as well as FAO's regional fishery consultative bodies. The Representative informed the Assembly that further consideration will be given to OSLR during the next meeting of ACMRR (Rome, 21-24 May 1985). 145

The Chairman of the FAO Advisory Committee on Marine Resources Research (ACMRR) stressed the general objective of OSLR to link oceanographic and fishery research. In most parts of the World Ocean, fishery resources are fully exploited and the fishing industry is suffering from fluctuations in recruitment, distribution and abundance of the fish and shellfish stocks. IREP as one of the OSLR programmes aims at the identification of the key environmental factors related to these fluctuations. IREP should finally provide the basis for oceanographic monitoring related to living resources. ACMRR's activities in the framework of OSLR will be strengthened in order to act as the major advisory body for IOC and FAO in the field of living resources research. 146

The Representatives of the Unesco Division of Marine Sciences and of IABO restated their interest in collaboration on ecologically oriented components of the programme, particularly in tropical multispecies systems and land-sea interface habitats. 147

The Representative of ICES confirmed his organization's consideration of collaborative action on OSLR projects, particularly as regards questions of recruitment, and the establishment of an ICES ad hoc Study Group for that purpose; the first meeting of the Study Group will take place in April this year and the recommendations referred to ICES Member States prior to the next Statutory Meeting of the ICES Council in October 1985. 148

The Secretary-General of CPPS strongly supported the SARP initiative as proposed in Recommendation 1 of the Guiding Group of Experts, and further elaborated during Expert Consultation in La Jolla. He stressed the relevance of, and the opportunities offered by, this component of OSLR in the light of the impact on coastal pelagic fishery resources off the west coast of South America of the major El Niño phenomena of 1972 and 1982-1983. He emphasized the need for adequate TEMA support in the context of OSLR/IREP and appealed to Member States to assist. 149

Several delegates stressed the importance of focusing marine scientific activities on living-resource problems of the coastal zone, particularly in view of the great need to increase the supply of protein in Africa and elsewhere. 150

The Delegate of Chile said his country, as a fishing nation, recognized the importance of the SARP initiative, but he asked that the proposals 151

developed by the Guiding Group of Experts be submitted opportunely to governments and interested organizations for appraisal in order to obtain the required support.

152 The Delegate of the USSR recalled his country's interest in pursuing, between 1984 and 1990, an International Comprehensive Research Programme on Blue Whiting in the North-East Atlantic region. He informed the Assembly that the corresponding proposal and programme have been submitted to the Secretary of IOC to be transmitted to ICES as a possible component of the OSLR programme.

153 The Delegation of China informed the Assembly that his government will offer assistance for training in the field of OSLR for participants from developing countries.

154 The Delegate of India made a similar offer, with particular reference to the IOCINCWIO region.

155 The Assembly expressed its satisfaction with the introduction made by the Chairman of the Guiding Group of Experts and with the dynamic implementation of the OSLR Programme. It recognized the opportunities presented for close collaboration between developed and developing countries on a problem of great socio-economic importance; the multidisciplinary nature of the proposed activities (in particular the strong interaction between marine biology and physical oceanography), the excellent training opportunities embodied in the programme, and the exemplary collaboration established between IOC and FAO in the framework of ICSPRO. It endorsed a suggestion by the Delegates of the Federal Republic of Germany and Chile that the Commission should produce a Manual and Guide on the Methods Used in the Sardine-Anchovy Recruitment Project, and instructed the Secretary to make the necessary arrangements therefor.

156 The Assembly endorsed the Recommendations of the First Session of the IOC-FAO Guiding Group of Experts on OSLR; however, it urged flexibility in implementing OSLR components, and expansion of appropriate activities to additional regions particularly within the Indian Ocean.

157 The Assembly emphasized the view that the recruitment studies promoted under OSLR address vital questions of long-term resource stability, in addition to those of short-term prediction, but it requested the Guiding Group of Experts to make more specific reference to the utility of empirical approaches to these questions.

158 The Assembly stressed the fact that the interest of IOC is directed towards interdisciplinary scientific studies of ocean processes affecting living resources, whereas that of FAO is directed towards fisheries development and management.

159 The Assembly recognized the importance of the interaction of the OSLR Programme with the various IOC and other international programmes on ocean processes and climate, and the associated services systems. It urged the various regional subsidiary bodies of IOC and FAO to take the necessary steps for the promotion and implementation of regional research projects under OSLR.

160 The Assembly concurred with the Guiding Group of Experts that a strong TEMA component must be part of any OSLR activity, and invited the Division

of Marine Sciences of Unesco also to undertake appropriate training activities within its programme of work.

It also invited IABO to continue to co-operate with the IOC and the Division of Marine Sciences in OSLR. 161

The Assembly thanked the United States National Marine Fisheries Service for having hosted the Consultation on SARP in La Jolla, California. 162

The Assembly adopted Resolution XIII-1.[1] 163

6.2 OCEAN SCIENCE IN RELATION TO NON-LIVING RESOURCES (OSNLR)

The Chairman of the IOC-UN(OETB) Guiding Group of Experts on OSNLR, Professor M. Vigneaux, introduced this item. He recalled that, after a number of preparatory consultations, this new major programme was adopted by the Commission through Resolution XII-2 and shortly afterwards co-sponsored by UN(OETB). 164

The Guiding Group of Experts on OSNLR, at its First Session (Paris, 14-18 January 1985) agreed on the need to establish a global frame of reference defined as SETMY (sea-level changes, environments and tectonics during the past million years) which gives priority to the study of the resources of the coastal zone. Among these, the following were recommended as particularly important: the coastal zone (considered as a resource in its own right), carbonate materials (coral reefs in particular); sand and gravel; and placer minerals. 165

Regarding investigations on resources found in the deep sea and taking into consideration the limitations involved in this highly sophisticated and costly research, the Guiding Group recommended a sustained effort to integrate scientists of developing countries into such research whenever possible. It considered research on deep-sea deposits of phosphates, oil and gas as being particularly pertinent in this context. 166

The proposed strategy to develop OSNLR is based upon the need to improve the basic scientific knowledge of the genesis of these resources and the dynamics of their formation, taking into account the description of the most instructive past and present geological prototypes and the specific potentialities in each region (e.g., non-living resources present, possibilities for inter-regional comparisons, human and material means for research); this is a long-term task which requires basic information at the regional level, co-ordination in the investigations and methods applied, and scientific and technological training. 167

As an example of a major multidisciplinary geoscience programme, the Delegate of Italy informed the Assembly of the European Geotraverse Project (EGT) planned by the European Science Foundation (ESF) and to be developed during a period of five to seven years, and requiring the collaboration of geophysicists, geologists, petrologists, and geodesists from several 168

1. The adopted resolutions are given in Annex II, hereto.

European and Mediterranean countries. Extending from the North Cape southwards to North Africa, the broad aim of the project is to gain an understanding of how the continental lithosphere formed and reacted to changing physical and geological conditions. The participation of interested IOC Member States was requested. Mediterranean countries of North Africa, in particular, were commended to take advantage of the training opportunities under this programme, as well as to participate in the experimental and data interpretation phases, and publication of results. The delegate believed that this project could be considered a component of the OSNLR Programme.

169 The Delegate of the Soviet Socialist Republic of the Ukraine informed the Assembly of recent achievements of the Academy of Science of the Ukraine in the field of geological-geophysical research on the tropical zones of the Indian and Atlantic Oceans; in particular, endogenic mineralization (chromate, sulphide) related to basic and ultrabasic complexes of rocks. There is a clear geochemical relation between the basic and ultrabasic rocks of mid-ocean ridges and the field of iron-manganese nodules. Phosphate accumulation was observed in the margin area of Guinea. Phosphato-glauconite sands and phosphate were found on the ocean bottom, and the investigation of iron-manganese nodules and phosphorites might be of considerable interest. He proposed to focus efforts in international research of iron-manganese nodules in some areas of the Pacific and Indian Oceans and to continue studies of the processes of phosphorite development in the Atlantic and other basins of the world ocean. He believed that the IOC, jointly with SCOR, should organize studies to evaluate the degree of human influence on the sea floor in different areas of the world ocean.

170 Several delegates supplemented the Chairman's information with detailed descriptions of relevant on-going national and regional activities. The importance of training, data exchange and different types of cartographic activities was repeatedly mentioned.

171 Various delegates stressed the importance of keeping in mind the links between living and non-living resources in research in this field, particularly in the coastal environment. Other delegates supported the idea that IOC should promote, through the concerted action of the Member States, scientific investigations aimed at providing the basis for the establishment, in due course, of deep-sea parks or reference areas, and at recording the ecological and environmental conditions of sea-bed habitats and biota, so that trends could be verified and the eventual effects of the exploitation of deep-sea resources could be understood.

172 The following delegates offered general or specific assistance, in the framework of TEMA, particularly training facilities: Argentina (oil and gas exploration, especially for Latin American countries); Australia (research on phosphate deposits); Canada (research and training on placer minerals, sand and gravel); China (environmental research associated with non-living resources); Colombia (coastal geomorphological mapping); France (coastal dynamics, coral reefs, cartography, data management); the Federal Republic of Germany (multidisciplinary research and training, especially for the South-East Asia and South Pacific regions, including deep-sea areas); Japan (multidisciplinary research and training, especially for the WESTPAC region); Sweden (training in seismic prospection techniques, especially for shelf and slope areas); U.S.A. (multidisciplinary research and training focused on regional problems): USSR (participation in deep-sea exploration

exercises, including the use of submersibles, to be carried out between 1987 and 1989, and subsequent elaboration and publication of results).

The Delegate of Egypt expressed his reservations about the description provided in the Report of the Guiding Group of Experts concerning past and on-going activities in the South-East Mediterranean and the Red Sea. 173

The Assembly welcomed UN(OETB) as a co-sponsor of the OSNLR Programme. 174

The Assembly commended the high quality and instructiveness of the report presented by the Chairman of the Guiding Group of Experts. It recognized the well founded scientific basis proposed for the OSNLR Programme and the priority assigned to coastal-zone studies through SETMY. However, it urged the Guiding Group of Experts to supplement the list given in the Summary Report of the First Session of the Guiding Group with other resources such as those related to production of energy and fresh water from the marine environment. 175

The Assembly endorsed the recommendations of the First Session of the IOC-UN(OETB) Guiding Group of Experts on the OSNLR Programme, and strongly stressed the importance of training, education and mutual assistance elements in accomplishing the strategy recommended by the Guiding Group of Experts on OSNLR. 176

However, it requested the Guiding Group of Experts to develop further its strategy for the implementation of the OSNLR programme. 177

The Assembly approved an interdisciplinary approach to the implementation of specific components of the programme and recognized that National Oceanographic Commissions or similar high-level co-ordinating bodies are the appropriate mechanisms for facilitating the implementation of the OSNLR programme at the national level. 178

The Assembly instructed the Secretary to ensure effective links and co-ordination between the Guiding Group of Experts on OSNLR and the Task Teams and Group of Experts of IOC regional subsidiary bodies, so as to facilitate implementation of regional components of OSNLR. 179

The Assembly strongly urged Member States to consider undertaking co-operative research on deep-sea resources, with a view to establishing the basis for reference or baseline studies and for the future selection of 'marine parks'. 180

The Assembly, having noted the relevant activities of the Unesco Division of Marine Sciences in this field, invited the Division to participate as much as possible in OSNLR. 181

6.3 OCEAN MAPPING AND GENERAL BATHYMETRIC CHART OF THE OCEANS (GEBCO)

The Permanent Secretary GEBCO, Mr D.P.D. Scott, introduced the item. He recalled that, at its Seventeenth Session, the Executive Council had established a Consultative Group on Ocean Mapping (CGOM) which was require 'to keep under continuous review all ocean-mapping activities of the Commission, reporting biennially to the Assembly on progress made with each ocean-mapping project sponsored (or co-sponsored) by the Commission'. As 182

the CGOM had not yet held its First Session, he had been invited by the Secretary to introduce this agenda item because of his background knowledge of the various on-going and planned ocean-mapping activities of the Commission.

The General Bathymetric Chart of the Ocean (GEBCO)

183 Mr Scott informed the Assembly that the Chairman GEBCO, Mr Gerald N. Ewing, Assistant Deputy Minister, Ocean Science and Surveys, Canada, had sent his apologies for his inability to attend this session of the Assembly and that he had requested his Vice-Chairman, Dr A.S. Laughton, Director of the Institute of Oceanographic Sciences of the United Kingdom, to present the GEBCO and the Project Proposal for a GEBCO International Ocean Mapping Unit on his behalf.

184 Dr Laughton informed the Assembly that he was present as Vice-Chairman only because of the tragic death in 1983 of Professor Eric S.W. Simpson, and that he wished to pay tribute to the man who, more than any other individual, had maintained the impetus in GEBCO, thus ensuring completion of the 5th Edition, who spared no trouble in persuading people to give of their time and effort generously and who, through his dogged persistence and winning smile, overcame all obstacles in his path.

185 Under the old terms of reference of GEBCO, the main objective was the production, to new standards, of the 5th Edition of the GEBCO world bathymetric charts. Although all the 18 individual sheets on a scale of 1:10 million were completed by April 1982 and had been displayed at the Twelfth Session of the Assembly, the Guiding Committee had decided that there should also be a single world sheet based on a reduction of the 18 sheets and that the whole set, together with an explanatory volume, should be made available folded and boxed, suitable for libraries. For this purpose all charts had been reprinted to correct some early errors and to provide a consistent colour quality, and he was pleased to be able to place a boxed set before the Assembly. He thanked the Canadian Government, and the Canadian Hydrographic Service in particular, for the generous contribution it had made which had enabled the 5th Edition of GEBCO to be seen through to a successful conclusion.

186 A secondary objective of GEBCO, arising out of the preparation of the 5th Edition, had been the publication of a booklet entitled 'Standardization of Undersea Feature Names'. English/French and English/Russian editions had previously been published. An English/Spanish edition had just been completed and was now available. Other language editions were planned.

187 The Joint IOC-IHO Guiding Committee last met in May 1983 in the United Kingdom and would be meeting again in April 1985 in Monaco. The Officers met in April 1984 in Bay St. Louis, Mississippi, U.S.A.

188 The major on-going tasks of GEBCO, under the new Terms of Reference approved by the Twelfth Session of the Assembly of IOC in 1982, were:

(i) to pursue the setting up of a full-time GEBCO Ocean Mapping Unit;

(ii) to draw up plans for a 6th Edition of GEBCO, bearing in mind the new technologies available for data storage and manipulation.

189 Concerning the Ocean Mapping Unit, a GEBCO Task Team had been set up to formulate a proposal for such a Unit and to submit it first for consideration by the International Centre for Ocean Development, Canada. The proposal, submitted in June 1984, defined the objectives for the Ocean Mapping Unit as:

'(1) The establishment of an international service for the provision of the best available maps of, and related information on, ocean floor morphology and other oceanographic parameters, with the effective participation of qualified persons from developing countries in their preparation.

(2) The provision of related educational and training facilities to meet the needs of developing countries in the context of the Convention on the Law of the Sea.

(3) The development of similar facilities, including staff training and educational material, for use on a regional or national basis.'

190 To achieve these objectives the Task Team considered it necessary to take full advantage of digital methods, and that a staff of seven would be required, located within, or close to, an organization active in sea-floor exploration or mapping, and such that maximum benefit would be derived by developing countries. The annual budget necessary was estimated at that date as $720,000.

191 So far as the GEBCO (6th Edition) is concerned, the Guiding Committee attaches considerable importance to the work of its Sub-Committee on Digital Bathymetry. It recognizes that such significant advances have been made in digital data acquisition, banking, exchange and manipulation that the 6th Edition must use these techniques.

192 The Sub-Committee has established important links with the IHO Committee on Exchange of Digital Data (CEDD), the IOC Working Committee on International Ocean Data Exchange (IODE), the International Cartographic Association's Commission on Marine Cartography and the World Data Centre 'A' (Marine Geology and Geophysics) at Boulder, Colorado, U.S.A.

193 Before detailed consideration can be given to the nature and content of the 6th Edition, groundwork is necessary for the development of a management plan for the international exchange, archival and dissemination of digital bathymetric data. To this end and the Sub-Committee is now concentrating on:

(i) the development of formats and standards for international exchange;

(ii) the improvement of availability of digital bathymetric data; and

(iii) the digitization of the contours of the 5th Edition.

The Geological/Geophysical Atlases of the Atlantic and Pacific Oceans (GAPA)

194 The Permanent Secretary GEBCO informed the Assembly that progress with these Atlases had been slower than expected, since some of the scientists who had promised to contribute have still not submitted their material.

Professor Simpson's death in June 1983, and the failure to find a replacement of like scientific stature as Deputy Editor GAPA, with sufficient time and opportunity to carry out this exacting task, has created a number of difficulties and delays which have proved insurmountable on the time-scale he had envisaged. However, progress was being made all the time and he was confident that the final products when they do appear will be of a high quality. Proof copies of a number of the maps which had been prepared in the USSR for the Atlantic Atlas were on display at the present Session of the Assembly.

The International Bathymetric Chart of the Mediterranean (IBCM)

195 At its Seventeenth Session, the Executive Council dissolved the old IBCM Disciplinary Group on Overlay Sheets in Marine Geology and Geophysics and established a new Editorial Board for the International Bathymetric Chart of the Mediterranean and Overlay Sheets, with the same initial membership. This Editorial Board held its First Session in Lucerne, Switzerland, in October 1984. The Group had suffered the loss of two key members: Captain Victor Faleev, the Chief Editor, whose technical ability and fine spirit of co-operation had led to the compilation and publication of the ten sheets of the IBCM in 1981, and Monsieur Etienne Winnock, of Elf-Aquitaine, Pau, France, who died in August 1984. Mr Winnock was a key member of the Group and one of the leading contributors to the bathymetric series and subsequently to some of the overlay sheets now in preparation.

196 At the First Session, Captain Sergei Valchuk, who has replaced Captain Victor Faleev as Chief Editor, confirmed the willingness of the Soviet Union (Head Department of Navigation and Oceanography, Leningrad) to print and publish six series of IBCM geological and geophysical maps at a rate of one set (10 sheets) a year, a Supporting Volume to the IBCM programme and an International Bathymetric Chart of the Mediterranean in one sheet at a scale of 1:5 million. Captain Valchuk indicated that the Soviet Union is prepared to bear all the expenses involved and considers this to be a contribution to the IOC. The Editorial Board expressed its sincere appreciation to Captain Valcnuk for this extremely generous offer.

197 The Chairman of the Editorial Board, Professor Carlo Morelli, informed the Assembly that, despite the decease of Mr Etienne Winnock, the preparation of overlay sheets for which Mr Winnock had accepted responsibility, will continue; Professors Maurice Gennesseaux and Pierre F. Burollet had accepted responsibility for the geological sheets. The first draft of the gravity sheets will be completed by Professor J. Makris and Dr G. Balmino, by September 1985. Some difficulties arose in the preparation of the sedimentological sheets which were caused by the use of different sediment classification schemes by contributing scientists. These difficulties were overcome at the First Session of the Editorial Board. Considerable progress has been achieved in the compilation of seismicity data by Professor J. Bonnin (Centre Seismologique Euro-Méditerranéen). The main difficulty has been the need to ensure compatibility of data originating from various sources and to eliminate other discrepancies. The Editorial Board agreed also to investigate the possibility of including, with the seismic sheets, tsunami information now being prepared by Professor S.L. Soloviev of the USSR Academy of Sciences.

198 Professor Morelli stressed the need to continue the compilation of new bathymetric data and invited all institutions engaged in Mediterranean

research, particularly the hydrographic services, to participate in this work. Recalling that preparation of the first IBCM edition had taken about ten years, he pointed out that timely compilation of data would shorten the time needed to prepare a second edition.

Planned Regional Bathymetric Projects

Mr Scott informed the Assembly that there are now four: 199

Central Eastern Atlantic. To be compiled and published with the support of France. A meeting of governmental experts is scheduled to be held in the second half of 1985, possibly in Morocco. The recommendations of these experts will be presented to the IOC Programme Group for the Central Eastern Atlantic later in the year. It is envisaged that the Executive Council will be invited to form an Editorial Board for this area.

Central Western Indian Ocean. It is hoped that this chart will be compiled and published by the Deutsches Hydrographisches Institut, Federal Republic of Germany. A Preparatory Meeting of Governmental Experts, of the countries of the IOC Programme Group for CINCWIO and other interested IOC Member States, on the Proposed International Bathymetric Chart of the Western Indian Ocean, was called for 20 August 1984 in the Unesco Regional Office for Science and Technology for Africa (ROSTA) in Nairobi. However, owing to insufficient response from the countries of the region, the Secretary decided to postpone the meeting and to make inquiries of the governments of these countries regarding their participation in this project. Plans are now in hand to organize an expert mission to the region for this purpose.

Red Sea and Gulf of Aden. To be compiled and published by the Institute of Oceanographic Sciences, United Kingdom. Funding for this project is being considered by the Saudi-Sudanese Commission for the Development of Red Sea Resources. A meeting between Dr A.A. Banaja, Executive Director of the ALECSO Programme for the Environment of the Red Sea and Gulf of Aden (PERSGA) and Dr A.S. Laughton, Director of IOS, United Kingdom, to discuss this project was held during this Session of the Assembly.

Caribbean and Pacific coasts of Central America. To be compiled and printed by the Dirección de Geografía, of Mexico. At its First Session in August 1984, the IOC Sub-Commission for the Caribben and Adjacent Regions (IOCARIBE) recommended the preparation of this series and asked the Commission to take the necessary steps to establish an Editorial Board (see Item 10.1 below).

The Representative of the International Hydrographic Organization, Admiral O. Affonso, drew the attention of the Assembly to the objective of the GEBCO Ocean Mapping Unit related to the provision of educational and training facilities to meet the needs of developing countries. To achieve this objective, the Ocean Mapping Unit will be required to identify the needs and types of training that would be most useful to developing countries, taking into account the fact that, within a mandatory period, a number of coastal States will need to establish the seaward boundary of their continental shelf, as defined by the United Nations Convention on the Law of the Sea, and subsequently most coastal States will need a cadre of 200

trained personnel having: (i) cartographic, geoscience and computer understanding, so as to be able to negotiate technical contracts with the International Seabed Authority or commercial organizations; (ii) greater awareness of the potential of their marine resources in comparison with, and as a complement to, their land resources; (iii) skill and understanding in the reading of resource and scientific maps. The Representative of IHO, also informed the Assembly that the IHO encourages the establishment of Regional Hydrographic Commissions or Groups and offers advice on their formation. To date, six Regional Hydrographic Commissions meet at regular intervals to discuss mutual hydrographic and chart-production problems, plan joint survey operations, and resolve schemes for the International Chart coverage of each region. The establishment of a regional hydrographic Commission for the Caribbean is envisaged in the near future. Regarding the decision of the IOC Sub-Commission for IOCARIBE to undertake the preparation of bathymetric charts of the Caribbean, the Representative of IHO suggested that, when establishing an Editorial Board for this purpose, special consideration be given to close co-operation between the Board and the Regional Hydrographic Commission. He felt it appropriate that the countries of the region should consider the integration of activities both for bathymetric charts and for international nautical charts, so as to avoid duplication of effort and to permit the better use of the limited resources available in the region.

201 Several delegations (Argentina, Australia, Brazil, Canada, China, Cuba, Greece, Indonesia, Turkey and USSR) expressed their satisfaction with the work of the IOC-IHO Guiding Committee for GEBCO and the IOC Editorial Boards for IBCM and for GAPA, and pledged support to the on-going and planned activities of the Commission in this field.

202 The Delegate of Venezuela expressed his country's particular interest in co-operating with Mexico and other Member States of the region in the preparation of a bathymetric chart for the Caribbean and part of the Pacific Coast off Central America on a 1:1,000,000 scale, as had been done for the Mediterranean. This programme would constitute the start of an overall project bringing together various overlay sheets, and a geological/ geophysical atlas of the Caribbean and adjacent regions.

203 The Delegate of Cuba pledged his government's support for the proposed International Bathymetric Charts for the Caribbean and the Pacific coast off Central America, and said his country was ready to host the First Session of the Editorial Board for this project in Havana immediately prior to the Second Session of the Sub-Commission for IOCARIBE, if this was convenient to the Commission, and if Mexico, as the lead country, did not itself wish to host the Board's First Session.

204 The Delegate of Indonesia informed the Assembly that his country is, with the assistance of the Government of France, constructing a new vessel for bathymetric charting, and that Indonesia would be ready to assist other countries of the WESTPAC Region in their ocean mapping and related training.

205 The Delegate of the USSR confirmed the offer of the Soviet Union to print and publish the IBCM charts referred to above, as a contribution to the IOC Voluntary Co-operation Programme.

206 The Assembly expressed its sincere appreciation to the Government of the USSR for this generous offer.

The Delegate of Australia said that his country had found the GEBCO project useful, not only for its chart preparation work, but also as a focus for mapping activities in the South-West Pacific region. He stressed the need for large-scale bathymetric charting and geological/geophysical mapping to be undertaken in the WESTPAC area. The Assembly was informed that CCOP (SOPAC) had a Geophysical Atlas of the South-West Pacific in preparation and that, so far, the Secretariat had only received a copy of the bathymetric sheet. 207

The Delegate of Argentina drew attention to the work on nomenclature being carried out by the United Nations Group of Experts on Geographical Names and asked whether the GEBCO Guiding Committee was keeping in touch with that Group. He was informed that the United Nations Group of Experts had recently abolished their Sub-group on Undersea and Maritime Features and had appointed the Convenor thereof, Mr Richard Randall, as their liaison officer with the IHB. Mr Randall has been invited to the forthcoming meetings of the GEBCO Guiding Committee and its Sub-Committee on Geographical Names and Nomenclature of Ocean Bottom Features in Monaco, at IHB Headquarters, in April 1985. 208

The Assembly recognized that detailed and reliable bathymetric charts form the basis for exploration of non-living resources. 209

The Assembly thanked the IOC-IHO Guiding Committee for GEBCO, and to the Editorial Boards for GAPA and IBCM for their good work, often under adverse circumstances. 210

The Assembly approved the Summary Reports of the Third and Fourth Sessions of the Central Editorial Board for the Geological/Geophysical Atlases of the Atlantic and Pacific Oceans, and the Summary Report of the First Session of the Editorial Board for IBCM and Overlay Sheets, including the Terms of Reference therefor proposed by the Board. 211

The Assembly adopted Resolution XII-2. 212

It thanked the Government of the USSR for its generous offer to publish the IBCM Overlay Sheets. It also thanked the Governments of France, Germany (Federal Republic), Mexico and the United Kingdom for their offers to assist in the preparation and publication of regional bathymetric charts for the Central Eastern Atlantic, the Western Central Indian Ocean, the Caribbean and Pacific coast of Central America, and the Red Sea (and Gulf of Aden), respectively. 213

The Assembly recommended that, if possible, the First Session of the Editorial Board for the International Bathymetric Chart of the Caribbean and part of the Pacific off the Coast of Central America be held in Mexico, but welcomed the offer of the Government of Cuba to hold this session immediately prior to the Second Session of the Sub-Commission for IOCARIBE which Cuba has offered to host in Havana in 1986. 214

The Assembly adopted Resolution XIII-3. 215

The Assembly, noting the initiative of CCOP (SOPAC), recommended close liaison between the Commission and CCOP (SOPAC) on ocean-mapping activities in the Western Pacific region, in order to avoid duplication of effort. 216

6.4 OCEAN DYNAMICS AND CLIMATE

6.4.1 First Session of the Programme Group on Ocean Processes and Climate

217 The Chairman of the Programme Group on Ocean Processes and Climate, Professor K. Voigt, introduced the Executive Summary of the First Session of the Programme Group on Ocean Processes and Climate, including its recommendations. He informed the Assembly that the meeting was attended by delegations from 24 Member States and representatives of five international organizations. The Programme Group reviewed the activities of the SCOR-IOC Committee on Climatic Changes and the Ocean and its proposals on the planning and implementation of oceanographic experiments and programmes within the World Climate Research Programme (WCRP), particularly those that require intergovernmental action and co-ordination. Special attention was also given to ocean observing systems and related data management. The Programme Group drew the attention of the Assembly to the need for active participation in, and the promotion of the TOGA and WOCE experiments, by IOC Member States, and in the development of ocean-observing systems required in support of WCRP, particularly, global sea-level observations, sub-surface thermal-structure monitoring within IGOSS and drifting-buoy programmes (jointly with WMO). The Programme Group emphasized the need to develop strong TEMA components of the proposed research programmes and experiments in order to enable developing countries to participate actively in the oceanographic component of WCRP. The Programme Group also reviewed the proposed arrangements for the International TOGA and WOCE Planning Offices, and recommended close co-operation between IOC and WMO with a view to making the required arrangements, including appropriate procedures for improving intergovernmental co-ordination of the oceanographic activities within the WCRP.

218 The representative of CPPS suggested that regional and subregional bodies should be actively involved in the planning of the global experiments in order to identify how best to participate. He requested IOC and WMO to assist in studying and developing the capabilities of regional bodies to enable them to participate actively in the proposed experiments, and to strengthen the relevant TEMA activities.

219 Many delegates expressed their satisfaction with the work done by the Programme Group in formulating specific actions to be undertaken by IOC within its responsibility for the oceanographic component of the World Climate Research Programme and expressed the interest of their countries in participating in the TOGA and WOCE experiments.

220 Some delegates suggested that some of the tasks that IOC could undertake were the integration of data required for the implementation of proposed programmes, facilitating the shipment of scientific equipment and national clearances.

221 The Delegate of the United States of America informed the Assembly that his country considers the proposed oceanographic activities within the WCRP to be the most important research programmes of IOC. It was the first time the Commission was involved in scientific experiments of such a scale and it should take into account the experience of WMO in dealing with similar activities. Close co-ordination between IOC, SCOR, ICSU and WMO is required to ensure proper balance between non-governmental (individual scientists, scientific laboratories) and intergovernmental activities, for which the

supporting international organizations are IOC and WMO. He emphasized the need for close collaboration between the oceanographic and meteorological communities in planning and implementation of the integrated programmes and experiments within WCRP which have oceanographic and atmospheric components. The United States considers WMO as a leading agency for the overall co-ordination of the WCRP with the support of IOC.

222 The Delegate of Japan said that IOC should provide support in the planning and implementation of WOCE, TOGA and the Ocean-observing System Development Programme (OOSDP), but on condition that the financial burden to IOC is not increased.

223 The Delegate of Brazil, while stressing the need to strengthen the role of IOC in this field, stated that the proposal contained in Recommendation 3 of the Programme Group, regarding facilitation of research and monitoring programmes in coastal waters under national jurisdiction, was not adequate to the interests of coastal States and therefore could not be accepted. He suggested that this question should be given more careful consideration by Member States before any substantive decision could be taken on it by the Assembly.

224 The Delegate of the United Kingdom said that his country strongly supports the WCRP and the activities of IOC, jointly with WMO, SCOR and ICSU, in this Programme. His country recognized the problems in mobilizing the world oceanographic community in this programme and, to facilitate this mobilization, agreed to host the International WOCE Planning Office at the Institute of Oceanographic Sciences, in Wormley. He expressed his gratitude to the Government of Canada for providing a prominent scientist, Dr George Needler, as the Director of the WOCE Office. IOS will welcome visitors from other Member States to work in the WOCE Office during the period of WOCE.

225 The Delegate of the Soviet Union pointed out that, in planning international global experiments such as TOGA and WOCE, the ongoing national and international programmes should be taken into account. He referred, in particular, to the programme SECTIONS (on energetically active zones of the ocean and climate variability) which has been implemented by the USSR in cooperation with some other countries since 1981. This programme is directly related to the major objectives of the WCRP, since it deals with the Study of Seasonal and Interannual Climate Variability. More than 15 large research vessels make seasonal investigations in five energetically active zones of the ocean - in the north and tropical Atlantic and the north-western Pacific. These studies will be continued until 1990. Therefore, at this stage, it is very difficult to estimate possible participation of the USSR in the proposed WCRP experiments, although Soviet scientists find the concept and objectives of the experiments attractive from a scientific point of view. He also stressed the view that IOC should play an active and key role in the planning and implementation of the TOGA and WOCE experiments, in close collaboration with WMO. With reference to the proposed International TOGA and WOCE Planning Offices, he drew the attention of the Assembly to the need to follow common procedures, which require their approval by the IOC Assembly in order to ensure their truly international status and proper liaison with IOC and WMO as the major intergovernmental organizations involved in the implementation of WOCE and TOGA.

226 ▲ The Assembly stressed that collaboration with WMO should be further strengthened in order to co-ordinate intergovernmental activities of their Member States in the integrated ocean-atmosphere experiments.

227 The Delegate of France informed the Assembly that France will play an active role in WCRP, especially in TOGA and WOCE. To this end, a National Committee for the World Climate Programme has been set up; France will be particularly involved in oceanographic satellite programmes within the framework of European co-operation and joint France-U.S.A. co-operation, requiring considerable investments. She said that her country was concerned to work closely with scientists from developing countries, especially in the framework of TOGA. She also reminded the Assembly that the new ocean regime will require very close international co-operation between WMO and IOC, since the WCRP is a whole requiring the close association of meteorologists and oceanographers. The commitments of governments, through intergovernmental organizations, should be matched to needs defined by the scientists.

228 The Delegate of Portugal pointed out that oceanographic experiments within the WCRP constitute an enormous challenge to scientists, research institutions and governments from all over the world. Therefore, the close collaboration of IOC and SCOR is required for the implementation of the oceanographic component of the WCRP, and of WMO and ICSU in the implementation of the atmospheric components. Portugal supports the proposed programmes and will do its best, with the limited resources available to it, to contribute to the experiments, especially in support of WOCE in subtropical and tropical zones of the Atlantic, particularly in the North Atlantic Circulation Experiment, and to the OOSDP.

229 The Delegate of Mexico confirmed the position of his country, expressed at the Seventeenth Session of the Executive Council. In particular, he stressed the view that these important climate programmes can only be effectively implemented if there is support at the intergovernmental level, and that all Member States should have access to the information on TOGA and WOCE development. The Programme Group on Ocean Processes and Climate is, in the opinion of his country, a useful forum for communication between the scientific and the intergovernmental communities concerned, as was demonstrated by the Programme Group's First Session. Under the agreements between Unesco and ICSU and between SCOR and IOC, the Commission should assume responsibility for overall co-ordination of oceanographic components of WCRP in co-operation with WMO, especially in those activities that require intergovernmental actions. IOC should therefore be fully informed of the activities of the WOCE and TOGA Offices. To be fully international in scope, the programmes require the active participation of the developing countries and the IOC regional subsidiary bodies. He noted that, under the WOCE programme, the use of one research vessel is proposed for special investigations. In his opinion, existing research vessels should be used.

230 ▲ The Assembly expressed its appreciation to the Joint SCOR-IOC Committee on Climatic Changes and the Ocean for the excellent work done, jointly with the JSC for the WCRP, in formulating and planning WOCE, TOGA and OOSDP and urged Member States to participate actively in them.

231 ▲ The Assembly called on the Joint SCOR-IOC Committee on Climatic Changes and the Ocean, in the planning and implementation of TOGA and WOCE experiments, to take into account relevant national and regional studies undertaken in various parts of the World Ocean, in particular in the eastern

Mediterranean and polar regions of the North Atlantic and the CPPS region, so that they could be adequately integrated into the TOGA and WOCE experiments. The results of these national or regional studies should be properly used in planning of global experiments.

The Assembly urged Member States to participate actively in planning and implementation of proposed oceanographic activities with WCRP. It stressed the need to strengthen co-operation with WMO regarding intergovernmental planning and co-ordination of proposed experiments and agreed that IOC should play an active role in developing ocean observing systems, particularly the Global Sea-level Observing System, and data management activities required for WCRP, WOCE and TOGA in particular. 232

The Assembly noted the Executive Summary of the First Session of the Programme Group on Ocean Processes and Climate. 233

As recommended by the Programme Group on Ocean Processes and Climate, the Assembly decided that, in developing ocean-observing systems in support of the World Climate Research Programme, IOC's main effort in the immediate future will be focused on the following activities: 234

(i) promotion and development of a Global Sea-Level Observing System;

(ii) promotion and development of a drifting-buoy programme (jointly with WMO) for oceanographic and meteorological purposes;

(iii) promotion and development of ocean sub-surface thermal structure monitoring in the framework of IGOSS.

As recommended by the Programme Group, the Assembly instructed the Secretary of IOC to arrange for IOC Governing Bodies to be regularly and fully informed of progress in planning and proposals for implementation of the oceanographic components of the WCRP with a view to endorsing them as appropriate and to make appropriate arrangements for liaison with International WOCE and TOGA Planning Offices on matters requiring intergovernmental action through IOC. 235

After having considered the need for an implementation plan for the Global Sea-Level Observing System, including network details and specifications and data-reporting procedures, the Assembly decided to call upon a task team of experts in the field of sea-level measurements and analysis, including scientists involved in the development of tide-gauge networks in IOC regions, taking into account the Proposal for the Global Network of Sea-Level Stations, (IOC Technical Series No. 27) and other relevant matters (e.g., IOC/TEMA considerations). Where required, funds for a participating scientist from a developing country may be provided from earmarked Funds-in-Trust. 236

The Assembly instructed the Secretary of IOC to promote the required TEMA support, taking into account the advice of the appropriate technical and regional subsidiary bodies of the IOC. 237

The Assembly adopted Resolution XIII-4. 238

6.4.2 Joint SCOR-IOC Committee on Climatic Changes and the Ocean

239 The Chairman of the Joint SCOR-IOC Committee, Dr R. Stewart, introduced this item. He informed the Assembly that, since the Twelfth Session of IOC, substantial progress has been made in developing plans for the oceanographic components of the World Climate Research Programme. In this endeavour the SCOR-IOC Committee on Climatic Changes and the Ocean has worked closely with the WMO-ICSU Joint Scientific Committee for the WCRP. Planning has focused on the three major efforts already approved by IOC: (i) the Interannual Variability of the Tropical Oceans and the Global Atmosphere (TOGA); (ii) the World Ocean Circulation Experiment (WOCE); and (iii) the Ocean-Observing System Development Programme (OOSDP).

240 The situation with respect to TOGA, in the importance of the phenomena it treats and in the serious limitations of our present capabilities, is well illustrated by events occurring while the Twelfth Session of the Assembly was in progress. At that time, the oceanographic-meteorological event of the century in the Pacific was taking place. A major 'El Niño' was near its peak - with its attendant effects on the fisheries off western South America. Huge quantities of warm water were flooding the eastern Pacific. The region of warmest water, usually in the extreme western tropical Pacific, had moved far to the east. Torrential rains fell on areas of South America and some tropical islands which are usually very dry. Extreme droughts occurred in New Guinea. None of this was predicted. Indeed, there was little understanding of what was going on; much of the relevant data became available only later, and the phenomena observed did not follow particularly well the characteristics that, at that time, were thought to be those of an 'El Niño'.

241 The scientific community must learn to do better. And TOGA is the international programme designed to achieve this.

242 Since the last Assembly, the Scientific Steering Group for TOGA has substantially advanced the planning, and a formal plan should be available within a very few months. A very impressive International Scientific Conference on the TOGA Programme was held in Paris in September 1984 in which many observational and theoretical results were presented. The International TOGA Planning Office is now functioning in Boulder, Colorado, U.S.A. Besides Americans, staff seconded from India, France and Canada work in this Office, which is an extension of the Joint Planning Staff for the World Climate Research Programme.

243 WOCE is still in the planning phase. It will not enter its main observational phase until satellites carrying altimeters and scatterometers are in place some five years hence. The WOCE Scientific Steering Group has been very active in sharpening the objectives and outlining plans. More detailed planning requires full-time efforts, which will be the task of the International WOCE Planning Office recently established in Wormley, United Kingdom. Canada has announced the secondment of a very senior physical oceanographer, Dr George Needler, as Director of this Office, and he will take up his post in the near future.

244 In response to requests from IOC and WMO, the IOC has published and distributed the Ocean Observing System Development Programme in IOC Technical Series No. 27. Nevertheless, the Joint SCOR-IOC Committee considers it

premature to attempt to describe OOSDP in a definitive form. Detailed planning of WOCE and TOGA will strongly influence the nature of OOSDP for the next decade, and an important objective of WOCE is to help define an eventual Ocean Observing System.

The oceanographic component of the World Climate Research Programme has attracted the enthusiastic participation of a large fraction of the world's best oceanographers. They recognize the importance to society of the Programme, and its scientific challenge. SCOR and IOC can take pride in their participation in one of the most important and most exciting scientific ventures of the century. 245

Several Member States restated their specific contributions to the WCRP announced at the First Session of the IOC Programme Group on Ocean Processes and Climate (see item 6.4.1). 246

The Delegate of Brazil informed the Assembly that it would host the Third Session of the CCCO Tropical Atlantic Ocean Climate Studies Panel and an associated workshop on the teleconnections between tropical Atlantic ocean/atmosphere anomalies and midand high-latitude atmospheric anomalies, in Rio de Janeiro, 9-13 September 1985. 247

The Delegate of China informed the Assembly that his country would host an IOC Consultative Meeting of Experts on Oceanographic Climate Data Management, in April 1985. 248

The Delegate of Indonesia announced that tide gauges were being installed in his country with the support of Australia, France and the United States. 249

The Assembly reviewed the Summary Report of the Sixth Session of the Joint SCOR-IOC Committee on Climatic Changes and the Ocean (CCCO). It congratulated the Joint Committee on the progress made, since the Twelfth Session of the Assembly, in defining the oceanographic activities within the WCRP, namely those associated with TOGA and WOCE and the OOSDP. It recognized that the progress is due to the involvement of leading scientists and their institutions and their co-operation with the intergovernmental organizations, which demonstrates the importance scientists attach to the WCRP. 250

The Assembly noted that, while the global programmes TOGA and WOCE were being well planned, the Joint SCOR-IOC Committee on Climatic Changes and the Ocean had given relatively little attention to polar region studies and to the use of semi-enclosed seas, such as the eastern Mediterranean, as small-scale 'laboratories', and requested the Joint Committee to give attention to this matter. 251

The Assembly accepted the Summary Report of the Sixth Session of the Joint SCOR-IOC Committee on Climatic Changes and the Ocean (document SCOR-IOC/CCCO-VI/3). 252

6.5 MARINE POLLUTION RESEARCH AND MONITORING

The Chairman of the IOC Working Committee for the Global Investigation of Pollution in the Marine Environment (GIPME), Dr Neil Andersen, introduced this item. He stressed the importance of the Fifth Session of the Working 253

Committee because of the programmatic priorities that were established which were now before the Assembly. He also stressed the fact that much of the technical work had been completed by the GIPME Group of Experts on Methods, Standards and Intercalibration (GEMSI) for initiating several operational activities in MARPOLMON in a scientifically credible way and that it was now up to the Member States to determine the speed with which such implementation should take place. He placed particular emphasis on studies of the effects of pollution, as embodied in the Terms of Reference of the GIPME Group of Experts on the Effects of Pollution (GEEP), since they are fundamental to an understanding of vulnerability, and constitute an important first step towards establishing a solid scientific basis for the definition of vulnerable areas and identifying criteria for the identification of such areas. He also stressed the absolute necessity of making available to Member States standards and certified reference materials for regional monitoring programmes. The GIPME Programme should be considered in the wider context of environmental concerns on a global scale, and could and should be combined with Member State research programmes on such chemical oceanographic questions as those dealing with the flux of material through the ocean. If GIPME is to be successful, Member States would have to implement it on a regional basis.

254 The Representative of UNEP, Dr Stjepan Keckes, referred to the considerably strengthened co-operation between the UNEP and IOC, as indicated by the number of joint activities presented in the Summary Report of the Fifth Session of the Working Committee for GIPME, and the Summary Report of the Sixth Session of GEMSI, and by the extensive references in the Secretary's Report. He expressed the need for the Member States themselves to provide the framework for enhanced co-operation and indicated three fields where his organization would seek to improve collaboration: (i) through the Joint IOC-UNEP Group of Experts on Methods, Standards and Intercalibration (GEMSI); (ii) through the strengthening of the links between MARPOLMON and the 11 Regional Seas Components; and (iii) through a global assessment of marine pollution within GESAMP. He requested the Assembly to recognize the constraints under which UNEP operated as an intergovernmental organization with its own governing body, and urged Member States' representatives at meetings of the IOC and UNEP governing bodies to take account of mutually compatible programmes and ensure their support.

255 The Representative of ICES, Mr Ole Ostvedt, referred to the co-operation between the two organizations, which had produced compatible results in the past. It was his opinion that, in strengthening the participation of the regional bodies and the various Commissions (Oslo, Paris, Helsinki, etc.) as a contribution to the GIPME programme, serious thought should be given to conducting work through joint IOC-ICES working groups, as the IOC does with SCOR, in order to avoid proliferation of meetings on the same or similar subjects. He said he intends to raise the matter at the forthcoming Statutory Meeting of ICES.

256 The Representative of CPPS, Dr Luis Arriaga, informed the Assembly that within the framework of the Regional Action Plan for the South East Pacific, which had constituted a first stage in CPPS co-operation with UNEP, IOC, IMO and FAO, an institutional network of 36 laboratories had been developed. The regional monitoring efforts within this network would benefit greatly from the provision of reference materials and inter-laboratory calibrations. He expressed his wish to develop co-operation with IOC in this field.

The Chairman of the IOC Sub-Commission for IOCARIBE, Cap. Rafael Steer Ruiz, endorsed the view that mechanisms should be sought whereby delegations to the governing bodies of both organizations should be made aware of such co-operation and the development of mutually compatible programmes. 257

The WESTPAC Technical Co-ordinator for Marine Pollution Research and Monitoring, Dr Aprilani Soegiarto, informed the Assembly that, in concurrence with decisions taken at the Third Session of the Programme Group for WESTPAC, a meeting of the WESTPAC Task Team on Marine Pollution Research and Monitoring in the Western Pacific had been arranged in Townsville, 17-19 April 1985, with the support of the Australian Government. He expressed his satisfaction with the Summary Report of the Fifth Session of the Working Committee for GIPME, indicating that this could form a solid basis for the Task Team's deliberations. He also noted the satisfactory interaction between IOC and the Co-ordinating Body for the Seas of East Asia (COBSEA). 258

Some delegates drew the Assembly's attention to the need to keep pace with developments in the identification of novel contaminants in the marine environment and particularly in the coastal zones or identified areas of high vulnerability. These contaminants, many as yet unidentified, may differ from region to region, and a timely start in the analytical problems associated with their detection and monitoring is warranted by GEMSI. 259

The Delegate of Brazil expressed the serious doubts of his country about exercises for the elaboration of scientific models for the determination of vulnerable areas according to degrees of sensitivity. In his view, any attempt at the predetermination of sensitivity of specific oceanic areas to pollution should be avoided. 260

The Delegate of the USSR said his government was willing to make available all of its scientific expertise, research facilities, research fleet and training facilities if its application to establish a Responsible National Oceanographic Data Centre for MARPOLMON was favourably received. He also informed the Assembly that his country is undertaking a programme of integrated global ocean monitoring, including ecological components, which had been prepared in the USSR and would be presented to a forthcoming session of an IOC governing body. 261

The Delegate of Sweden announced his Government's decision to second a scientist to the IOC Secretariat as an Associate Expert to be outposted in the region to assist IOCARIBE. 262

The Delegate of the United Kingdom expressed satisfaction with the progress made by GEEP in the implementation of Stage 3 (pollutant assessment) of the GIPME Comprehensive Plan and with the success of the Group's First Session (Plymouth, United Kingdom, 4-6 December 1984). He believed that the Group of Experts is practical rather than academic, and supported the recommendation to hold a practical workshop on techniques for biological effects measurement; he also believed that high priority should be assigned to the development of guidelines for the identification of 'vulnerable areas'. He considered it important that physical and chemical oceanographers maintain close liaison to ensure the optimum use of research-vessel cruises and to facilitate the exchange of data when appropriate. 263

264 The Delegate of Canada informed the Assembly that the Summary Report of the Fifth Session of the Working Committee had received a most favourable reception amongst the marine chemist community in Canada and felt that a set of clear priorities had been presented to the Assembly which represented a responsible approach to the management of the programme, including budgetary implications. However, since the recommendations were not highly visible in the body of the Summary Report, he urged that the Assembly give the Working Committee and its Chairman a clear indication of how to proceed, by not just endorsing the entire report but by critically evaluating the priorities in the light of present funding. In his view, the Chairman of the Working Committee for GIPME must be able to leave this Assembly with a clear mandate to continue the implementation of the Comprehensive Plan for GIPME, as set forth in the Summary Report of the Fifth Session of the Working Committee.

265 He also stated that his government will support activities related to the preparation and distribution of reference materials and informed the Assembly that discussions are under way to determine the extent to which his country may contribute.

266 The Delegate of Kenya referred to the implementation of the GIPME programme at the regional level and urged the IOC to consider the selection of key laboratories to act as focal points in various regions constituting the programme. He offered the Mombasa laboratory as a regional MARPOLMON focal point for data collection and dissemination, and for training purposes in his region.

267 The Delegate of Egypt referred to the MARPOL Convention 1973 and the increasing levels of pollution from petroleum hydrocarbons and solid wastes in the Red Sea and adjacent gulfs. He said that his delegation had brought this to the attention of the Executive Council at its Seventeenth Session and called on the Working Committee for GIPME to initiate MARPOLMON activities in this region.

268 The Delegate of the German Democratic Republic indicated that, following a special intercalibration exercise on marine sediments conducted under the auspices of ICES and SCOR, major efforts have been made to make such sediment reference materials available, as well as associated training in their application, to all Member States. Consideration is presently being given to extending this methodology to materials originating from tropical regions.

269 The Delegate of Uruguay stressed the need for co-ordination of intercalibration exercises and provision of materials at the regional level in the Southwest Atlantic and that frequent performance checks of this kind were necessary for the laboratories, particularly in those laboratories that were being set up to take on the functions of MARPOLMON laboratories for a wider region.

270 The Delegate of Venezuela invited IOC, with the technical guidance of the GIPME Group of Experts on the Effects of Pollution, to use an ongoing research project on the National Park at Morrocoy (on the coast of the State of Falcon) as a basis for a pilot study to develop and apply guidelines for identification of vulnerable areas in a complex coastal environment. He informed the Assembly that an official proposal to this effect had already been transmitted to the Secretary of IOC, and his country also offers to host a subsequent session of GEEP, in Caracas.

271 The Delegate of France, stressing the importance of GEEP's work, proposed that GEEP should provide guidance on research needs in ecotoxicology. He also stated that France will make training available and all of its facilities in support of the programme, especially in the areas of data management and marine chemical analysis required to support the programme.

272 The Delegate of Bulgaria drew the attention of the Assembly to the importance of the study of coastal marine ecosystems with a view to modelling their development under the effect of entrophication. He believed it would be desirable to organize, in the near future, under the auspices of the IOC, an international symposium on this problem.

273 The Delegate of the Islamic Republic of Iran stated that his country wished to develop collaboration with the IOC, in the framework of GIPME, with particular reference to the determination of trace-metal concentrations in the rivers and estuaries draining into the Persian Gulf, and their correlation with the coastal water levels. In particular, he sought information on the procedures and methods by which this study could be carried out.

274 The Delegate of the Federal Republic of Germany stated that his government attaches high priority to the work of GIPME and, therefore, has seconded a consultant to the IOC Secretariat for 6-9 months. The main pollution monitoring activities of his country are concentrated on the North Sea and Baltic Sea in the framework of the relevant regional conventions. His country, therefore, attaches great importance to a closer collaboration of the Commission with regional pollution-monitoring programmes.

275 The Assembly acknowledged that the GIPME programme had developed satisfactorily with a good degree of definition and a sound scientific basis, and that the aims were comprehensive and optimistic, yet realistic. It thanked the Chairman of the Working Committee for GIPME, Dr Neil Andersen, for his energetic leadership.

276 The Assembly recognized that GIPME provides a framework for co-operation, and urged Member States to contribute their scientific resources at the required level in an effort to achieve the objectives of GIPME and the timely implementation of MARPOLMON.

277 It also recognized that a number of biogeochemical or physical oceanographic programmes are directly relevant to the GIPME Comprehensive Plan and urged scientists involved in these related programmes to remain mindful of the needs of GIPME. It welcomed the collaborative efforts being pursued by Member States in regional programmes, and urged them to incorporate them progressively into the MARPOLMON System. Examples of such regional approaches may be found in the considerable efforts being undertaken by the ICES in the North Atlantic, the Baltic and the North Sea. Likewise, the models developing from biogeochemical studies in the Mediterranean, which may be considered as a micro-ocean or pilot project encompassing all the characteristics necessary to study the fate and fluxes of human wastes, should be incorporated into the GIPME programme.

278 The Assembly considered the availability of standards and certified reference materials as a key component in the conduct of intercalibration exercises and regional contaminant assessments. It recognized that to put the approach on a sound, long-term footing requires the careful international co-ordination of concerned national agencies and the involvement of

international organizations (e.g., ISO, IAEA, OECD, ICES, UNEP), and instructed the Working Committee, through its Group of Experts on Methods, Standard and Intercalibration, to prepare a proposal for an intergovernmental mechanism to co-ordinate the preparation and distribution of standard and reference material, for consideration by the Executive Council at its Nineteenth Session.

279 The Assembly called on Member States to inform the Secretary as soon as possible of their willingness to participate in an IOC scheme for the preparation and distribution of standards and reference materials for the purposes of GIPME and MARPOLMON.

280 The Assembly instructed the Secretary to organize, with the eventual participation of other interested organizations, a Symposium and Workshop to identify the current availability of standards and reference materials for use in international marine pollution research and monitoring activities.

281 The Assembly also instructed the Secretary to organize, with the eventual participation of other concerned organizations, notably IMO and UNEP, and under the guidance of the Group of Experts on Effects of Pollutants, a practical workshop on biological effects measurements which will assist, inter alia, in determining the scientific basis for the definition of vulnerability of marine areas to marine pollutants.

282 The Assembly welcomed the increasing co-operation between UNEP and IOC in furthering the aims of the GIPME programme and noted with great satisfaction the close working arrangements within the GIPME subsidiary bodies and at the regional level. It instructed the Secretary to continue to develop this productive mode of operation.

283 The Assembly adopted Resolution XIII-5.

7. OCEAN SERVICES

7.1 INTEGRATED GLOBAL OCEAN SERVICES SYSTEM (IGOSS)

284 The Chairman of the Joint IOC-WMO Working Committee for IGOSS, Mr G. Holland, introduced this item. He stressed the unique nature of IGOSS as a joint undertaking of IOC and the World Meteorological Organization (WMO), and then briefly reviewed the main activities undertaken since the last session of the Joint Working Committee, in February-March 1983. Many of the present activities of IGOSS are directed towards meeting the requirements of the World Climate Research Programme, mainly through close co-operation with the Joint SCOR-IOC Committee on Climatic Changes and the Ocean (CCCO). He then focused on specific issues that, in his view, should be drawn more especially to the attention of the Assembly.

285 IGOSS presently has four main thrusts: the first is the combination of new and existing requirements for ocean data, which calls for an acceleration in the development of the IGOSS Observing System, particularly in respect of operational sub-surface temperature and salinity data; however, only a handful of the 112 Member States of IOC contribute data to the System, and this lack of participation is a major inadequacy, because, unless Member States contribute all the available data, IGOSS will not be able to realize its potential. IGOSS provides a suitable infrastructure for the

timely exchange of data gathered by Member States. Plans are going ahead for the development of a ships-of-opportunity programme to address data-sparse areas of the world's ocean.

The second IGOSS thrust is an accelerated data-products plan. The network of IGOSS Specialized Oceanographic Centres (SOCs) lies presently within Japan, the Union of Soviet Socialist Republics and the United States of America. It is hoped that the number of SOCs will be doubled to form a nucleus of SOCs that will be able to prepare standardized regional and global data products and to forward them, initially on a monthly basis, to all Member States. 286

The third thrust is meeting the challenge of providing sea-level data that are required by the World Climate Research Programme; this is being achieved by the establishment of a pilot project for the operational exchange of mean sea-level anomaly charts in the Pacific. Since its commencement one year ago, 22 Member States are contributing sea-level data to the project. 287

The fourth IGOSS thrust is to keep abreast with technological developments to meet existing and emerging requirements. This applies to observing techniques, such as Doppler current profiling systems, drifting buoys or satellite measurements, the automation of data collection, the use of advanced HF radio transmissions or satellite-relay systems, etc. All operational data systems must change with the times and IGOSS is not an exception. 288

The Chairman of the Joint IOC-WMO Working Committee drew the attention of the Assembly to the decrease in the part of the IOC budget devoted to IGOSS and expressed the hope that Member States could palliate this decrease by strengthening their national commitments. He proposed that a training course for IGOSS National Representatives from developing countries wishing to begin participating in IGOSS be held just prior to the Fourth Session of the Joint Working Committee for IGOSS, in November 1985. He foresaw that, in the next few years, IGOSS would require increased secretariat support. 289

Several delegates reported on their involvement, or their wish to become more involved, in IGOSS, through the establishment of ships-of-opportunity lines, or the provision of data on sea-level or on parameters observed from coastal stations. 290

The Delegate of Uruguay informed the Assembly of his country's willingness to establish ships-of-opportunity lines between Montevideo and the Gulf and Nigeria; he appealed to Member States to help by providing assistance with instruments. 291

The Delegate of Australia informed the Assembly that his country was considering establishing a Specialized Oceanographic Centre for the Southern Oceans as part of Australia's participation in IGOSS, to which his country accords a high priority within IOC activities. 292

The Delegate of the United States of America said that his country was ready to host a meeting on IGOSS implementation, in Seattle, in September 1985, to address the question of matching resources with the availability of ships and the existing requirements for ocean data. Recalling that his country had made available a United States expert as the IGOSS Operations Co-ordinator, he suggested that the Co-ordinator, in carrying out the agreed 293

duties, should travel to countries able to participate in IGOSS and promote their involvement in the programme.

294 The Delegate of the United Kingdom said that, as his title clearly indicated, the IGOSS Operations Co-ordinator has a specific task which is to monitor the progress of IGOSS data exchange and to encourage Member States to participate actively in, and contribute to, IGOSS. This entails visiting appropriate Member States, as funds permit. The United Kingdom considers that this task is important, particularly in view of the Commission's ocean climate programmes, and wishes to be satisfied that the funds it contributes to the IOC Trust Fund in support of the IGOSS Operations Co-ordinator are being used for the aforementioned purpose.

295 The Delegate of Mexico said that IGOSS is a complex and sophisticated service, but could be of great value. However, as was noted by the Programme Group on Ocean Processes and Climate, the number of countries actively contributing to the System is rather limited. To deal with this problem, he suggested that the Joint Working Committee for IGOSS undertake an in-depth study to determine the various reasons for this limited participation and to propose remedies, particularly as regards TEMA aspects, with a view to ensuring the proper functioning of this System, and to submit its report to the Nineteenth Session of the Executive Council for consideration.

296 The Assembly thanked the Chairman of the Joint Working Committee for his comprehensive report on the main IGOSS activities.

297 With regard to IGOSS development, the Assembly stressed its concern that only a handful of Member States were actually contributing data to the system. More than half of the data actually gathered within the framework of all kinds of oceanographic programmes were not contributed to the system. It could not be argued that the cost of gathering data was too high. The cost of encoding a BATHY report and forwarding it according to IGOSS procedures was very low and should not be a serious constraint. It recognized, however, that the cost of measuring devices (XBTs) was one possible reason for the lack of participation, together with lack of information on the part of Member States. Other possible reasons were: the reluctance of Member States to commit themselves because of misunderstandings concerning IGOSS objectives; the fact that IGOSS objectives might not coincide with governmental priorities; budget limitations preventing attendance at IGOSS meetings; difficulties in identifying users of IGOSS products; the fact that the relatively long length of the BATHY/TESAC messages might deter observers from encoding and transmitting measurements.

298 The Assembly considered this problem to be one of utmost importance. Therefore, it called on the Joint IOC-WMO Working Committee for IGOSS to undertake, as a matter of high priority, a study of the reasons why so few Member States were actually contributing data to IGOSS and to study the possibility for an abridged code for form FM-64 V TESAC that might incite observers to contribute these data to the system.

299 It recognized that the distribution of BATHY (temperature versus depth) and TESAC (temperature, salinity and current versus depth) data within the framework of IGOSS was of utmost importance to various categories of users, in navigation, fisheries and scientific research, for example. No single country could put together meaningful, good quality ocean-data products based entirely on national data. IGOSS makes it possible to increase the

number of data available and thus to improve the products derived from the data.

The Assembly agreed that the IGOSS programme as foreseen when launched in 1969 was compatible with the requirements of the World Climate Research Programme and that close co-operation between the Joint IOC-WMO Working Committee for IGOSS and the Joint SCOR-IOC Committee on Climatic Changes and the Ocean should be maintained. 300

The Assembly recognized that the World Climate Research Programme was crucially dependent on sub-surface thermal data collected and distributed on a global basis. 301

The Assembly considered that, for IGOSS to meet all the demands made of it, the contribution of Member States of IOC and Members of WMO to IGOSS would have to be increased; the goal should be to increase the quantity of data made available to IGOSS and subsequently to users, and to improve their quality and distribution, through the commitment of Member States to contribute data. More co-operative efforts were required, especially in the tropics, in the collection of BATHY and TESAC data through ships-of-opportunity, drifting buoys or ocean-going research vessels. 302

The Assembly noted that the Joint IOC-WMO Working Committee for IGOSS had developed a draft policy framework for training and assistance activities, and that this draft (document IOC/INF-576) had been submitted to the Working Committee for TEMA at its Fourth Session (Lisbon, 4-9 June 1984). It welcomed the plan to distribute this document to the Member States of IOC and Members of WMO, together with relevant comments by the Working Committee for TEMA, in the near future. 303

The Assembly expressed its appreciation of the fruitful co-operation established with WMO and resolves to foster it, in particular with the Commission for Marine Meteorology of WMO, in order to reduce costs involved in the gathering of the data and to avoid duplication of effort. 304

The Assembly expressed its thanks to the United States of America for having provided, since 1979, the IGOSS Operations Co-ordinator, and to the United Kingdom for its budgetary support of this position. 305

The Assembly also expressed its appreciation to the United States of America for the establishment of an IGOSS Specialized Oceanographic Centre for mean sea-level at the University of Hawaii, under Professor Klaus Wyrtki, who has produced and distributed monthly mean sea-level anomaly charts since June 1984. 306

The Assembly accepted the concept of an Acceleration Phase for IGOSS and adopted Resolution XIII-6. 307

7.2 OCEAN OBSERVING SYSTEMS

7.2.1 Global Sea-Level Network

The Director of the Permanent Service for Mean Sea-Level, Dr D. Pugh (United Kingdom), introduced this item. He presented a 'Proposal for the Development of an IOC Global Network of Sea-Level Stations'.[1] 308

1. Will be published in the IOC Technical Series.

309 The scientific needs for sea-level data cover many space and time scales. The WCRP has a requirement for satellite calibration and for the definition of geostrophic circulation. Sea level also indicates the thermocline depth and the heat content of the upper oceanic layers. Geologists, particularly those associated with IGCP 200 project, are interested in sea level as an indication of vertical land movements. Long-term trends are also an indication of changes in the volume of ocean water, due to the melting of grounded ice or to warming and consequent expansion. There are several practical applications of sea-level data analyses, including the preparation of statistics on coastal flooding, harbour design and land reclamation. A recent FAO Working Group on Environmental Monitoring for Fisheries has noted sea-level measurements as a relevant and cost-effective activity.

310 The proposal under consideration embodies a direct approach, but it would be necessary to modify it as scientific thinking developed. Also, the present proposal did not include networks in semi-enclosed tropical seas, which would have their own requirements for regional networks. Not all sea-level gauges will be part of the proposed Global Network. About 150 relevant gauges already exist but about 100 would have to be reactivated or newly established using conventional techniques. Perhaps 15 gauges, especially in Antarctica, would require special technology. Several useful developments, including a manual of measuring techniques and three training courses had already been completed. The major requirement now was for the development of international and national infrastructures, and for the identification of resources, including gauges and spare parts, where suitable locations and recipients were already known.

311 The Representative of IHO pointed out that, in many Member States of the IHO, the collection and analysis of sea-level data is the responsibility of the national hydrographic services. This is done mainly for the construction of nautical charts and for safety-of-navigation purposes. A computerized Tidal Constituent Data Bank, operated for the IHO by a Member State (Canada), archives and supplies, on request, data from over 4,000 tidal stations. Therefore, when developing an IOC Global Network of Sea-level Stations for practical and scientific applications, the IOC should work in close co-operation with IHO, for their mutual benefit.

312 Many delegates (Argentina, Brazil, China, Cuba, France, Greece, Poland, Portugal, Spain, Turkey and Yugoslavia) expressed the willingness of their countries to participate in, and contribute to, the Global Sea-level Observing System by improving and maintaining their national sea-level stations and providing sea-level data for international exchange.

313 Many delegates stressed the importance of the proposed Global Network of Sea-level Stations to the achievement of the objectives of the WCRP, and TOGA and WOCE in particular, and to other scientific and practical applications.

314 Some delegates felt that more attention should be given to the integration of regional sea-level observations in such areas as the Baltic Sea and the Mediterranean Sea into a global sea-level observing system.

315 Some delegates pointed out that, in developing national sea-level stations, attention should be also given to the parallel installation of telemetric systems for transmission of sea-level data in real time and that

further expansion of the IGOSS Sea-level Pilot Project (ISLPP) to other oceanic regions is required.

Many delegates stressed their view that the proposed project on the development of a Global Sea-level Observing System is an excellent opportunity for co-operation between many IOC Member States. It requires strong TEMA activities to assist developing countries in the training of technicians and specialists, in obtaining equipment and necessary maintenance facilities, and in providing consultants and experts for selection of sites for tide gauges and assistance in installation and maintenance of tide gauges. 316

Many delegates (Argentina, Cuba, Ivory Coast, Kenya, Madagascar, Malaysia, Mauritius, Mozambique, Seychelles, Sierra Leone and Tanzania) informed the Assembly of their need for assistance in developing their national sea-level observation networks, in order to enable them to participate actively in the proposed Global Network of Sea-level Stations. There are many countries, particularly in tropical zones and the southern hemisphere, that will need such assistance. 317

The Delegates of Australia, China, France, India, Portugal and the U.S.A. expressed their willingness to assist some developing countries with the provision of tide gauges and/or spare parts and in the installation of these instruments. 318

Some delegates felt that proper international mechanisms should be established to provide overall co-ordination of the proposed global sea-level network, recognizing the roles of the Working Committee for IGOSS and regional bodies of IOC and TEMA. 319

The Assembly thanked the authors of the Proposal, Professor K. Wyrtki and Dr D. Pugh, for the excellent document they had prepared for the IOC. 320

The Assembly expressed its appreciation to the Governments of China and the United Kingdom for having hosted training courses on sea-level measurements and analysis in 1983 and 1984. It also expressed its gratitude to the Government of the United States for its contributions to the implementation of the IGOSS Sea-level Pilot Project in the Pacific. 321

The Assembly recognized that the Proposal for the Development of an IOC Global Network of Sea-level Stations, will require elaboration with a view to specifying exact locations of tide-gauge stations in various regions, particularly in support of TOGA and WOCE, and that direct communication with each particular country is required to ensure proper adjustment of national and international interests. Particular emphasis should be given to the island stations in the tropics and stations in high latitudes. 322

The Assembly requested the regional subsidiary bodies of the Commission to give the required priority to the promotion and development of regional sea-level observing networks in their respective ocean regions. 323

The Assembly reviewed Recommendation 2 of the First Session of the IOC Programme Group on Ocean Processes and Climate and, taking into account the views expressed, adopted Resolution XIII-7. 324

7.2.2 Drifting buoys

325 The IOC Assistant Secretary, Mr Y. Tréglos, introduced this item. He recalled that the question of the international co-ordination of drifting-buoy activities has been the subject of many discussions, decisions and resolutions within the Commission. The IOC Executive Council, at its Seventeenth Session, '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.

326 Pursuant to this decision, the Secretary followed closely the deliberations on this subject at the Thirty-sixth Session of the Executive Council of WMO (Geneva, 6-23 June 1984). The WMO Executive Council felt that circumstances were now appropriate for additional international co-operative efforts with drifting buoys. This view was based upon the recognition of a number of factors within which the following appear likely to be shared by the oceanographic community:

(i) there are several major international meteorological and oceanographic research projects contributing to the World Climate Research Programme (WCRP) which require drifting-buoy data;

(ii) there are continuing rapid advances in buoy technology in respect of hulls and sensors;

(iii) there is a need for Member States involved in buoy programmes to reduce costs by sharing technological advances and buoy deployments;

(iv) there is a need to transfer buoy technology to developing countries as an aid to local, regional and international observational programmes.

327 The WMO Executive Council also recognized that drifting buoys contribute to meteorological and oceanographic programmes and therefore considered it desirable that WMO and IOC co-operate in this matter. It therefore approved the concept of an international consortium for the co-operative implementation of drifting-buoy programmes and requested that appropriate action should be undertaken by WMO, jointly with IOC, to convene a meeting for the purposes of establishing the consortium and its terms of reference. The WMO Executive Council considered that the widest possible participation of developed and developing countries in the meeting should be ensured, in order to promote further the widespread use of drifting buoys amongst Members. At the same time, the Council felt that the meeting should take place as soon as possible, preferably in the first half of 1985, and should not be delayed by prolonged inter-agency consultations. While the Council considered that the proposed consortium should develop its own administrative and operating procedures, it also strongly urged that it remain practically-oriented and capable of rapid response to evolving requirements.

328 Acting on these decisions, the WMO and IOC Secretariats organized a Joint WMO-IOC Preparatory Meeting for the Establishment of a Drifting-Buoy Consortium, to be held in Geneva from 15 to 19 April 1985 at the kind invitation of WMO. The Secretary IOC issued IOC Circular Letter No. 1005 dated 13 December 1984 by which all Member States of the Commission were informed of this new development and invited their representation at the Preparatory Meeting.

329 Some delegates expressed interest in, and support for, this project if it should lead, for the first time since the end of the Global Weather Experiment in 1979, to the establishment of a light and efficient international mechanism for the co-operative implementation of drifting-buoy programmes, capable of giving a quick response as and where needed.

330 Some delegates considered that the tasks entrusted to the consortium, as they appeared from the proposed terms of reference, were too broad; others thought they were too restricted, according to the individual interpretations of the very nature of the consortium. Some delegations believed that legal aspects of the co-operative implementation of drifting-buoy programmes, in particular as far as the rights of States were concerned, should be adequately dealt with in parallel with the technical and institutional feasibility studies already under way, since practical implementation of such programmes could not realistically override such aspects.

331 Some delegates raised the question of the responsibility for the distribution of data, and others felt that the relationship between the consortium and various subsidiary bodies of IOC and WMO involved in drifting-buoy programmes should be clearly defined.

332 The Secretary explained that legal aspects of Ocean Data Acquisition Systems (ODAS) had been the subject of a Unesco-IMO Preparatory Conference on the Legal Status of ODAS, in 1972, and tentative plans have been under consideration to hold a second such Conference, under the sponsorship of IOC and IMO, now that the Third United Nations Conference on the Law of the Sea has come to a conclusion.

333 The Assembly considered that it needed more information to be able to take a definitive decision on this important proposal to form an international consortium. Firstly, the concept of 'consortium' needs clarification with respect to its membership, tasks and functions, as well as its relationship to the intergovernmental organizations, such as IOC and WMO. The relationship between the consortium and the Secretariats of IOC and WMO needs to be specified.

334 The Assembly agreed that the Preparatory Meeting to be held in April would provide a forum for clarification of the various problems referred to above. It therefore decided to postpone its decision on the proposal for the establishment, by the Member States deploying buoys or providing substantial support therefor, of an international consortium for the co-operative implementation of drifting-buoy programmes. The Assembly instructed the Secretary to arrange that the Representative of IOC at the Preparatory Meeting explain the position of the Commission on this matter, and submit his findings to the next Session of the Executive Council.

335 The Assembly reaffirmed its belief in the value of drifting-buoy data to many operational and research programmes and restated its desire for an effective co-operative programme with WMO to match national commitments with ongoing requirements in order to continue the valuable programme begun during the recent GARP experiment, and others undertaken in the context of the WCRP and other large-scale international research programmes. The Assembly stressed that its decision should be interpreted only in the light of its wish to receive further information on this subject.

7.3 INTERNATIONAL OCEANOGRAPHIC DATA EXCHANGE AND MARINE INFORMATION MANAGEMENT

336 The Chairman of the IOC Working Committee on IODE, Mr Dieter Kohnke, introduced this item. He paid special attention to the activities of the Working Committee since the Seventeenth Session of the IOC Executive Council, at which the Summary Report and Recommendations of the Eleventh Session of the Working Committee received careful consideration and were adopted. He particularly emphasized the need for: (i) new capabilities to provide large-scale data and information services in support of global international scientific programmes, such as the World Climate Research Programme; (ii) a continued development and expansion of the RNODC system; and (iii) an expansion and acceleration of the international exchange of oceanographic data. He reported on the critical evaluation of existing data-management service systems by the Joint CCCO-IGOSS-IODE ad hoc Meeting on WCRP Ocean Data Management. The assessment, although critical, indicated that IODE is a useful mechanism for the collection, archival and exchange of oceanographic data. The major shortcomings in IODE are the sometimes long delays in obtaining data through IODE. A substantial improvement, in this respect, requires a more timely submission of data by the data originators to a data centre and an accelerated processing in, and exchange through, the IODE system. Member States should be invited to establish national mechanisms to specify and set data-submission requirements by the funding agencies. Such a commitment of the Member States is the key factor in timely data exchange.

337 The Chairman of the Working Committee informed the Assembly that a meeting on climate data management, to be held in April 1985 in the People's Republic of China, will fully assess the role of IODE in WCRP data management. This assessment should include suggestions aimed at facilitating co-operation between IODE and the Joint SCOR-IOC Committee on Climatic Changes and the Ocean (CCCO) and to advise the Commission on possible arrangements for interaction with the TOGA and WOCE International Planning Offices. He also emphasized the need for stronger links between the IODE and satellite-data processing centres, and for a comprehensive strategy for managing the data from TOGA and WOCE.

338 The Chairman of the Working Committee on IODE then informed the Assembly of the most important results of the Fifth Session of the Group of Experts on Responsible National Oceanographic Data Centres (RNODCs) (Moscow, 15-19 October 1984): the IODE data centre system now consists of 30 National Oceanographic Data Centres (NODCs), 8 Designated National Agencies (DNAs), and 13 RNODCs. The Group of Experts considered as first priority the establishment of new RNODCs; noting the growing interest in the RNODC scheme, and understanding the diversity and magnitude of tasks placed before it, the Group recommended that its membership be expanded from four to six experts.

The IOC Executive Council, at its Seventeenth Session, expressed concern over the fact that a big volume of IGOSS BATHY/TESAC data does not reach IODE's RNODCs for IGOSS. A meeting of IGOSS and IODE experts (Tokyo, 12-16 November 1984) studied the means of improving the data flow from the IGOSS Specialized Oceanographic Centres (SOCs) to IODE's RNODCs for IGOSS. The meeting agreed upon terms of reference for the SOCs and revised those for the RNODCs-IGOSS to reflect these new tasks. 339

The Assembly expressed its appreciation of the efforts made by the Working Committee and its Chairman to provide guidance to the Member States in oceanographic data management. 340

The Assembly noted with interest the national activities of the USSR (in oceanographic data services), Canada (in offering its NODCs facilities for an RNODC-Drifting Buoys), United Kingdom (in taking the responsibility for an RNODC-JASIN and GF-3 development), Yugoslavia (in regional data management activities in the Adriatic), and Bulgaria (in establishing an NODC), etc. 341

However, the Assembly expressed its concern over delay in the submission of data from national governmental and non-governmental institutions to the National Oceanographic Data Centres and from them to WDCs (Oceanography). The survey made by the WDCs showed that, out of 112 IOC Member States, less than 60 Member States participate in data exchange and, in many cases, the submission of the data, even in the framework of Declared National Programmes, is far from that desired. The Assembly also noted a decrease in the number of countries submitting biological, geophysical and current data. 342

The Delegate of France recalled that the Executive Council, at its Seventeenth Session, had already been informed of French plans in the field of IODE. To make the best possible contribution to international activities and to help in enhancing the results therefrom, France took into consideration the requirements and suggestions expressed by concerned participants in the programme, in particular during the International Scientific Conference on the TOGA Programme (Paris, September 1984) and the Third Session of the CCCO Tropical Pacific Ocean Climate Studies Panel (Nouméa, November 1984). As suggested at these meetings, IFREMER is considering the collection of XBT data gathered by ships-of-opportunity for sub-surface thermal profiling of tropical waters. This would take into account TOGA plans for data processing, archiving and exchange. The concerned regional centre would have to collect and process 12,000 XBT data per year. It should be possible to distribute these data in different forms (monthly maps, sections, etc.). This consideration, as described above, is being undertaken under the aegis of the French National Committee for IOC. Relevant decisions have therefore not yet been taken. 343

The Delegate of the United Kingdom believed that NODCs, which are already handling IODE data, will be under pressure to handle WOCE and WCRP (O) data when these become available. In each country, NODCs should work closely with WOCE and TOGA Committees and it may be appropriate to designate an RNODC to promote development of data products and services, and to support the national centres. 344

The Delegate of Turkey expressed his country's special interest in promoting data exchange and proposed the organization of a summer school in 345

oceanographic data processing for the Mediterranean region; he also offered, on behalf of his government, facilities for holding a meeting of the IODE Group of Experts on Format Development or on Marine Information Management.

346 The Assembly noted with interest information provided by the Delegate of France and stressed again the importance of using existing oceanographic data management systems (IGOSS and IODE) as far as possible.

347 The Assembly urged the Member States to make every effort to reduce delays in data submission, since a continuation of the present tendency may have a strong effect on the main principles of international data exchange: the maintenance of identical data banks in both WDCs (Oceanography); and the timely submission of oceanographic data to the IODE system.

348 The Assembly stressed the importance of keeping strictly to the rules and procedures established by the IOC Member States for international oceanographic data exchange, particularly, in timely submission of data to WDCs and in developing suitable data summary and service capabilities free of charge or on a minimum-cost basis.

349 The Assembly requested the Working Committee to consider arrangements for improving the monitoring of data flow in the IODE system and for distributing widely the results of such monitoring.

350 The Assembly noted that the practice of having inter-agency meetings on co-operation in data and information management immediately prior to the Sessions of the Working Committee on IODE has proved to be useful, and recommended that it be continued. It also commended the practice of convening the intersessional IODE consultation meetings as an important mechanism for monitoring and co-ordinating the intersessional activities of the IODE subsidiary bodies.

351 The Assembly also requested the Working Committee on IODE to study carefully and prepare recommendations to meet, effectively and efficiently new data requirements arising from technology development, remote-sensing observations, and the World Climate Research Programme, and to report on its findings in that field to the next Session of the Executive Council.

352 The Assembly received with satisfaction information on the close co-operation in oceanographic-data management between the Working Committee on IODE and the IOC subsidiary bodies, particularly the Joint IOC-WMO Working Committee for IGOSS, on the one hand, and other international organizations, particularly UNEP, on the other. It recommended continued efforts in this sense, and encouraged the participation of IODE experts at data meetings of co-operating international organizations and of the IOC technical and regional subsidiary bodies.

353 The Assembly requested the Chairman of the Working Committee on IODE to pay special attention to the development of the IODE System in the framework of the IOC regional bodies and to arranging training, and methodological and technical assistance to developing countries.

354 The Assembly noted with appreciation the results of the Joint IOC-WMO Mission on IGOSS/IODE Matters to the South-eastern Pacific Member States and

recommended the continuation of such missions, noting the interest in such a mission to the West African region, expressed by the Delegate of the Ivory Coast.

The Assembly expressed its appreciation to the USSR for having hosted the Fifth Session of the Group of Experts on Responsible National Oceanographic Data Centres and to China for hosting the Meeting of Experts on Climatic Oceanographic Data Management (April 1985). 355

The Assembly acknowledged, with much appreciation, the efforts of the U.S.A. and USSR in the preparation of a set of seven posters describing the activities and structure of the IODE system. 356

The Assembly adopted Resolution XIII.8. 357

7.3.1 Marine information management

The IOC Assistant Secretary, Mr T. Sankey, introduced this item. He drew the attention of the Assembly to the work of the newly formed IODE Group of Experts on Marine Information Management, and to the collaboration on information matters taking place under the ICSPRO agreement. 358

The Representative of FAO, Mr E. Akyüz, commented on the experience of his organization as the lead agency in the development of the Aquatic Sciences and Fisheries Information System (ASFIS). The Aquatic Sciences and Fisheries Abstracts had developed into the best information service available to the marine science community, and its use had grown by 30 per cent from 1983 to 1984. His organization looked forward to continued close collaboration with the IOC in this field. 359

The Delegate of the Ivory Coast stressed the importance of establishing regional mechanisms for the quality control of marine information with a view to its optimal utilization by Member States and their scientific communities. He called on those responsible for ASFIS to associate more the African countries in this effort to improve marine scientific and technical information. However, he was also concerned to know what legal arrangements could be made by the Commission to protect scientific and technical information. 360

The Assembly noted the progress being made in the development of the ASFIS and MEDI (Marine Environmental Data Inventory) systems, and in the preparation of a Handbook on Marine Scientific and Technological Information Resources. 361

The Assembly recognized that, to expand its activities in marine information management from its present catalytic role, the Commission would need to attract a realistic level of funding, and noted that, in times of economic restraint, only those programmes that are well thought out and accompanied by realistic and achievable project proposals are likely to receive significant support. 362

The Assembly instructed the secretary to give high priority to the preparation of the proposed Programme Development Plan for Marine Information and Related Matters, and to ensure that the Plan includes well defined proposals for specific marine information projects in developing nations and regions. 363

364 The view was expressed that any increase in marine information management activities should not be at the expense of the long-standing tasks of the Working Committee on IODE in promoting data exchange.

365 The Assembly urged the Working Committee on IODE to keep itself informed on new technology and innovative solutions in information science, with a view to their judicious application to meet the needs of developing countries.

366 The Delegate of Turkey informed the Assembly that his country proposed to hold a summer school in oceanographic data processing, possibly in September 1985, and had offered to host the next Session of the IODE Group of Experts on Marine Information Management in Istanbul.

367 The Assembly acknowledged those offers with much appreciation.

368 The Assembly stressed its view that, for marine science programmes to be effective, scientists must have access to adequate information facilities, and that good training in marine information management is essential for the development of the required infrastructure.

369 The Assembly recognized that many problems of marine information management in developing nations can best be met by regional solutions. These include training, document delivery facilities, computerized information retrieval, and information exchange. The Assembly stressed the need to draw on regional expertise in planning the marine information activities of the Commission.

370 In order to minimize duplication and to build on existing achievements, the Assembly stressed the need for continued close co-operation between IOC, the organizations members of ICSPRO and UNEP on marine information management, and recommended that the information management officers of ICSPRO continue to hold regular meetings.

371 The Assembly adopted Resolution XIII-9.

7.4 INTERNATIONAL TSUNAMI WARNING SYSTEM IN THE PACIFIC

372 The IOC Senior Assistant Secretary, Dr I. Oliounine, introduced this item. He stressed the fact that 22 Member States from the Pacific region are now actively participating in the IOC International Co-ordination Group (ICG) for the Tsunami Warning System in the Pacific with the objective to mitigate the tsunami threat to life and property, by initiating appropriate international and regional programmes. The successful implementation of these programmes is greatly dependent upon the activities of the Member States and of the International Tsunami Information Centre (ITIC) which acts as an international source of technical advice and educational materials. He then reviewed the Summary Report of the Ninth Session of the ICG (document IOC/ITSU-IX/3) which was held in Honolulu, U.S.A., from 13 to 17 March 1984, and highlighted some important issues: (i) development of the regional tsunami warning systems; (ii) compilation of appropriate data and information; (iii) establishment of an appropriate international communication plan and preparation of additional travel-time charts; and (iv) organization of training activities. Following an IOC mission to Western Pacific countries to identify ways of providing support for the establishment of a regional tsunami centre, a proposal for a technical

assistance project for extra-budgetary funding is being formulated. At the request of the Member States, the Chairman of ITSU and the past Chairman of ITSU visited Colombia and Ecuador to investigate existing national systems for tsunami warning and to initiate technical assistance projects.

A Master Plan of International Tsunami Warning Operations was pre- 373
pared; it will provide a basis for closer international co-operation in carrying out improvements to the Tsunami Warning System. Special attention has also been paid to the preparation of the international communication plan and additional tsunami travel-time charts which will provide a more rapid and effective determination of the arrival time of a tsunami, for a particular location, and for the transmission of information to all Member States of the Pacific Tsunami Warning System.

Training activities, which have a high priority in the activities of 374
the ICG, include the organization of the Workshop on the Technical Aspects of Tsunami Analysis, Prediction and Communication, and a training course at the ITIC in the framework of the visiting-experts programme. The Workshop will be held in conjunction with the Tenth Session of the ICG at the end of July 1985, in Sidney, B.C., Canada. The Workshop will provide training for experts from developing countries over a wide range of topics relevant to the efficient operation of the Tsunami Warning System.

The Senior Assistant Secretary informed the Assembly of the decision of 375
the IOC to provide direct financial support to the ITIC and invited the Assembly to support the post of the ITIC Associate Director which has been vacant since the middle of 1983. He called on the Assembly to determine ways of providing immediate support to the System before any new tsunami catastrophe occurs.

He emphasized that the support of the IOC Assembly for any approaches 376
made by ITSU to UNDP or other sources of financial assistance would be greatly appreciated and could prove most useful.

The Director of ITIC, Dr G. Pararas-Carayannis, described the activi- 377
ties of the Centre and the especially close contacts established by the Centre with other international organizations, and regional and technical subsidiary bodies of the IOC, in the fields of ocean mapping, ocean dynamics and climate, data exchange and training activities. He provided information on the use of new technology for sea-level measurements and tsunami warning, such as tidal stations telemetering water-level data.

A number of Delegates (Colombia, China, Indonesia, France, U.S.A., 378
USSR) informed the Assembly of national activities in establishing national tsunami warning systems and providing support to the international warning system in the Pacific. Making a reference to the view expressed by the Chairman of the ICG for ITSU, Mr N. Ridway, the Delegate of Colombia expressed his country's readiness to study the possibilities of becoming a regional tsunami warning centre.

The Assembly noted with satisfaction that a draft Master Plan of Inter- 379
national Tsunami Warning Operations has been prepared and will be presented for the consideration of the Tenth Session of ICG.

The Assembly recognized a need to develop an international communica- 380
tion plan, but expressed some concern that the existing communication plan

serves primarily the needs of the Pacific Tsunami Warning Centre. The Assembly requested the ICG for ITSU to take this view into account when developing an internationally agreed plan, which should meet the requirements of other regional and national tsunami warning centres.

381 The Assembly restated the importance of providing additional support to the ITIC, and called on Member States to forward to the Secretary of IOC the names of candidates for the post of the Associate Director, at their earliest convenience, bearing in mind that the salary and related emoluments for the incumbent have to be covered by his government.

382 The Assembly expressed its appreciation to the Director of ITIC for the preparation of posters describing ITIC activities.

383 The Assembly appreciated the efforts made by the Soviet Union and the U.S.A. in the development of the communication plan and tsunami travel-time charts.

384 The Assembly thanked the Government of Canada for hosting the Workshop and the Tenth Session of the ICG for ITSU. The importance of providing travel support by the IOC for the participants from developing countries was stressed.

385 The Assembly adopted the Summary Report and Recommendations of the Tenth Session of the IOC International Co-ordination Group for the Tsunami Warning System in the Pacific.

8. TRAINING, EDUCATION AND MUTUAL ASSISTANCE IN THE MARINE SCIENCES (TEMA)

8.1 FOURTH SESSION OF THE WORKING COMMITTEE FOR TEMA

8.2 COMPREHENSIVE PLAN FOR A MAJOR PROGRAMME OF ASSISTANCE TO ENHANCE THE MARINE SCIENCE CAPABILITIES OF DEVELOPING COUNTRIES

386 In the absence of the Chairman of the Working Committee for TEMA, Professor Ulf Lie, the Chairman invited Professor G. Hempel (Federal Republic of Germany), in his capacity as former Chairman of TEMA, to introduce the items 8.1 and 8.2, which were considered together.

387 Professor Hempel said that, compared with its early days, when the TEMA Programme was too generic, TEMA activities have now reached a high level of maturity and evolution to respond to the needs of Member States. The new TEMA started with the Third United Nations Conference on the Law of the Sea and the United Nations Conference on Science and Technology for Development. The Recommendations adopted by the Third Session of the Working Committee for TEMA, in Buenos Aires, Argentina, in 1980, led eventually to the adoption of the 'Comprehensive Plan for a Major Assistance Programme to Enhance the Marine Science Capabilities of the Developing Countries' by the Twelfth Session of the IOC Assembly, in 1982. The Comprehensive Plan provides new strategies for TEMA, to respond to the emerging needs of developing Member States. These strategies aim at the development of a better co-ordination mechanism at the national level, in the form of a National Oceanographic Commission or an equivalent body, to facilitate: (i) the effective utilization of national resources and to ensure liaison with all national and international organizations in the field of marine sciences;

(ii) the preparation of Marine Science Country Profiles (MSCP), to serve as a basis for identification of national needs, and, based on those needs, for the formulation of regional/subregional technical assistance projects for assistance under international funding. He informed the Assembly that the Fourth Session of the Working Committee for TEMA, in Lisbon, June 1984, thoroughly reviewed the progress achieved since 1980 and considered many important issues, including the regionaliza- tion of IOC programmes and the strengthening of ongoing programmes of the Commission, such as OSLR, OSNLR, CCCO, GIPME and others.

He highlighted the main achievements of TEMA during the intersessional period. The most significant of these was the training of over 250 scientists since 1980, in the fields covered by the ongoing programmes of the Commission, particularly GIPME and IODE, which was indicative of the importance attached to these programmes by Member States. In addition, shipboard training and study grants were provided to enable scientists from the developing countries to participate in international conferences or symposia on the theme of marine sciences. Also, four scientific workshops were organized, including the Workshop on Improved Uses of Research Vessels, in co-operation with FAO and with the support of NORAD; this subject will be fully discussed later under agenda item 8.3. All this was achieved from a total contribution of 3/4 million dollars. The Working Committee had noted with appreciation the contribution made by some Member States to training activities, in cash and kind. 388

The Representative of Unesco pointed out that the Unesco/IOC Comprehensive Plan rests on 20 years of extra-budgetary marine science development projects carried out by Unesco with the concerned Member States. In 1974, a new phase began wherein the development programme doubled every two years for almost a decade, to the point where it is now a significant part of the extra-budgetary development programme in Unesco's Science Sector. Over the last three decades, the number of marine scientists in the world has doubled every five years. Although the rate of growth in the developed world has slowed down, the rate in the developing world is still high with the result that there are as many scientists listed in developing countries now as there were in the whole world in 1967. He noted that these various trends provided a rich basis for the implementation of the Unesco/IOC Comprehensive Plan. He reminded the Assembly that the Division of Marine Sciences had been involved in the preparation of the Plan, and confirmed Unesco's intention that the Division and the IOC Secretariat work closely together in its implementation. 389

In response to a question concerning Africa, the Representative of Unesco explained that a project on marine science development in Africa had been prepared by Unesco in co-operation with the United Nations Economic Commission for Africa and the United Nations Development Programme. Unfortunately, UNDP was unable to fund the large-scale implementation phase of the project. Nevertheless, Unesco has itself continued to implement the project on a smaller but long-term scale through its regular programme (training courses, fellowships, research and study grants, etc.) and such additional extra-budgetary projects as they become available. 390

The Representative of IHO informed the Assembly of some activities of the International Hydrographic Organization in the field of technical assistance. He called attention to the fact that the original objective of the hydrographers, the safety of navigation, has been expanded meaningfully 391

as a consequence of the increasing activities of exploration and exploitation of marine resources, as well as of the new responsibilities of the Coastal States envisaged under the United Nations Convention on the Law of the Sea. The exploration and exploitation of marine resources depends initially and essentially on a sound knowledge of the ocean floor, which can only be provided by hydrography. He explained the procedures adopted by his organization for the effective delivery of technical assistance to developing countries whether Member States of IHO or not. While the procedures envisage the initiation of a formal approach by the IHO, developing countries should feel free to approach the IHO if they so wish. As a result of technical assistance activities in the last two years, the IHO has prepared project documents for some countries, for further processing by governments as part of their national development plan. The project documents prepared for Cyprus, Kenya, Oman, Papua New Guinea, Sri Lanka, Tanzania and the United Arab Emirates are now being considered by interested governments and aid-giving agencies. The Representative of IHO also recalled the Memorandum of Understanding between IOC and IHO, which was signed last year. The Memorandum codifies present co-operation, as well as providing a basis for the development of such co-operation, including co-operation in technical assistance projects. In accordance with the Memorandum, and at the request of IOC, IHO will assist in the field of hydrography in technical co-operation projects undertaken or executed by IOC. IHO is ready to make a positive contribution in the field of technical assistance, working together with IOC, in activities of common interest to both Organizations and their Member States.

392 The Chairman of the Joint IOC-WMO Working Committee for IGOSS, noting the number of references to the technical programmes of the Commission, wished to re-emphasize the need for close interaction of the Commission's subsidiary bodies with the Working Committee for TEMA. He noted the success of the informal meetings of the Chairmen of the subsidiary bodies and secretariat members during the present Assembly and requested the Secretary to arrange similar meetings in the future whenever suitable occasions arise. He strongly supported the concept of scientific seminars, workshops or training sessions for developing countries immediately prior to the meetings of IOC regional and technical subsidiary bodies. He pointed out that, although the Assembly tends to divide Member States into the categories of 'developing' or 'developed' countries, there is a complete spectrum of marine science capabilities in Member States. In fact some Member States may be expert in some areas of marine sciences and have no capability in others. He recalled document IOC/INF-576 prepared by the Joint Working Committee for IGOSS which recognized that TEMA activities in the technical programmes of the Commission would be more effective if they concentrated on assisting Member States that were on the threshold of participation in the work of the technical subsidiary bodies. The Working Committee for TEMA itself and the Unesco Division of Marine Sciences should address the more basic needs of Member States related to their own specific marine science requirements and the development of their own marine science infrastructure.

393 More than 40 delegates commented upon various aspects of agenda items 8.1 and 8.2.

394 Many delegates, in general statements on the role of TEMA, felt that IOC can greatly assist the developing countries by identifying fields for on-the-job training (e.g., making use of computer facilities, satellites, marine geophysics and chemistry through advanced and simple methods).

It was also pointed out how well many developing countries have adapted to the idea of development through mutual assistance. Many of these countries (e.g., China, India) have developed their own capabilities and are now able to offer facilities for training courses and for participation in cruises, including provision of equipment manufactured in their own countries. 395

The Delegate of Argentina proposed that the IOC study, in the framework of TEMA and of the UNDP TOKTEN Project, the possibility of assisting in the repatriation of scientists of high standing from developing countries but currently working in oceanographic institutions of other countries. 396

Considerable emphasis was also placed on the beneficial role of regional participation in projects such as GIPME, IODE and OSLR. A number of delegates expressed their countries' willingness to participate in such exercises on an equal footing. It was pointed out that the training opportunities provided on board research vessels, for example, constitute an offer in kind which cannot be effectively expressed in terms of funding for a programme to be executed by the recipient country. 397

Since training and education in oceanography can best be done in the universities of each country or region, many delegates believed that there is a lot to be done in this field, particularly through the development and upgrading of curricula, provision of literature, handbooks, guides, etc. 398

Some delegates believed that co-operation between the Unesco Division of Marine Sciences and the IOC Secretariat should be improved. It was noted that one mission by IOC to a certain region, followed by a Unesco mission to similar destinations, or vice versa, would confuse authorities or institutions in a country or a region. 399

The Delegate of Brazil requested clarification of the notion of 'TEMA Package', since he felt that the concept did not stipulate clearly what, in this context, could be considered effective transfer of technology to developing countries. There was always the danger that such schemes would cause a new division of labour in the field of marine science that would be unfavourable to less technically and scientifically developed countries, and that international assistance would become increasingly tied to the specific interests and priorities of countries with advanced technologies. He felt that, on this matter, the stated needs of the recipient countries should be the main element to be taken into account. 400

The Delegate of India stated that his country would be deeply interested in supporting TEMA and its activities. Mr H.N. Siddiquie, Deputy Director, National Institute of Oceanography, Goa, is now Vice-Chairman of TEMA. India organized a regional training programme on mangroves, at the National Institute of Oceanography, Goa, in collaboration with Unesco, in November 1984, and 25 participants from different countries of the Indian Ocean region participated in the programme. 401

He stated that India had indicated to IOC, earlier, its willingness to organize a regional training programme on marine pollution and protection of the marine environment, and this offer still stands. Also, his country is willing to provide some institutional and shipboard fellowships in India. 402

403 The Assembly expressed its appreciation to Professor Hempel for his excellent presentation of the report on TEMA activities and for his candid summary of the discussions on various aspects of TEMA.

404 The Assembly noted the considerable progress that had been achieved under TEMA since the First Session of the Working Committee for TEMA ten years ago. This is exemplified by increased participation of developing Member States in TEMA meetings. Developed and developing countries now recognize that the development of marine science is not an easy task. TEMA has matured and has become integrated into all the activities of the Commission. It recognized that training in various disciplines of oceanography will continue to be the most important activity for developing countries, and that this was an era in which new technology and methods is replacing the old.

405 Regarding the roles of the major technical bodies and the regional subsidiary bodies in respect of TEMA matters, the Assembly recognized the complementary role of these two kinds of bodies. The Assembly agreed that the role of the major technical subsidiary bodies (e.g., GIPME, IGOSS, IODE, OSLR and OSNLR, and others) should be to provide general guidance on methods, technique and intercalibration exercises and related aspects; and the publication, whenever necessary, of pedagogic material relative to their respective programmes. The role of regional subsidiary bodies (e.g., IOCARIBE, WESTPAC, IOCINCWIO, IOCEA and others), because they are responsible for recommending and developing co-operative marine science and ocean services programmes, and are familiar with Member States' requirements, is to identify, in more specific terms, the TEMA components of regional programmes and of the Member States participating therein.

406 With regard to the strengthening of TEMA components, the Assembly recognized that it may be appropriate, in some cases, to formulate the TEMA requirement of an approved programme of the Commission in the form of a 'package' that would include training, provision of appropriate facilities for specific research, the necessary equipment and spares, and the follow-up support and incentive to allow the recipient country to participate in, perhaps, a range of national and international activities. Such a package must be well formulated and presented for possible international assistance, and take into account, in particular, the stated needs of developing countries. Many bilateral agencies operate on a package scheme and their experience should be used.

407 The Assembly considered the recommendation of the Working Committee for TEMA to hold scientific workshops before meetings of IOC regional subsidiary bodies, allowing local scientists to present their research. The Assembly recognized that there is a lack of fora in which scientists from developing countries can participate in discussions and exchange views on subjects of mutual interest, particularly in the context of on-going programmes of the Commission, and agreed that such fora would benefit considerably not only the development of scientific research, but also help in the further development and expansion of IOC programmes in the region concerned. It also agreed that the publication of the results of such scientific meetings, with the help of the Commission if possible and appropriate, would enhance the benefit to the scientific community of such meetings.

408 The Assembly recommended that, as far as possible, all regional subsidiary bodies of the Commission hold scientific meetings immediately prior

to their sessions to allow scientists to present the results obtained during the intersessional period, relating to the ongoing programmes of the Commission. It also recommended that such meetings be organized in co-operation with the Unesco Division of Marine Science and other appropriate organizations, as well as Member States that are ready to assist in this regard. Regarding the publication of the results of research papers presented at such meetings, the Assembly urged the Member States to make every effort to publish and compile, if possible, these research papers, for the purpose of dissemination to all interested countries involved in the programmes.

On the status of TEMA Co-ordinators for subsidiary bodies of the Commission, the Assembly, having reviewed the study carried out by the Working Committee for TEMA at its Fourth Session, agreed that the present system of TEMA Co-ordinators of subsidiary bodies is cumbersome, and, therefore, decided to abolish it. 409

On the question of funding TEMA activities, the Assembly suggested that national institutions and donor agencies should work more closely with the IOC regional bodies, since these bodies often know what is actually needed. Bilateral projects combined with multilateral sources of assistance within the framework of IOC were considered to have great advantages. 410

Some delegates observed that many countries often prefer multi-bilateral co-operation to bilateral co-operation. 411

The Delegate of Denmark informed the Assembly that his country will contribute to the TEMA activities by seconding an Associate Expert to the IOC Secretariat to assist, inter alia, the GIPME and OSLR programmes. 412

The Assembly recognized the need to explore co-operation among Member States having similar problems or the same biogeographical characteristics, in their efforts to enhance their marine science capabilities. 413

The Assembly suggested that strengthening the teaching of oceanography in universities could be handled better by Unesco, than by the IOC but use should be made of IOC regional subsidiary bodies and meetings, and by meeting the needs identified by expert missions, etc., when appropriate. 414

Several delegates, referring to the Comprehensive Plan for a Major Assistance Programme, acknowledged the importance of National Oceanographic Commissions or equivalent bodies in providing an effective co-ordinating mechanism in the field of marine science. Some delegates pointed out that they have already established such a mechanism in their own countries. 415

Many delegates favoured the concept of MSCPs adopted by the Working Committee for TEMA, which provides a useful basis for the assessment of present requirements and future needs of their countries in the field of marine science and technology. Some delegates indicated that they have already compiled information which could contribute to the preparation of MSCPs. It was recognized that although the format of an MSCP should be the same for all Member States, their content might differ from country to country, and would require updating from time to time. 416

The Delegate of the United States offered his country's assistance to IOC to compile MSCPs for the Member States of the Caribbean region. 417

418 The Delegate of France also offered the expertise of the French National Committee for IOC in the preparation of these.

419 As an example, the Delegate of Denmark presented the Danish MSCP produced by the Danish National Committee on Oceanography. It describes the country's marine research institutes, their research objectives and capacities, including their willingness to participate in TEMA activities.

420 The Delegate of the Ivory Coast, referring to Marine Science Country Profiles, informed the Assembly that his country was developing a study of Scientific and Technical Potential, with a view to identifying, in respect of the marine sciences, the human and material resources in the field of oceanographic research, the research laboratories and their level of instrumentation, the research programmes and the financial means available. He pointed out his country's efforts to establish training structures, noting that the Académie des Sciences et Techniques de la Mer, in Abidjan, is a regional body. The Ivory Coast will host a regional Unesco Workshop on the Methods for Studying Coastal Lagoons, in collaboration with IFREMER.

421 Regarding the implementation of the Comprehensive Plan, the Assembly stressed the need for complementary action by Unesco and IOC.

422 The Assembly recognized that financial assistance would be needed for the preparatory phase, from Unesco and other sources, including donor countries and agencies, as was done in the case of the mission recently conducted in the Caribbean. It observed that funds are becoming scarce and that this is also the case in many Member States.

423 The Assembly accepted the Summary Report of the Fourth Session of the Working Committee for TEMA.

424 The Assembly acknowledged with appreciation the task accomplished by the Working Committee for TEMA in the last few years and its response to the needs of developing countries in the field of marine sciences. The Assembly extended its appreciation to the Chairman of the Working Committee for TEMA, Professor Ulf Lie, for his leadership in the development of TEMA.

425 In response to Circular Letter No. 992 on the IOC Research Fellowship Scheme, the delegates from the following Member States announced their countries' intention to contribute to this Scheme.

Algeria:	Two fellowships in biological oceanography and marine science technicians
Bulgaria:	Two fellowships of 9-month duration in physical oceanography or hydrobiology
China:	Fellowships, including shipboard training and tide gauges
Denmark:	Two senior fellowships
France:	One three-year fellowship in oceanography offered by the Centre National de Recherche Scientifique (CNRS)
Germany (Federal Republic):	Two long-term fellowships and two short-term fellowships and shipboard training

India: Shipboard fellowships and short-term fellowship, and tide gauges

Japan: Shipboard research and training fellowship; oceanographic data management fellowship

Portugal: Twelve fellowships for Portuguese-speaking countries in Africa

Spain: Five short-term fellowships for African countries

Sweden: Fellowships under multi-bilateral arrangements

426 The Delegate of Canada announced his government's intention to contribute to the IOC Trust Fund a sum of $3,000 towards a senior prestigious award with the proviso that this be supplemented by contributions from other Member States. The fellowship should be tenable in any Member State. He proposed that such a fellowship could be named after Professor Roger Revelle, the great United States Oceanographer, a founder of the IOC and whose contribution to the world community is well-known. The offer of the Delegate of Canada was seconded by the Delegate of the United States of America who announced a contribution of US $2,000 as a complement to this award.

427 The Assembly also welcomed the proposal of Canada and its contribution, as well as that of the United States, to the Fellowship Scheme, and invited other Member States of IOC to contribute to this award.

428 The Assembly welcomed the offer made by the various delegates to the IOC Research Fellowship Scheme and urged them to work out the arrangements for the award of such fellowships with the IOC Secretariat, including studying the possibility of awarding such fellowships to candidates from developing Member States on a continuing basis. It also urged recipient Member States to make a counterpart contribution as a basis for developing a partnership between the Member States concerned (donor and recipient).

8.3 IMPROVED USES OF RESEARCH VESSELS

429 An IOC Consultant, Mr Roger Aertgeerts, introduced this item. He referred to the concern expressed by IOC Member States on the effective use of research vessels, notably at the First Session of the IOC Programme Group for the North and Central Western Indian Ocean (Nairobi, Kenya, 4-9 October 1982), and at the IOC Workshop on Regional Co-operation in Marine Science in the Central Eastern Atlantic (Tenerife, Spain, 12-17 December 1983). He briefly reviewed the major findings of the IOC-FAO Workshop on Improved Uses of Research Vessels, organized with the support of NORAD, in Lisbon, Portugal, 28 May-2 June 1984. This Workshop recognized the interest of developing countries in the acquisition of research vessels, but advised that this should be undertaken within the framework of an overall national development programme, so as to ensure adequate funding for operation and maintenance throughout the expected lifespan of the vessel. Problems related to the maintenance and management of research vessels were discussed in detail, and the creation of management teams and well-structured maintenance programmes was advocated. The pooling of spare parts, equipment and technical personnel for use on a national or regional basis was advocated as

a possible way to improve the maintenance of sophisticated navigational, maritime and oceanographic equipment. The Workshop also considered that timely, phased planning of the annual activity of research vessels is essential to allow for the provision of adequate funding, equipment procurement and other support, and that co-ordinating institutional arrangements should be developed to ensure effective utilization of research vessels. The Workshop also advocated the promotion of co-operative use of research vessels, but recognized that the provisions under the new Convention on the Law of the Sea, under which foreign research vessels must obtain prior permission to undertake research in the Exclusive Economic Zone of a coastal State, required long-term planning and greatly reduced the flexibility in revising cruise schedules.

430 The Recommendations of the Workshop, contained in Annex II of IOC Workshop Report No. 36, were considered at the Fourth Session of the IOC Working Committee for TEMA (Lisbon, Portugal, 2-9 June 1984), and endorsed through resolution TEMA IV.2. The practical implementation of the Recommendations was considered by an ad hoc Expert Consultation, convened by IOC in Paris, France, 2-4 October 1984. Based on the guidance received from this Consultation, project proposals have been developed and submitted to a potential donor for consideration.

431 The Representative of FAO referred to the considerable experience gained by his organization in the operation and management of research vessels, notably under the UNDP-FAO Fisheries Vessel Pool Agreement, and informed the meeting of FAO's continued interest in co-operating with the IOC in programmes aimed at improved uses of research vessels.

432 The Representative of IHO referred to the Reports of the IOC-FAO Workshop on Improved Uses of Research Vessels, recognizing that there are several options for the execution of marine research at sea. One of these options is the use of vessels for the execution of oceanographic research and hydrographic surveys. Much oceanography has been conducted by hydrographic survey vessels, and vice versa. He indicated some differences that exist between the two types of vessels as well as the great deal in common. Therefore, it is perfectly feasible to plan a vessel that is readily adapted, or even permanently equipped, for both the oceanographic and hydrographic roles. Indeed, a number of Hydrographic Services operate vessels for 'ocean survey' duties, which combine both roles.

433 The Delegate of Mexico considered the Workshop an excellent forum for the exchange of experience in the operation of research vessels which will undoubtedly allow Member States with less experience to acquire know-how for rationalizing the use of research vessels which are essential for oceanographic research even if complex and not easy to operate.

434 The Delegate of Norway expressed the satisfaction of his government with the outcome of the Workshop, and its agreement with the recommendations, especially the one related to the preparation of a Guide on Operation and Management of Research Vessels. He stated that the joint IOC-FAO project proposals for the preparation of the Guide, and the organization of the training courses, had been favourably received by the Norwegian Government, and that a decision as to their funding could be expected soon.

435 The Delegate of the Federal Republic of Germany informed the Assembly of the intention of his government to organize, in 1986, a Training Course

related to the Administrative Question of International Uses of Research Vessels, and a Training Course on Questions Related to the Construction and Management of Research Vessels in Developing Countries.

The Delegate of the People's Republic of China conveyed to the Assembly the offer of his government to host a Training Course on Research Fleet Management and Cruise Planning and to provide all necessary local facilities needed for the successful implementation of such a course. 436

The Delegate of Nigeria informed the Assembly that his country would be happy to consider proposals for the hosting of a Training Course on Research Fleet Management and Cruise Planning for countries of the African region. 437

The Delegate of France informed the Assembly that French institutions operating research vessels could make places on board available to scientists from developing countries in the framework of the Commission's regional programmes. 438

The Delegate of Poland drew the attention of the Assembly to the fact that the operational costs of a sailing research vessel are significantly lower than those of a comparably sized motorship. He stated that the Institute of Oceanology of the Polish Academy of Sciences was willing to make the sailing vessel R.V. OCEANIA available for use in IOC programmes, particularly GIPME and TEMA, provided a suitable arrangement could be found to cover part of the operational expenses. 439

The Assembly expressed its appreciation for these generous offers of support. 440

Several delegates identified the current lack of information on national legislation governing access to the Exclusive Economic Zone of one country by research vessels from another country as a significant problem hampering the co-operative use of research vessels. 441

The Secretary IOC, informed the Assembly that the Secretariat was well aware of these problems, and that a Workshop was planned to promote co-operation in the field of marine scientific research with a view to developing a common and simplified approach amongst Member States, provided funds become available. 442

The Assembly adopted the Report on the IOC-FAO Workshop on Improved Uses of Research Vessels (Lisbon, Portugal, 28 May-2 June 1984); it expressed its special appreciation of the useful models of national co-ordination of research vessels as practised by certain countries. The Assembly endorsed the Recommendations of the Working Committee for TEMA related to the Improved Uses of Research Vessels. 443

The Assembly agreed that the co-operative use of research vessels could best be organized in the framework of global or regional programmes of the Commission. 444

The Assembly adopted Resolution XIII-10. 445

8.4 IOC VOLUNTARY ASSISTANCE PROGRAMME (VAP)

446 The IOC Senior Assistant Secretary for TEMA, Dr S.M. Haq, introduced this item. He recalled that since the creation of this scheme at the time of the Tenth Session of the IOC Assembly, a number of requests had been received and, after processing, had been circulated to donor Member States. The response of donor Member States was poor, and the IOC Assembly, at its Twelfth Session, requested the Working Committee for TEMA to review the scheme and to suggest appropriate action to improve it. The Secretary of IOC had then invited Professor H.U. Roll of the Federal Republic of Germany to prepare a background document on the IOC-VAP. The document, entitled IOC Voluntary Assistance Programme: Reviews and Perspectives, was presented to the Working Committee for TEMA at its Fourth Session for a decision on the subject.

447 The Working Committee noted several factors thought to have caused the failure of IOC-VAP. The requests received from Member States were too diffused for the donor Member States to respond to effectively. Whereas the WMO Voluntary Co-operation Programme (WMO-VCP) benefited considerably from the World Weather Watch (WWW) programme in which a vast number of donor and recipient countries participated, the IOC did not have a comparable programme of interest to the donor Member States. The WMO-VCP also benefited from an active follow-up of requests by the WMO Representative in each Member State, whereas IOC has no such Representative in any of its Member States. The Working Committee noted that IOC-VAP envisaged one-way flow of assistance from donor to recipient Member States, and the concept of partnership between the donor and recipient, which has been an important factor in the success of the World Weather Watch (WWW) of WMO, has not become firmly established in the IOC. The Working Committee also noted that IOC in recent years has developed important global programmes, such as those on Ocean Dynamics and Climate, OSLR, OSNLR, GIPME, IODE, and the Global Sea-level Observing System which could be good candidates for IOC-VAP. It also noted the interest shown by some developed Member States in activating the IOC-VAP to respond to new programmes of global interest being developed by the IOC.

448 Having considered various suggestions in favour of IOC-VAP, the Working Committee for TEMA recommended that the scheme should be continued. It recognized that 'there is a need to reactivate the present scheme so as to promote and strengthen the concept of partnership between the donor and recipient countries in the implementation of global programmes of IOC as well as their regional components'. As long as the full partnership on equal footing has not been achieved among the Member States, the programme of assistance offered in the Comprehensive Plan should be used as a basis for building-up the required partnership. The Working Committee also considered that the reactivated scheme should not be seen as a one-way flow of assistance from donor to recipient, but as an act of co-operation between two or more countries in which the recipient countries should also provide a substantial counterpart support thus manifesting its interest and engagement in the scheme as well as in the development of national capabilities.

449 The Working Committee recommended that the scheme be renamed the IOC Voluntary Co-operation Programme (IOC-VCP). It also recommended that priority be given to requests bearing on the global programmes and their regional components. There should be an appropriate body, with an adequate mandate, in Member States having access, or in a position, to mobilize funds

for requests received under IOC-VCP. It also recommended that requesting Member States provide matching contributions from national sources in support of these programmes for which assistance is solicited.

A number of delegates supported retention of the scheme under its new name. 450

The Delegate of China stated that his country would be willing to consider assistance under this scheme. 451

The Assembly noted with satisfaction that the reactivation of the scheme had been recommended by the Working Committee for TEMA. 452

The Assembly agreed to rename the scheme IOC Voluntary Co-operation Programme (IOC-VCP). 453

The Assembly adopted Resolution XIII-11. 454

9. IMPLICATIONS FOR THE IOC OF DEVELOPMENTS IN INTERNATIONAL AFFAIRS

9.1 THIRD SESSION OF THE AD HOC TASK TEAM ON THE IMPLICATIONS, TO THE COMMISSION, OF THE UNITED NATIONS CONVENTION ON THE LAW OF THE SEA AND THE NEW OCEAN REGIME

The Chairman of the ad hoc Task Team, Dr Agustin Ayala Castanares, introduced this item. He reminded the Assembly that the Task Team had held its Third Session in Paris from 17 to 21 December 1984. It had pursued the study of the Articles of the Convention as indicators of fields of activity requiring international co-operation in marine sciences and in the development of the related ocean services and training aspects, with special reference to the implications for the IOC in terms of its objectives, functions, structure, resources and statutes, as a means of strengthening the Commission. The Task Team also considered what future work was still necessary as a result of its analysis, with respect to the need for adjustments to existing procedures, policies, structures, functions, or objectives. 455

Pursuant to the recommendation of the Executive Council at its Seventeenth Session that the structure of the Commission should be streamlined, the Task Team considered a proposal for improving the IOC Guidelines for the Structure and Responsibilities of IOC Subsidiary Bodies; the Task Team had asked the Secretary to circulate the proposal to the Member States for comment, and, in the light of these comments, to present a revised proposal to the Nineteenth Session of the Executive Council. 456

The Task Team recognized that the budget of the Commission and its staff have not kept pace with the considerable increase in the number and extent of the activities stimulated by the debates of the United Nations Conference on the Law of the Sea, and which the Member States have decided to undertake through IOC as co-operative activities or to implement through the Commission. It agreed it was desirable to make an in-depth study of the Commission's needs in terms of budget and staff, in the medium to long term, as stressed by the Assembly at its Twelfth Session. 457

After detailed discussion and a review of earlier consideration by the governing bodies of the Commission, and the Working Group on the Future Role 458

and Functions of the Commission, specific adjustments were proposed to Articles 1, 2 and 3 of the Statutes, for consideration by the Assembly at its Thirteenth Session, with a view to submitting them, if approved by the Assembly, to the twenty-third session of the General Conference of Unesco.

459 The Task Team also recognized that there is an urgent need to improve the liaison between the Member States and the Secretariat. It considered the practical advantage of each Member State nominating a National IOC Representative, complementary to a National Oceanographic Commission or an equivalent co-ordinating body, if it exists. Such representatives would greatly enhance the liaison between the Secretariat of the Commission and the Member States, as well as the work of the Commission in general. If the concept of the IOC National Representatives were accepted, an amendment to Rule of Procedure No. 26 would be required.

460 It was clear from the Task Team's work that substantial further work still had to be done to adapt the IOC to new trends in ocean affairs and to the correspondingly increased demands of the Member States and of the world community as a whole. The Task Team therefore recommended the continuation of its work through a Task Team on the Reinforcement of the Role and Capabilities of the Commission.

461 The Chairman proposed that the debate address the three main issues - amending the Articles of the IOC Statutes, amending Rule of Procedure No. 26, and the continuation of the work of the Task Team - be taken separately.

462 Adjustments to Articles 1, 2 and 3

These were proposed in Recommendation LOSI-III.2; the Chairman drew the attention of the Assembly to the opinion given by the Legal Adviser of Unesco on the proposed adjustments which were submitted to a Sessional Drafting Group together with the adjustments proposed by the ad hoc Task Team.

463 The modifications proposed by the Legal Adviser were: (i) to delete the word 'other' in Article 2, paragraph 1 (1); (ii) to leave Article 3 unchanged from the text in the present IOC Statutes.

464 The rationale for these changes is: (i) the use of the word 'other' in the phrase 'in co-operation with other international organizations' implies that the IOC is an international organization in its own right; (ii) the status of IOC as the 'competent intergovernmental organization concerned with marine scientific research' and as 'a joint specialized mechanism of the organizations of the United Nations system' has not been formally established by negotiation with these organizations, the ICSPRO Agreement notwithstanding; this Agreement is between Executive Heads of the organizations members of ICSPRO and not between these organizations themselves (i.e., their governing bodies).

465 Several delegates stated that they had not had adequate time to consider carefully the amendments to the Statutes or to Rule of Procedure No. 26 proposed by the Task Team. However, other delegates pointed out that any recommendation from the Assembly to the General Conference of Unesco on changes to the Statutes could be studied by governments between now and the General Conference, which starts in October 1985. One delegate reminded the

Assembly that no changes had been made in the IOC Statutes since 1970, in spite of the discussion of changes at various times in these past 15 years.

The Delegates of Canada and Japan pointed out that, in their view, by the present Rules of Procedure, any proposal for amendments to the Statutes must be considered first by the Executive Council which should make a recommendation to the Assembly. 466

The Secretary explained that the Legal Adviser had been consulted on this matter in mid-December 1984, prior to the Third Session of the Task Team. The Legal Adviser, in his response of 18 December 1984, noted that, in view of the detailed consideration, since 1977, of the question of statute amendments by the Assembly and the Executive Council, it would be quite normal for the Task Team to report directly to the Assembly which will decide whether or not it wishes to submit a recommendation to the General Conference of Unesco on amendments to the Commission's Statutes. (The Legal Adviser's formal opinion is given in paragraph 479, below.) 467

Most of the delegates expressed their appreciation of the hard and detailed work of the Task Team. Some delegates believed that the Recommendations of the Task Team were not the last step, and that some other articles require further study. 468

Several delegates accepted the proposals of the Task Team. In particular, the Delegate of Argentina stressed his country's active participation in the Task Team. He reminded the Assembly that he had supported the idea of identifying the Articles of the Convention (on the Law of the Sea) that are related to activities of the IOC and this constituted a guide which did not in any way express the legal interpretation of the Convention by the Member States. He recommended approval by the Assembly of the Recommendation LOSI-III.2 on amendments to Articles 1, 2 and 3 of the Statutes, as well as the other two Recommendations of the Task Team. 469

The views of the Sessional Drafting Group formed by the Assembly to study the Task Team's proposals for amendments to the Statutes are given in the following paragraphs (up to no. 477; new text is underlined and previous text is in parenthesis, for purposes of easy comparison). 470

Regarding Article 1, paragraph 1, the Sessional Drafting Group agreed that it should remain unchanged from the version in the present Statutes. 471

Regarding Article 1, paragraph 2, the Sessional Drafting Group agreed that the purpose of the Commission is 'to promote scientific investigation and the development of the related ocean services' rather than 'to promote scientific investigation and to develop the related ocean services' as was proposed by the Task Team, and recommended this slight change in wording. 472

The Sessional Drafting Group agreed that Article 1, paragraph 3, should remain unchanged from the version in the present Statutes. 473

It also agreed that Article 2 should have its three paragraphs numbered to bring it into line with the format of the remaining Articles. 474

In Article 2, paragraph 1, items (a) to (e) remain unchanged. Item (f) is all new and reads 'promote and co-ordinate the development and transfer of marine science and its technology, particularly to developing 475

countries;'. Item (g) is the former (f) as modified by the Task Team and reads 'develop and (previously 'make recommendations to') strengthen education and training projects (previously 'programmes') in marine science and its technology, as components of each of its programmes;'. Item (h) is the former (g). Item (i) is the former (h). Item (j) proposed by the Task Team is the former (i) modified, and is discussed below. Items (k) and (l) are both new and proposed by the Task Team except for a minor addition to (l); the texts are 'promote, plan and co-ordinate observing and monitoring systems, on the properties and quality of the marine environment, as well as the preparation and dissemination of products and assessment studies.' and 'undertake, directly or in co-operation with international organizations, as appropriate, any action compatible with its purpose and functions concerning the scientific investigation of the ocean, its floor and subsoil, and its interactions with the atmosphere and the land masses, as may be decided by its Member States.'.

476 The Sessional Drafting Group recognized that Article 2, paragraph 1 (i) of the present Statutes no longer corresponds to the present conditions governing marine scientific research, but was not able to agree on a formula to reflect the present situation; it recommended that the matter be kept pending for further study. Thus new item (j) of Article 2, paragraph 1 is the former (i).

477 The Sessional Drafting Group recommended a small modification of Article 2, paragraph 2, which now reads 'The Commission in carrying out its functions, shall take into account (previously 'In carrying out its functions, the Commission shall bear in mind') the special needs and interests of developing countries, including in particular the need to further the capabilities of these countries in marine science and technology'. Paragraph 3 remains unchanged from the version in the present Statutes.

478 The Assembly noted the outcome of the deliberations of the Sessional Drafting Group, and discussed a Draft Resolution on the adjustment of Articles 1 and 2 of the Statutes of the Commission, prepared by the Sessional Drafting Group. Several delegates made formal statements which fell into two principal categories: those who believed that the Assembly and Executive Council had had enough opportunities to consider the various proposed amendments during the last eight years and therefore supported the submission of a proposal to the twenty-third session of the General Conference of Unesco; and those who believed that many Member States, especially those not members of the Executive Council, had not had sufficient opportunity to study the specific proposed changes and that the procedure laid down in Rule of Procedure No. 56 should be followed.

479 At the invitation of the Chairman, the Legal Adviser of Unesco gave the following opinion on the procedural question:

'1. The basic provisions relating to amendments to the IOC Statutes are to be found in Article 13 of the Statutes themselves. The details concerning the amendments which may be put forward by individual Member States of the Commission are laid down in Rule 56 of the Commission's Rules of Procedure.

2. The question of possible amendments to the IOC Statutes, in the light of the work accomplished by the United Nations Conference of the Law of the Sea, was placed before the Commission as early

as 1977. Both the Executive Council and the Assembly were involved in the consideration of various proposals aimed at the amending of the Commission's Statutes. The Member States were also invited to forward their views on this item.

3. It is not necessary to go as far back as 1977. Suffice it to recall that, at its Thirteenth Session in 1980, the Executive Council established an ad hoc Task Team to study the implications of the draft Convention on the Law of the Sea for the Commission. The mandate of the Task Team clearly included the possibility of reviewing the Commission's Statutes with a view to introducing amendments to it (Resolution EC-XII.16). The results of the work of the Task Team were submitted to the Assembly at its Twelfth Session in 1982 (document IOC/TT-LOSI-II/3). Since that time, the Assembly continues to be seized with this item. The Assembly has in fact renewed the mandate of the Task Team and completed its composition which in fact means that the Task Team has become a subsidiary body of the Assembly.

4. In view of the foregoing, I consider that the item in question need not go again through all the stages specified in Rule 56 of the Rules of Procedure. Consequently it will be quite natural for the Task Team to report directly to the Assembly. The Assembly may decide to submit directly to the twenty-third session of the General Conference of Unesco any recommendation regarding the amendments to the Commission's Statutes.

5. Alternatively, the Assembly may, if it considers that the circumstances warrant such an action, decide to:

instruct the Secretary of the IOC to communicate the proposals for the amendments to all Member States of the Commission and to the organizations specified in Article 1 of the Statutes;

submit the proposals to the consideration of the Assembly to its next session or to the Executive Council who shall report thereon to the Assembly giving its recommendation as to whether the proposal should be adopted, rejected or modified.

The Assembly will then decide whether or not to submit to the twenty-fourth session of the General Conference of Unesco any recommendation regarding the amendments to the Commission's Statutes.' 480

The Delegate of Greece stressed that there is a general recognition of the necessity of adjusting the IOC's Statutes so as to conform to the present legal regime governing marine scientific research; that is, to comply with the international practice that prevails, the United Nations Convention on the Law of the Sea and the New Ocean Regime. He also stressed that the work done by the ad hoc Task Team at its Third Session was very important for defining the future role of IOC, and specifically its proposals for the adjustment of Articles 1 and 2 of the IOC Statutes, so that they were compatible with the United Nations Convention on the Law of the Sea and the New Ocean Regime. 481

482 The Delegate of Canada stressed the importance of ensuring that the procedures being followed on the question of amendments to the Statutes are fair and just to all Member States of the Commission. The Rules of Procedure have served the Commission well. This is not to say that, on very special occasions, the Commission may choose to set those Rules of Procedure aside; the Rules make appropriate allowance for such occasions but this should always be a last resort, and only if the matter at hand requires such drastic action. In the present situation, such action is neither necessary nor appropriate. The procedure for changes expressed in Rule of Procedure No. 56 is a slow and deliberate one. A proposal must be communicated to the Secretary at least eight months in advance of the Assembly at which time it can be acted upon. The dates of the meeting of the ad hoc Task Team proposing the Statute amendments was December 1984, four months ago. The Secretary is also required to communicate any proposal to all Member States and international organizations concerned with the work of the Commission. The delegate asked whether the ICSPRO Agencies had been allowed to comment on these changes. The Executive Council is also obliged to consider any proposal submitted and report its views to the Assembly. The Executive Council recommendations should also be circulated at least three months prior to the Assembly. Although the Task Team is composed of Representatives of all Members States of the Executive Council, that does not give it the status of the Executive Council. If this were so, the subsidiary bodies of the Commission open to Representatives from all Member States would have an equal authority to that of the Commission. The Task Team recommended that changes to the Statutes be considered at the earliest opportunity. The Delegate agreed with this suggestion, but believed that this earliest opportunity was not the present session of the Assembly. If there is an urgent need to establish the Commission's mandate in order for the Commission's role in the United Nations framework to be fully and carefully understood, then the distribution of the intended changes to the Statutes, to the appropriate United Nations organizations, as required in the Rules of Procedure, will serve that purpose. The Secretary has suggested that Member States that have not had sufficient time to study the changes can address them at the Unesco General Conference. With the present urgent matters to be considered by the twenty-third General Conference, the delegate believed it would not be desirable to have a debate on IOC Statute changes at that time. Although he personally approved the proposed changes to the Statutes, and indeed expected that these changes would be approved by the appropriate national authority in Canada, he suggested that the Assembly should instruct the Secretary to proceed with the arrangements for changing the Statutes at the earliest opportunity in keeping with the arrangements laid down in the Rules of Procedure; that is, to address this issue at the next Session of the Executive Council.

483 The Delegate of France proposed that the procedural question of whether the Assembly should discuss first the question of whether the recommendation on Statute changes should be submitted directly to the twenty-third General Conference of Unesco or past first to the Executive Council at its Nineteenth Session should be put to a vote.

484 The motion, (in favour of submitting a recommendation to the twenty-third General Conference of Unesco) was carried by 44 votes to 20, with three abstentions.

In view of the divergence of views, and in the spirit of understanding and co-operation that has characterized the work of the Commission, and to allow the different views to be harmonized and a consensus to be obtained in a matter of such great importance to the future of the Commission, the Chairman, after consultation with the Vice-Chairmen, proposed that the question of amendment of the Statutes be considered carefully at the next session of the Executive Council. 485

The Delegate of Mexico profoundly lamented the inability of the Assembly to take a decision on the question of amendments to the Statutes, in the light of the signature of the United Nations Convention on the Law of the Sea and the emergence of the New Ocean Regime, usually because of a lack of a quorum when such matters came before the Assembly for its consideration. He therefore called the attention of the Member States, particularly developing ones, to the need to respond positively to an issue of such importance. The proposed adjustments to the IOC Statutes are of great interest to the developing Member States. The proposed changes are the minimum necessary to reflect the practice of the Commission at present, but it is necessary to prepare for future demands and, therefore, much remains to be done. He said his country had signed the United Nations Convention on the Law of the Sea and had ratified it, thus assuming the responsibilities thereunder; it therefore considers it important that Member States state their position clearly on this matter. 486

The Delegate of Brazil informed the Assembly that he had come prepared to consider the necessary amendments to IOC's Statutes. The Delegate outlined his government's position on the issue of the Amendment of IOC's Statutes: as a whole, it was in favour of the amendments contained in DR.16, on the understanding that these amendments were small adjustments needed to keep the Commission's objectives and functions up to date, in the light of new conditions that are now governing IOC's fields of competence, of which the United Nations Convention on the Law of the Sea is, in its view, the mainstay. His Government had also accepted these amendments on the understanding that no reformulation of IOC's Statutes would give rise to interpretations of the United Nations Convention on the Law of the Sea. It was, therefore, mainly in favour of the amendment to Article 1, paragraph 2, so as to include the notion of the development of ocean services as one of the functions of the Commission, which it already discharges. He was also in favour of the inclusion of a new item (f) in Article 2, paragraph 1 of the Statutes, whereby the very important concept of transfer of technology would be, for the first time, explicitly recognized in the IOC's Statutes. Finally, he understood that former paragraph 1 (i), now (j), of Article 2, of the Statutes was extensively but not satisfactorily examined by the ad hoc Task Team and by the Sessional Drafting Group that had met during this session of the Assembly to consider the revision of the Statutes. He stressed that, in the view of his delegation, this paragraph no longer reflects the present situation governing marine scientific research activities, particularly in the light of Part XIII of the United Nations Convention on the Law of the Sea. The formulation that the ad hoc Task Team had proposed did not take into account, explicitly, the fact that the Commission's functions cannot impinge on, or be a substitute for, the strict bilateral procedures governing the necessary prior consent, by Coastal States, to the conduct of marine scientific research in zones under national jurisdiction. 487

488 The Delegate of Brazil also stressed that it had always been the position of his Government that this Assembly should not make the IOC 'a clearing house' for the facilitation of procedures for the authorization of scientific research, which is the prerogative of Member States. He was against the adoption of any provisions that would, in practice, go against the adoption of any provisions that would, in practice, go against the creation of a climate conducive to equitable international co-operation in this field, where political pressure could be exerted to circumvent the very clear provisions of Part XIII of the United Nations Convention on the Law of the Sea. This was the rationale for his Government's doubts on the validity of the proposal formulated by the ad hoc Task Team concerning Article 2, paragraph 1 (i) of the Statutes. He wished to stress that, while it was generally recognized that Article 2 (i) did not correspond any more to the present conditions governing marine scientific research, the Sessional Drafting Group had not been able to agree on a formula reflecting the present situation, on the basis of the speicific proposal made by the ad hoc Task Team.

489 The Assembly instructed the Secretary to prepare a compilation of the proposed changes to the Statutes as formulated by the ad hoc Task Team and as modified by the Sessional Drafting Group at the present Session of the Assembly, as well as the procedural options for submitting such proposals to the General Conference of Unesco, and to submit the compilation to the Member States so that the Executive Council, at its Nineteenth Session, could take a decision on how to proceed in this matter.

Liaison between Member States and the Secretariat of the Commission.

490 The Secretary recalled that, in the view of the Task Team, this liaison needs strengthening, to avoid existing communication and operational difficulties, resulting from, inter alia, frequent changes in the names and/or addresses of IOC Action Addressees, and a lack, in many Member States, of a national co-ordinating mechanism and of a national representative to the Commission, in the field of marine scientific and related technical affairs. The creation or the strengthening, if already existing, of such national mechanisms, would not only strengthen national marine scientific capabilities but also greatly enhance Member State involvement in the programmes and activities of the Commission, through the enhancement of national programmes.

491 Some delegates favoured the proposal of the Task Team to amend Rule of Procedure No. 26, (Recommendation LOSI-III.3), since they believed it important to identify a clear channel of communication on the technical matters between the Secretary, on the one hand, and the Member States and the institutions involved in IOC programmes and activities, on the other hand. The problem was often more difficult for those Member States that were not members of the Executive Council, and had not appointed a Representative to the Council. Other Delegates stressed the fact that the national situation varies considerably from one Member State to another, and that governments would need more time to consider this significant innovation. It may not always be possible to conform strictly to the proposal of the Task Team.

492 The Assembly agreed that, while it would be a considerable advantage if Member States had specific National Representatives to IOC, it was not timely to propose a particular arrangement for all Member States. It decided that, for the moment, and with a view to ensuring the required flexibility

in the implementation by Member States, a Resolution would be, at this stage, a better approach than an amendment to Rule of Procedure No. 26.

The Assembly adopted Resolution XIII-12. 493

Continuation of the work of the Task Team

The Assembly agreed that the Task Team had identified some important work if the Commission was, in fact, to adapt itself to the new ocean regime and to respond to the implications identified by the Task Team. 494

There was, however, a divergence of views as to how to address the further work recommended to the Assembly by the Task Team. Some delegates believed it should be entrusted to a new Task Team, in conformity with Recommendation LOSI-III.1, possibly with the same membership (members of the Executive Council and other interested Member States), to allow all interested Member States to be associated with the work. 495

Other Delegates regarded this solution as too costly and perhaps too time-consuming, and preferred to call on the Officers of the Commission, with the collaboration of the Secretary, to undertake the proposed studies. 496

Some Delegates expressed the view that there was no need for a new ad hoc Task Team to carry out the three tasks proposed in Recommendation LOSI-III.1. They suggested that, if a new ad hoc Task Team were to be established, its Terms of Reference should be directed towards external relationships and tasks, as and when these need to be clarified. 497

The Delegate of the USSR formally supported the proposal to create a new Task Team on the reinforcement of the role and capabilities of the IOC, and proposed that, in addition to the Terms of Reference given in Recommendation LOSI-III.1, the Task Team should be asked to prepare suggestions regarding the financial obligations of IOC Member States that are not Member States of Unesco. 498

In the discussion of the Draft Resolution (IOC-XIII/DR.20) on the continuation of the work of the ad hoc Task Team, the divergent views expressed on the Statutes question were reflected here, the issues being whether the new tasks identified by the ad hoc Task Team in Recommendation LOSI-III.1 were acceptable, and the mechanism for carrying them out; the choices were: to retain the present ad hoc Task Team, to create a new Task Team for a new purpose, or to follow the procedure recommended by the Sessional Drafting Group - to ask the Officers of the Commission under the guidance of the former Chairman (Dr Ayala Castanares) to prepare the studies proposed, with a view to their submission to all the Member States well in advance of the Nineteenth Session of the Executive Council, then to a three-day meeting of the Council immediately prior to its Nineteenth Session at which the actions to be taken on these studies would be decided. 499

Some Delegates were against disbanding the ad hoc Task Team. 500

The Delegate of Argentina wished to open the proposed studies to all interested Member States and in this, was supported by several other Delegates, notably Cuba, Venezuela and Brazil. 501

The Delegate of Poland believed that the ad hoc Task Team had done a good job but had completed its task and should be disbanded. 502

503 The Delegates of Venezuela and Cuba believed that the matter should not be left just to the Officers, but should be opened to all the Member States interested in this matter.

504 The Delegate of France stressed the point that the proposal in the DR.20 was a mechanism by which the specific studies could be prepared and then put before all the Member States; it was not a mechanism to prevent the widest possible intervention of the Member States, since the studies would be put to all the Member States for comments and these comments could be addressed to the special meeting of the Executive Council proposed in DR.20. The proposal in this DR was a workable compromise.

505 Several Delegates (notably Mexico, USSR, Turkey) agreed with the French proposal, and DR.20 was debated at some length.

506 The Assembly carefully evaluated the advantages and disadvantages of various alternatives.

507 It recognized that the Member States wished to be closely associated with the proposed new work and to contribute to it.

508 Nevertheless, it believed that the first step was to prepare background documents on the three studies recommended by the ad hoc Task Team and then to submit these studies to the consideration of the Member States.

509 The Assembly decided not to create a new Task Team to undertake the tasks recommended (Recommendation LOSI-III.1). However, it did decide not to disband the present ad hoc Task Team but to keep it in abeyance.

510 The Assembly adopted Resolution XIII-13. (Argentina, Uruguay and Venezuela abstained.)

10. REGIONAL SUBSIDIARY BODIES

10.1 FIRST SESSION OF THE IOC SUBCOMMISSION FOR THE CARIBBEAN AND ADJACENT REGIONS (IOCARIBE)

511 The Chairman of the Subcommission for IOCARIBE, Mr Rafael Stee Ruiz, and the IOC Technical Secretary for IOCARIBE, Dr Fernando Robles, introduced this item.

512 The Chairman of IOCARIBE reported on the results of the First Session of the IOC Subcommission for the Caribbean and Adjacent Regions. He emphasized the permanent character of the Subcommission, which will facilitate the interaction between the regional activities and the global programmes of IOC. The Subcommission had examined and adopted the Guidelines for the Structure and Responsibilities of IOC Subcommissions (document SC/MD/73 Annex V). It also recommended maintaining the same geographical area as that covered by the former Association. He requested Member States of the former Association not represented at the First Session of the Subcommission formally to notify the Secretary of IOC of their willingness to participate in activities of the Subcommission.

513 The Chairman of the Subcommission stressed three important aspects in the future work of IOCARIBE: (i) the Subcommission's programmes should build

on national programmes and subregional projects; preference should be given to those national programmes with a high degree of convergency in different Member States of IOCARIBE; (ii) the role of the Subcommission in implementing and executing the regional components of IOC global programmes should be recognized and reinforced; (iii) the co-ordination of the programmes of the numerous relevant bodies active in the region, such as: Unesco, UNEP, FAO, WMO, IMO, WHO, IHO, OAS, GCFI, ALMC, among others, so as to avoid duplication; the co-ordination between the programmes of the Unesco Division of Marine Sciences, particularly COMAR, and those pursued through IOCARIBE.

514 The Chairman of the Subcommission stressed the urgency of appointing the IOC Assistant Secretary to be in charge of IOCARIBE and to locate him/her in the Caribbean region.

515 The Technical Secretary for IOCARIBE summarized the regional activities carried out during the last two years, including those of the former IOCARIBE Association, paying particular attention to activities carried out in 1983 until the former Assistant Secretary for IOCARIBE, Dr R. Lankford, took a new position at Unesco, ROSTLAC, in Montevideo, in January 1984. In the area of Ocean Science in Relation to Living Resources, a major achievement was the Western Atlantic Turtle Symposium (WATS) held in San José, Costa Rica, 18-22 July 1983; 33 countries from the Caribbean region participated in the two-year research activities which preceded this Symposium; a Manual of Sea Turtle Research and Conservation Techniques was published in advance and the proceedings of WATS were published afterwards in Spanish and English. Considerable attention was also given to regional fish kills, for which a Manual on the Development of Observational Procedures for Determining the Cause of Fish Kills is being prepared in co-ordination with the Western Central Atlantic Fishery Commission of FAO. The IOC, through the IOC Assistant Secretary in charge of IOCARIBE, also collaborated with the Unesco Division of Marine Sciences in the preparation of a Workshop on Coral Reefs, Sea Grass Beds and Mangroves: their Interaction in the Coastal Zone of the Caribbean, which was held in May 1982, in St. Croix, United States Virgin Islands (Unesco Reports in Marine Science, No. 23, 1983). In the area of Ocean Science in Relation to Non-Living Resources, an attempt was made to choose small 'pilot areas' for regional research demonstration projects on geology of the coastal areas. Although no specific project has so far been developed, preparations for such projects were made through the arrangement of a Training Course on Coastal Geology and Management, offered by France, at the University of Bordeaux, in September 1984, which was attended by students from the IOCARIBE and IOCEA regions. An initiative related to OSNLR activities in the region deals with the preparation of the International Bathymetric Chart of the Caribbean Sea and Part of the Pacific Ocean off Central America (IBCCA) (see Agenda Item 6.3). The programme of marine pollution research and monitoring, CARIPOL, has been particularly active through actions implemented by a number of Member States in the region. Phase I, related to petroleum pollution, has been strengthened through ad hoc training provided at the United States (NOAA) Atlantic Oceanographic and Meteorological Laboratories, in Miami, and at the School of Chemistry's Environmental Laboratory, of the University of Costa Rica, and through TEMA summer courses at the Bermuda Biological Laboratory. The Fourth Meeting of the CARIPOL Steering Committee (Mazatlán, Mexico, April 1984) stressed the need to increase participation of Member States in this regional programme. Phase II of CARIPOL, dealing with non-petroleum pollution, was focussed on other contaminants, such as pesticides, found in marine organisms and sediments in the region. At the invitation of the UNEP Regional Seas Programme Activity Centre, three CARIPOL Phase-II proposals were submitted to the

Third Meeting of the Monitoring Committee of the UNEP Caribbean Environmental Programme Action Plan, in Havana, Cuba, November 1983. UNEP agreed to partly fund (US $53,000) one proposal for ongoing and expanded CARIPOL activities in marine petroleum pollution. The remaining proposals, particularly for a Training Course in Research on Contaminant Uptake in Organisms and Sediments, was resubmitted in 1984 for consideration at the next meeting of the Monitoring Committee (Cancún, Mexico, April 1985).

516 Regarding regional components of IOC's ocean services, the Technical Secretary for IOCARIBE briefly described past and present attempts to establish a system for information and documentation exchange, especially for the benefit of the developing countries of IOCARIBE. He also drew attention to the need to strengthen and expand the National Oceanographic Data Centre System, and to increase the data exchange with the designated IOCARIBE Regional Data Centre. Because of the slow level of implementation of IGOSS in the region, the IOC IGOSS Operations Co-ordinator undertook a mission during 1982 to several IOCARIBE Member States to stimualte their participation in the System. A number of experts from IOCARIBE Member States participated in an IGOSS Implementation Co-ordination Meeting for the Extended Pacific Region, convened in San José, Costa Rica, in November 1983.

517 TEMA activities have been considerably expanded during the last two years. Shipboard training was provided by the USSR and Mexico; IOC grants were provided to scientists to participate in various summer courses at the Bermuda Biological Station; CARIPOL ad hoc training was provided at the University of Costa Rica and at the NOAA Atlantic Oceanographic and Mateorological Laboratories in Miami, U.S.A.; and training of local personnel in methods and techniques of sea turtle research was provided during the preparatory phases of WATS by a travelling Technical Team of Experts. In addition, and as part of an informal Voluntary Assistance Programme activity of TEMA, the V.S. National Associate for IOCARIBE, Dr H.B. Stewart, provided 85 Nansen bottles, 45 repair kits and extensive bibliographic material to IOCARIBE Member States. Spectrofluorometers for use in CARIPOL were provided by two Member States of IOCARIBE by France and the United Kingdom.

518 The IOC Senior Assistant Secretary in charge of TEMA, Dr S.M. Haq, briefly described an expert mission to eight English-speaking Caribbean countries between 9 January and 6 February 1985. The mission was a follow-up of the Association's Recommendation IOCARIBE-III.11, and was endorsed by the First Meeting of CARICOM Ministers Responsible for Science and Technology (Kingston, Jamaica, April 1983) and later by the Third Session of the Caribbean Council for Science and Technology (Curacao, Netherlands Antilles, June 1983). The mission visited the States of Antigua and Barbuda, Barbados, the Netherlands Antilles (Curacao), Guyana, Jamaica, St. Lucia, St. Vincent and the Grenadines and Trinidad and Tobago; it consisted of Professor U. Lie (Leader), Dr H.B. Stewart (Deputy Leader), three specialists from the region supported by UNDP/TCDC, and Dr S.M. Haq. The experts gathered information on priority needs in marine science and for the preparation of IOC Marine Science Country Profiles; they also provided guidelines for the formulation of a proposal for a subregional technical assistance project to be developed in the framework of the Comprehensive Plan, with extra-budgetary funding.

519 The Chairman of the Working Committee on IODE brought to the attention of the Assembly the concern that had been expressed by the Working Committee on IODE, at its Eleventh Session, over the low level of submission of data from activities within the framework of IOCARIBE to the IODE data-centre system. The exchange procedures and mechanisms have been established, and

training in data management and in the operation of an NODC has been provided by the United States NODC, inter alia, on a continuing basis. He requested the Member States of the Subcommission to give increased attention to this matter and to establish in the region mechanisms for timely submission of oceanographic data to the RNODC-IOCARIBE in Washington, D.C.

The Secretary of IOC informed the Assembly of the offer made by the Government of Sweden to second an Associate Expert to be outposted to the IOC Secretariat for IOCARIBE, when established. 520

Many Delegates expressed their satisfaction with the work done in the IOCARIBE region and the results of the First Session of the Subcommission. They expressed their thanks to the former Chairman, Dr M. Murillo, and Vice-Chairman, Dr H.B. Stewart, of the IOCARIBE Association, and to the former IOC Assistant Secretary, Dr R. Lankford. 521

The Delegate of Colombia confirmed the offer of his Government to host the IOC Secretariat for the IOCARIBE Subcommission, made at the Twelfth Session of the Assembly (November 1982) and restated to the Director-General of Unesco in a letter of 24 September 1984. The Group for Latin-America and the Caribbean of Unesco (GRULAC) also supported this proposal in a meeting held on 9 November 1982. The Delegate informed the Assembly that his country offers two suitably equipped offices, and the required administrative personnel, and has assigned the equivalent of about US $40,000 to cover the first year of operation of the Secretariat in the city of Cartagena. He also announced the assignment of a budget of US $10,000 to cover national participation in CARIPOL projects. The Delegate stressed the need to set priorities out of the large number of initiatives listed in the Summary Report of the First Session of the Subcommission and called on Member States to support strongly the activities of the newly established subsidiary body of the Commission. 522

Several Delegates expressed interest in supporting regional activities in ocean-atmosphere interaction studies as suggested in Recommendation SC-IOCARIBE-I.5, as well as in strengthening associated supporting systems such as IGOSS and IODE. 523

Many Delegates called for a better co-ordination of the programmes undertaken by the Subcommission and those being carried out by the Unesco Division of Marine Sciences in the coastal zone, to avoid duplication of effort. They believed that Unesco should make use of the Subcommission as a mechanism for facilitating the implementation of COMAR in the region. 524

The Representative of the Unesco Division of Marine Sciences expressed the Division's willingness to establish closer liaison with relevant programmes of the Subcommission and to undertake complementary activities, particularly in research projects dealing with the coastal zone. 525

The Delegate of Mexico restated his country's offer to host the OSLR(IREP) Workshop on Recruitment in Tropical Demersal Communities. Mexico also offered to host the First Session of the Editorial Board of the International Bathymetric Chart of the Caribbean Sea and Part of the Pacific Ocean off Central America (IBCCA) and thanked the Delegates of Colombia, Cuba, France, Venezuela, and the USSR, for their offers of assistance for this project. He also expressed his country's willingness to take an active part in the Regional Network of Educational and Research Institutions described in Recommendation SC-IOCARIBE-I.6, especially at the postgraduate level. 526

527 The Delegate of Cuba, recalling Recommendation SC-IOCARIBE-I.3, restated his country's offer to host a Training Workshop on Techniques for Monitoring Beach Changes. He also restated the offer to host the Second Session of the Subcommission for IOCARIBE in Havana, tentatively scheduled for September 1986 and requested the Secretary to consider the organization, prior to this Session, of a scientific seminar on a topic of wide regional interest in whch the participation of young scientists from the IOCARIBE Region could be facilitated. The Delegate also stated that, if the First Session of the aforementioned Electoral Board were not held in Mexico, as foreseen, his country would consider favourably hosting it in Havana.

528 The Delegate of France announced the availability of six months of research-vessel time in the period 1985-1986 to be utilized in the framework of the IOCARIBE scientific programmes. France also offered to continue its support to research and training on coastal hydrodynamics, shoreline stability and management of the coastal zone.

529 The Delegate of the U.S.A. recalled his country's offer to host the CARIPOL Symposium on Petroleum Pollution Research and Monitoring, in Mayagüez, Puerto Rico, in 1985, and expressed the strong interest of the U.S.A. in having an active participation in the OSLR(IREP) Workshop on Recruitment in Tropical Demersal Communities.

530 The Assembly approved the Summary Report and Recommendations of the First Session of the IOC Subcommission for the Caribbean and Adjacent Regions.

531 The Assembly noted the diversity of research problems to be covered by the Subcommission and stressed the need to establish an order of priority for them. The Assembly recommended a multidisciplinary approach and, when advisable, the development of subregional activities.

532 The Assembly urged IOCARIBE Member States to increase their participation in, and support to, the programmes of the Subcommission, and the TEMA aspects, particularly through contributions to the IOC Trust Fund and participation in the IOC-VCP.

533 In this context, it recognized the importance of speeding up the preparation of Marine Science Country Profiles and called on Member States of the Commission to assist in this task.

534 The Assembly warmly thanked the Government of Colombia for its offer to host the IOC Secretariat for IOCARIBE in Cartagena and the significant monetary contribution associated with it. The Assembly recognized the great importance, for the Subcommission, of implementing this action as soon as possible and invited the Director-General of Unesco to draw up with the host country an Agreement on the IOC Secretariat for IOCARIBE, and to appoint the IOC Assistant Secretary to be outposted there.

535 The Assembly thanked the Government of Sweden for its offer to second an Associate Expert to the IOC to be outposted to the IOC Secretariat for IOCARIBE.

536 The Assembly thanked the Government of Cuba for the offer to host the Second Session of the Subcommission as well as a Training Workshop on Techniques for Monitoring Beach Changes. It also welcomed the offer to host the

First Session of the Editoral Board for the International Bathymetric Charts for the Caribbean and Part of the Pacific off Central America, if not held in Mexico.

The Assembly thanked the Government of Mexico for the offer to host the OSLR(IREP) Workshop on Recruitment in Tropical Demersal Communities and the First Meeting of the Editorial Board for the International Bathymetric Charts of the Caribbean Sea and Part of the Pacific Ocean off Central America. 537

The Assembly thanked the Government of the U.S.A. for its offer to host the CARIPOL Symposium in Puerto Rico. 538

The Assembly stressed the importance of improving co-ordination and communication with programmes of other bodies relevant to the IOCARIBE region and requested the Unesco Division of Marine Sciences, with its Major Project COMAR and the Subcommission to co-ordinate their activities in the region, particularly those concerning the coastal zone, and undertake further training and education activities in the region. 539

The Assembly adopted Resolution XIII-14. 540

10.2 PROGRAMME GROUP FOR THE SOUTHERN OCEANS (IOCSOC)

The IOC Senior Assistant Secretary, Dr F. Robles, introduced this item. Referring to the Recommendations of the Fourth Session of the Programme Group for the Southern Oceans (IOCSOC) and inputs provided to that Session by SCOR WG-74, he recalled that the convenience of supplementing ongoing oceanographic research in the Antarctic within BIOMASS by additional physical and chemical observations in key areas of important concentrations of living resources, particularly krill, was noted. IOC was asked to organize a meeting of oceanographers active in this field to develop further research plans. This meeting on Oceanography Related to the Dynamics of the Antarctic Ecosystems was held, following a meeting of SCOR Working Group No. 74, in Kiel, Federal Republic of Germany, 18-19 May 1984. Among problems identified by the meeting, particular attention was given to the eventual variability of biological resources as it might be related to physical processes and to the fact that a considerable amount of unanalysed data collected between 1975 and 1984 was available for some key areas. During the Third Meeting of the Scientific Committee of the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) (Hobart, Australia, September 1984), the Representative of the IOC reported on the Kiel Meeting; it was agreed to organize a Joint CCAMLR-IOC Scientific Seminar on Antarctic Ocean Variability and its Influence on Marine Living Resources, Particularly Krill. The Seminar will be held in Paris, Unesco, from 28 January to 1 February 1986 immediately prior to the Fifth Session of the Programme Group for the Southern Oceans (4-8 February 1986). The Scientific Committee on Antarctic Research (SCAR), at its Eighteenth Conference, agreed to co-operate in the preparation of the Seminar and similar assistance has been requested of SCOR. 541

Regarding Recommendations of the Programme Group for the Southern Oceans and SCOR WG-74 to improve and increase sea-level observations in Antarctic waters, the Assistant Secretary recalled that this topic was considered during the First Session of the IOC Programme Group on Ocean Processes and Climate (Paris, Unesco, 6-8 March 1985) and discussed under Agenda Item 7.2.1, above. The Programme Group emphasized the need to exchange 542

information on sea-level measurement techniques used by countries working in the Antarctic and to submit sea-level data to the PSMSL. This was important for the ocean-dynamics studies being pursued by the Programme Group for the Southern Oceans, as well as for the corresponding regional ocean component of the WCRP, and will contribute to the development of a regional component of the proposed IOC Global Sea-level Observing System. At the request of the Secretary-General of the United Nations, information on the activities of the Programme Group was provided for the United Nations General Assembly (September 1984), Agenda Item on the 'Question of Antarctica', and these activities were mentioned in the resulting report. Subsequently, the United Nations nominated an Observer to the Programme Group for SOC.

543 Several Delegates expressed their satisfaction with the progress made in the follow-up of the Programme Group's activities and the usefulness of having these IOC mechanisms when an increasing interest in Antarctic research is taking place.

544 Many Delegates described ongoing activities of their countries relevant to programmes proposed by the Programme Group.

545 Some Delegates emphasized that, to avoid duplication with other ongoing programmes, the Programme Group should concentrate on the monitoring of physical oceanography parameters and the development of ocean services such as data gathering and exchange on long-term time-series observations (e.g., those coming from moorings, tide-gauges and remote sensing of ice cover).

546 Some Delegates questioned part of the scientific contributions included in the Report of the Meeting of Experts on Oceanography Related to the Dynamics of the Antarctic Ecosystems, held in Kiel, especially regarding abnormal variations in marine living resources.

547 The Delegate of Argentina restated the offer of this country to establish a RNODC for physico-chemical data and products for the IOCSOC region.

548 The Delegate of Australia informed the Assembly of ongoing consideration of the establishment of an IGOSS Regional Data Centre in his country.

549 The Assembly noted the progress made in the activities of the IOC Programme Group for the Southern Oceans, which should bear the acronym PG-IOCSOC to avoid confusion with the acronym SOC for Specialized Oceanographic Centre.

550 The Assembly endorsed the proposal for a Joint CCAMLR-IOC Scientific Seminar on Antarctic Ocean Variability and its Influence on Marine Living Resouces, Particularly Krill, and supported the initiative to convene the Fifth Session of the Programme Group for IOCSOC immediately after the proposed Seminar, in February 1986.

10.3 PROGRAMME GROUP FOR THE WESTERN PACIFIC (WESTPAC)

551 The Chairman of the Programme Group for the Western Pacific (WESTPAC), Dr John Bunt, introduced the item. He recalled the five major programmes adopted by the Programme Group: marine pollution research and monitoring; ocean dynamics; marine biology and living resources; marine geology/geophysics and non-living resources; and ocean services. He informed

the Assembly that several designated research cruises, workshops and training courses were carried out in the region. He proposed to the Assembly the convening of a WESTPAC Symposium in the region to review ongoing activities and their results, and to identify the direction of future research in the region. He appreciated the financial and in-kind support to WESTPAC programmes offered by several Member States, particularly Japan and Australia, and appealed to participating Member States to make additional contributions. The Chairman of the Programme Group strongly approved the high level of response to the Secretariat's request for nominations to the various Task Teams: 7 members of the Task Team on Ocean Dynamics in the Western Pacific, and 13 members of the related Task Team on Coastal and Continental Shelf Oceanography; 35 members of the Task Team on Ocean Science in Relation to Living Resources in the Western Pacific, which has four subgroups; 14 members of the Task Team on Marine Pollution Research and Monitoring in the Western Pacific and 9 members of the Task Team on the implementation of ICOSS in the Western Pacific. Also, the membership of the Group of Experts on Marine Geology and Geophysics in the Western Pacific has been decided. He believed that these various subsidiary bodies showed a good marriage of regional and global programme interest.

552 The Chairman of the Programme Group explained that two other matters would be taken under the present Agenda Item because they dealt with activities in the WESTPAC region but were in fact under the aegis of the IOC itself rather than the Programme Group; the two points were co-operation with CCOP and with CCOP(SOPAC).

553 Several Delegates from the WESTPAC region expressed their appreciation of the numerous opportunities under TEMA for their scientists and technicians to participate in research cruises, training courses and workshops organized in the framework of WESTPAC programmes.

554 Some Delegates stressed the usefulness of the WESTPAC Newsletter prepared by the Chairman of the Programme Group with support of the Australian Institute of Marine Sciences and the Department of Science, and the RNODC Newsletter for WESTPAC, prepared by the Japan Oceanographic Data Centre.

555 The Delegate of the Republic of Korea stressed his country's particular interest in comprehensive research in the Yellow Sea and the East China Sea; he thought it necessary to establish an international co-operative research programme for this subregion. He informed the Assembly that his country would be willing to host the proposed WESTPAC Symposium, if the Assembly approved the Symposium, in connection with the Pacific Science Congress in 1987.

556 The Delegate of Japan recalled his country's long-standing support for the WESTPAC Programme. He recalled that his Government had decided, subject to the parliamentary approval, to contribute to the IOC, through a form of Fund-in-Trust in the fiscal year 1985, an amount of US $30,000 to support the implementation of the WESTPAC Programme; he requested the Secretary to ensure the prompt and appropriate disbursement of these funds.

557 The Delegate of Australia also stressed his country's strong support for the WESTPAC Programme, including its TEMA activities, and announced that his country will contribute the sum of A $10,000 to the IOC Trust Fund to assist the implementation of the WESTPAC Programme.

558 The Delegate of Denmark drew the attention of the Assembly to the considerable interest within WESTPAC in the increasing number of recorded occurrences of plankton blooms causing oxygen deficiency or mortality of marine life due to paralytic shellfish poisoning (PSP), the toxin of which is even fatal to man, and therefore constitutes a considerable public health problem; consequently, it is also a cause of economic losses in fisheries and in mariculture. Similar phenomena have been recorded in the North Atlantic region; they are therefore of great concern to ICES. Two symposia have been held in Copenhagen in October 1984. WHO has reported on the public health precautions. The EEC is planning the production of pure calibrants of three PSP toxins, to replace the non-specific bio-assays currently applied. Noting the convening of Workshops on this subject in Cronulla, N.S.W., and in Bangkok, in 1984, and the study of fish kills within IOCARIBE, as well as the recognition accorded to it by the IOC FAO Guiding Group of Experts on OSLR, he urged co-operation amongst the IOC regional subsidiary bodies and ICES to study these important global phenomena.

559 The Assembly welcomed the substantial progress made by the Programme Group and its Task Teams, and endorsed the Summary Report and Recommendations of the Third Session of the Programme Group.

560 The Assembly recognized the value of organizing a WESTPAC Symposium to review the state-of-the-art in marine scientific research in the region and to develop a future comprehensive research plan for the WESTPAC region. It instructed the Secretary, in consultation with the Chairman of IOC and the Chairman of the Programme Group, to organize this Workshop, assuming that the Secretary was able to obtain extra-budgetary funds for this purpose.

Co-operation with CCOP

561 Dr G. Giermann (FRG) introduced this subject. He reviewed briefly the relations between IOC and the Committee for Co-ordination of Joint Prospecting for Mineral Resources in Asian Offshore Areas (CCOP). He explained that this Committee was originally the intergovernmental co-ordinating committee for a UNDP-funded project on offshore prospection in the Pacific; it is known by the acronym CCOP. The Committee was created by the United Nations Economic and Social Council for Asia and the Pacific (ESCAP), but, with the completion of the UNDP project, the status of CCOP in ESCAP is under review; a similar situation has arisen with CCOP(SOPAC) as discussed below. The IOC co-sponsors with CCOP a Joint Working Group on Post-IDO Studies of East Asian Tectonics and Resources (SEATAR). Dr Giermann briefly described the present situation of the CCOP Secretariat, which is financed by the UNDP project. At present, the CCOP provides secretariat services to SEATAR. However, owing to the decrease in UNDP funding, CCOP has requested IOC for support by providing a staff member to service SEATAR, even if only on a part-time basis.

562 In view of recent budgetary constraints, the Secretary IOC regretted that the IOC was not in a position to provide funds for staff to serve on the CCOP Secretariat to deal with SEATAR activities, but he expressed the hope that one or more Member States would consider seconding to IOC qualified experts to be outposted in the WESTPAC Region for that purpose.

563 The Delegate of Japan stated his reservation on any proposal for direct financial support by IOC to the CCOP (or indeed to CCOP (SOPAC)). He stated that these two regional bodies should, if necessary, seek financial assistance from other bodies than IOC.

The Joint CCOP-IOC Working Group on SEATAR, at its Tenth Session, reviewed the state of implementation of SEATAR Transects and future research plans on tectonic and resource studies in the region. It also called on IOC to consider further the possibility of providing an International SEATAR Co-ordinator to work with the CCOP Secretariat. 564

The Assembly noted the continuing successful implementation of the SEATAR Transects, which are the core of the SEATAR programme of work. 565

It approved the Summary Report and Recommendations of the Tenth Session of SEATAR.

The Assembly expressed its willingness to consider possible ways and means to overcome the problem of secretariat support for SEATAR. It urged interested Member States to consider seconding an expert to the IOC to be outposted in the region to deal specifically with SEATAR activities. 566

Co-operation with CCOP(SOPAC)

Dr Giermann then introduced the Summary Report of the First Session of the Joint CCOP(SOPAC)-IOC Working Group on South Pacific Tectonics and Resources (STAR). STAR, to facilitate the implementation of its agreed work programme, established four study Groups: on ocean drilling; age-dating; tectonics; and cruise proposals and ship schedules. The latter will establish a system for information, receipt and dissemination on such proposals and schedules. STAR also decided to consider as STAR activities a CCOP(SOPAC)-IOC Workshop on the Use of Manned Submersibles and Remotely Operated Vehicles in the South Pacific, to be held in September 1985, to be organized by IFREMER, and a CCOP(SOPAC)-IOC Workshop on Near-shore Resources, to be held in 1986. He also referred to a request from CCOP(SOPAC) to the IOC to consider providing a staff member to deal with STAR activities. 567

The CCOP(SOPAC) Technical Secretary, Mr Cruz Matos, informed the Assembly that the status of CCOP(SOPAC) has now changed; it became an independent regional intergovernmental organization in May 1984. The conferring of this status on CCOP(SOPAC) by the Member States is implicit recognition of the region's need for a scientific and technical body able to serve the South Pacific countries in respect of their non-living marine resources. A better understanding of the marine areas of the South Pacific may be economically crucial for some of the island states and desirable for all, but this is not the only reason for supporting marine research at this stage in the area. Coastal States are, inter alia, obliged to maintain the marine environment, control pollution and allow distant-water nations access to their zonal resources as appropriate. These responsibilities will also require considerable knowledge of marine areas to permit domestic legislation to be drafted, patrol and surveillance regimes to be established and fundamental baseline data to be developed for the enforcement of quality-control regulations. 568

The Delegate of the U.S.A. announced his country's support to the STAR programmes related to research on sea-bed mineral resources. 569

The Assembly welcomed the promising start to STAR activities made at its First Session. It approved the Summary Report of this First Session, and decided to co-sponsor the two STAR Workshops mentioned in paragraph 567, above. Regarding the question of support to the CCOP(SOPAC) Secretariat for the implementation and co-ordination of STAR activities, particularly in the 570

form of expert staff members, the Assembly acknowledged the efforts of the CCOP(SOPAC) Secretariat to support STAR, and recognized the constraints that now limit their support. It also recognized, however, that the IOC itself was not in a position to provide the required staff, especially since the IOC Secretariat itself was manifestly understaffed. It therefore also urged IOC Member States to consider seconding an expert to the IOC to be outposted in the region to deal with STAR activities.

10.4 PROGRAMME GROUP FOR THE NORTH AND CENTRAL WESTERN INDIAN OCEAN (IOCINCWIO)

571 The IOC Assistant Secretary, Mr G. Kitaka, introduced this item. He informed the Assembly that, pursuant to the Recommendations of the Programme Group, at its First Session (Unesco Regional Office of Science and Technology for Africa - ROSTA, Nairobi, Kenya, October 1982), the following major activities had been undertaken.

572 As a first step towards the establishment of an IOCINCWIO component of the IOC Global Sea-level Observing System, five scientists from the region were trained in sea-level measurement, at the Institute of Oceanographic Sciences (IOS), Bidston, United Kingdom. In response to IOC Circular Letter No. 990, inviting potential donor Member States to consider providing assistance to the developing Member States of the region by supplying tide-gauges or spare parts, with a view to strengthening the present tide-gauge network in the region, the United States has formally promised to consider this request favourably.

573 As a basis for a planned development of a regional component for the IOC Programme on Ocean Science in Relation to Living Resources (OSLR), an IOC Regional Training Course on Marine Living Resources in the Western Indian Ocean, organized with the support of the Governments of the Federal Republic of Germany and of Kenya, was held at the Kenya Marine and Fisheries Research Institute (KMFRI), Mombasa, Kenya, in August/September 1984. Nineteen scientists from five Member States of the region attended the course. In addition, using part of the contribution of the Federal Republic of Germany to the IOC Trust Fund, earmarked for the Course, the IOC provided scientific equipment worth US $6,000 to the KMFRI with a view to strengthening the Institute, and to enabling it to ensure the proper conduct of the Course and subsequent training courses.

574 A meeting of governmental experts, which was due to be held at ROSTA in August 1984, to launch the project on the proposed International Bathymetric Chart of the Western Indian Ocean (IBCWIO), had to be called off owing to the delayed response by the countries of the region. However, preparations are underway for an expert mission to the region to consult with Member States on the requirements of the project, as well as on their participation therein.

575 The IOC Assistant Secretary pointed out that the major obstacle to a faster implementation of the adopted projects was the fact that, whereas the majority of the Member States of the region do not have seaworthy research vessels sufficiently equipped to undertake oceanographic research, the few countries that have such vessels were experiencing several difficulties in operating them even in their national waters. However, the Institute of Marine Sciences of the University of Dar es Salaam has confirmed that the Government of Tanzania is still prepared to consider offering its research vessel, R.V. KASKAZI, for co-operative research within IOCINCWIO on the

condition that the countries concerned undertake to refit, man and operate the vessel jointly for the execution of IOCINCWIO and related projects.

576 A number of Delegates (France, Federal Republic of Germany, United Kingdom, USSR) spoke about the past and planned marine research activities of their countries in the region, including the training opportunities that they have so far given to scientists from the region, either bilaterally or through arrangements with IOC or FAO. They indicated that their research activities in the region were likely to increase in the future and they offered to take on more scientists from the region for shipboard training.

577 The Delegate of the Federal Republic of Germany stated that not only would their research vessel, RV METEOR II, take on local scientists for shipboard training, but that they would involve them in all phases of the respective research cruise, from the planning stage right through the analysis of the data. Referring to the IBCWIO project, he regretted that the meeting of governmental experts had had to be postponed, and confirmed that his Government cannot commit itself to the preparation and printing of the chart until the project has been clearly defined and approved by such a meeting.

578 The Delegate of the United States confirmed her country's keen interest in the strengthening of the present tide-gauge network in the region, and informed the Assembly that the Director of the Institute of Marine Sciences of the University of Dar es Salaam, Dr A. Nikundiwe, has been invited to visit relevant institutions in the U.S.A. with a view to discussing the details of the proposed Global Sea-level Observing System.

579 The Delegate of Portugal confirmed his country's offer to provide spare parts and possibly tide-gauges to Mozambique, and that they would even be prepared to send a small team of technicians to assist in the training of local staff in the servicing and repair of these tide-gauges, should the IOC agree to bear the cost of travel and per diem involved.

580 The Assembly expressed its appreciation to the countries that had provided assistance in the form of training and/or equipment to the developing Member States of the region, as a result of which some institutions (e.g., the KMFRI) were now in a position to host regional training courses in various disciplines of marine science. The Assembly noted that, through national efforts of Member States from within and outside the region, as well as through bilateral and multilateral arrangements, much research work with associated training has been carried out in the region, and that there is a need to evaluate what has been done with a view to identifying the areas where the greatest needs and priorities lie, particularly in Training, Education and Mutual Assistance in the Marine Sciences (TEMA).

581 The Assembly noted with appreciation the willingness of the Government of Tanzania to consider offering their research vessel, R.V. KASKAZI, for co-operative research in IOCINCWIO should the countries of the region undertake to bear jointly her refitting and running costs.

582 The Assembly also noted the importance of having a suitably qualified Marine Science Officer at ROSTA, acting as an IOC Assistant Secretary responsible for IOCINCWIO, so as to assist in the co-ordination of the marine science activities in the region; it also recognised the unlikelihood of Unesco making this appointment in the foreseeable future owing to the financial difficulties confronting the Organization.

583 The Assembly instructed the Secretary to: (i) undertake, in consultation with the Unesco Division of Marine Sciences, the evaluation of past marine research and training activities in the region with a view to identifying areas where the greatest needs of the countries of the region lie, particularly with regard to TEMA, and proceed to improve the situation accordingly; (ii) invite the developed Member States conducting marine research in the region to consider seconding a suitably qualified and experienced Associate Expert in Marine Science to the Unesco Regional Office of Science and Technology for Africa (ROSTA), in Nairobi, to assist in the co-ordination of marine science activities in the region; and (iii) arrange, in collaboration with FAO, for a consultant mission to Tanzania and other interested Member States of the region, to make an on-site evaluation of the present state of the R.V. KASKAZI, and to hold discussion with the local authorities concerned in these countries, with a view to reactivating this vessel for use on a regional co-operation basis. The Assembly recognized that such reactivation would carry significant budgetary implications which would need to be assessed in the process.

10.5 PROGRAMME FOR THE CENTRAL INDIAN OCEAN (IOCINDIO)

584 The IOC Senior Assistant Secretary, Mr R.C. Griffiths, introduced this Item. He drew the attention of the Assembly to the steps taken so far in the preparation of the IOC Scientific Workshop on Regional Co-operation in Marine Science in the Central Indian Ocean and Adjacent Seas and Gulfs, pursuant to IOC Resolution XII-14 (An IOC Programme Group for the Central Indian Ocean (PG/CINDIO)). At the kind invitation of the Government of Sri Lanka, the Workshop will be held in Colombo, 8-13 July 1985; relevant arrangements of the Workshop will be communicated shortly to the Member States of the IOC.

585 He explained that there are two kinds of participants to be invited to attend the Workshop: those who will be invited to make a scientific presentation on a selected relevant subject; they have been requested to see whether they can mobilize national funds to cover their travel, otherwise the IOC can provide the necessary support or share the costs with the national authorities; other participants, who are not contributing review papers, are welcome to attend the Workshop at the expenses of their institutions or governments.

586 An IOC Consultant, Dr M. Gerges, assisting the IOC Secretariat in the preparation for the Workshop, informed the Assembly that positive replies have been received from several invited speakers, countries and organizations who expressed keen interest in participating in the Workshop.

587 Some Delegates stressed the importance of co-ordination between the IOCINDIO programme and other existing programmes in the region and, in particular, those in the Red Sea and the Gulf Region. One Delegate expressed his concern over the partition of the Indian Ocean into two subregions, covered by the Programme Groups for IOCINCWIO and IOCINDIO, since the dividing line between them is arbitrary. He proposed that the two bodies be joined together in one body for the Indian Ocean Region.

588 The Secretary reminded the Assembly that the Chairman, in his opening speech to the Assembly, had indicated the possibility, in due course, of merging these two Programme Groups, to establish an IOC Subcommission for the Indian Ocean and its Adjacent Seas and Gulfs, if the circumstances a few years from now so justify.

Several Delegates stressed the importance of studies of monsoons, climatic changes and the role of the ocean, and the TOGA and the WOCE programmes. 589

The Delegate of Kuwait informed the Assembly of the recent development in the field of marine science in his country and that a new research vessel has recently jointed the Kuwaiti research fleet for work on the high seas. 590

The Delegate of France informed the Assembly of the numerous activities of the French institutions and scientists in the IOCINDIO Region, in the Red Sea and in the adjacent gulfs. These are co-operative programmes between France and Saudi Arabia, Jordan, Egypt and other countries in the Red Sea Region, with particular attention being given to marine geology and marine ecology of the Red Sea. Investigations in the Red Sea have been conducted during expeditions by French research vessels such as the R.V. NOROIT, the R.V. SUROIT and the R.V. MARION DUFRESNE. The Delegate also informed the Assembly that French experts collaborate closely with marine scientists of the countries of the region and will continue to do so if these countries so wish. 591

The Delegate of Egypt welcomed the convening of this Workshop, but questioned whether the participants in the Workshop, in their personal capacities as experts, should be called on to define the geographic limits of the region. 592

The Secretary of IOC explained that participants in the Workshop, as scientists knowledgeable of the region, its characteristics and geographical features will be able to provide technical guidance to the Programme Group for IOCINDIO, at its First Session, scheduled for 1986, tentatively in Karachi, Pakistan. The Programme Group, because of its intergovernmental nature, is the appropriate body to discuss and make technical recommendations on the geographical area to be covered. 593

The Assembly expressed its satisfaction with the preparations made for the Workshop and urged the Member States to give as much support as possible to facilitate the travel of participants to the Workshop, in order to ensure balanced geographic representation and proper coverage of the marine science disciplines, relevant to the region. 594

The Assembly stressed the importance of full co-operation and co-ordination, in the future, between the IOC Programme Groups, IOCINCWIO and IOCINDIO, and between these and the other relevant regional marine science programmes, such as the ALECSO Programme on the Environment of the Red Sea and Gulf of Aden (PERGSA), and the Kuwait Action Plan (of the Regional Organization for the Protection of the Marine Environment - ROPME). 595

10.6 PROGRAMME GROUP FOR THE CENTRAL EASTERN ATLANTIC (IOCEA)

The IOC Assistant Secretary, Mr G. Kitaka, introduced this item. He informed the Assembly that, in response to Resolutions XI-18 and EC-XV.4 by which the Secretary was instructed to arrange, in collaboration with the Division of Marine Sciences of Unesco, for a Workshop on Marine Science Co-operation to provide the basis for a Marine Science Association for countries of the Atlantic Coast of Africa and other interested Member 596

States, a Workshop on Regional Co-operation in Marine Science in the Central Eastern Atlantic was held in Tenerife, Spain, in December 1983.

597 Following the Recommendations of the above-mentioned Workshop, the Executive Council, at its Seventeenth Session, by Resolution EC-XVII-7, decided to establish an IOC Programme Group for the Central Eastern Atlantic (IOCEA). At the invitation of the Government of the Republic of Guinea, preparations are underway to hold the First Session of the Programme Group at the Scientific Research Centre of Conakry-Rogbane, Republic of Guinea, tentatively during the last quarter of 1985.

598 Since the establishment of the Programme Group, the following activities have been undertaken: (i) five short-term fellowships for training in oceanography, including marine geology, were offered by the Government of Spain, in support of IOC activities in the region. Three scientists from the Republic of Guinea benefitted from this offer in 1984. The offer to experts from developing countries in the region is being repeated for 1985; (ii) the French Government organized two training courses, one at the Centre Océanologique de Bretagne, Brest, on the Management of Scientific and Technological Information, and the other at the University of Bordeaux, on the Scientific Aspects and Management of Coastal Zones and Near-continental Shelf. Six scientists from the region attended the course in Brest, and four attended the course in Bordeaux; (iii) the Government of France has confirmed its interest and willingness to participate in the preparation and printing of the proposed International Bathymetric Chart of the Central Eastern Atlantic (IBCEA), and planning is already underway for a meeting of experts from the countries of the region and other interested Member States to consider the technical aspects and other requirements of the project.

599 The Representative of IHO informed the Assembly that, in order to promote regional co-operation and technical assistance in hydrography, the IHO encourages the establishment of regional hydrographic commissions or groups and offers advice on their formation. Seven Regional Hydrographic Commissions, composed of representatives from Member States of IHO and from coastal States that are not members of the IHO, each within a defined geographic area, meet at regular intervals to discuss mutual hydrographic survey and chart-production problems, plan joint-survey operations, and resolve schemes for medium and large-scale International (INT) Chart coverage of their region. The Regional Hydrographic Commission for the Eastern Atlantic was established last year. The IHO thinks that the adequate collection and promulgation of new hydrographic information is vital to the safety of navigation and maritime commerce, as well as to oceanographic research and the exploration and rational exploitation of marine resources, and consequently, for the economic prosperity of coastal States. Therefore, the IHO would appreciate the close co-operation between the Programme Group for the Central Eastern Atlantic and the Eastern Atlantic Hydrographic Commission.

600 Several Delegations welcomed the establishment of the Programme Group for the Central Eastern Atlantic, and expressed the hope that the Programme Group would enhance the development of marine science and international co-operation in the region.

601 The Delegate of Ghana supported the IOC TEMA Programme, stressing that IOC should help to strengthen national capabilities. Ghana's degree courses in marine science at Legon was a contribution to this end. She also believed that national and subregional research projects should include studies of

the mechanism of coastal upwelling, detailed mapping of the coastal sea floor, and coastal ecosystems including estuaries and lagoons.

The Delegate of France reconfirmed her country's interest and willingness to participate in the production of the proposed International Bathymetric Chart of the Central Eastern Atlantic (IBCEA), and invited the countries of the region to make known their views on this proposal. 602

The Delegates of Brazil and Spain repeated their previous offers to train African scientists from the region, both in their institutions and on board their research vessels. 603

The Delegate of Brazil also suggested that the programmes and projects developed by the Programme Group for IOCEA, as in other regional subsidiary bodies, should primarily reflect national priorities as defined by the countries of the region themselves. 604

The Delegate of Portugal announced the offer of 12 scholarships, tenable in Portugal, for scientists from the Portuguese-speaking countries of Africa. 605

The Assembly expressed its appreciation to the Government of the Republic of Guinea for its offer to host the First Session of the Programme Group, to France for her offer to take the lead in the preparation and printing of the IBCEA, and to other Member States (Brazil, Portugal, Spain) that had pledged assistance in one form or another to the developing Member States of the region. 606

The Assembly noted that the first major task of the Programme Group will be to assist its developing Member States to identify their requirements and priorities in marine science, even in regard to their needs for simple equipment, with a view to arriving at a realistic selection of the projects suitable for co-operative research in the region, and which would reflect the needs and priorities of the countries of the region. 607

The Assembly invited the Unesco Division of Marine Sciences to provide assistance in this regard. 608

The Assembly instructed the Secretary to continue assisting the developing Member States of the region to enable them to enhance their capabilities in marine science, with emphasis on Training, Education and Mutual Assistance in the Marine Sciences. 609

10.7 FOURTH SESSION OF THE JOINT IOC-WMO-CPPS WORKING GROUP ON THE INVESTIGATIONS OF EL NINO

The IOC Senior Assistant Secretary, Dr F. Robles, introduced this item. He reported that the decision to convene the Fourth Session of the Joint Working Group in Lima, Peru, 31 May-1 June 1984, was determined by the possibility of convening three related meetings with convergent purposes: to seek a co-ordinated regional response to the requirements of the global experiments being planned by the Joint SCOR-IOC Committee on Climatic Changes and the Ocean (CCCO) and TOGA, in particular. These three meetings were held between 28 May and 8 June 1984. They were: the Fourth Meeting of the Scientific Committee of ERFEN (Estudio Regional del Fenámeno El Niño) of the Comisión Permanent del Pacifico Sur (CPPS); the Fourth Session of the Joint Working Group; and a CONCYTEC Regional Workshop on Science, Technology 610

and Environmental Effects: El Niño Phenomenon. As on previous occasions, IOC provided assistance for regional scientists to attend the ERFEN meeting and the Working Group Session, as well as to present scientific papers at the CONCYTEC Workshop.

611 These meetings stimulated an active participation of scientists of the CPPS countries (Colombia, Ecuador, Peru and Chile) in the International Conference on the TOGA Scientific Programme (Unesco, Paris, 17-21 September 1984).

612 Other related intersessional activities included support for one lecturer and three students from the region to attend the International School on Observational Techniques and Interpretation of El Niño Phenomenon, organized by the Instituto Geofísico del Perú in October 1984, and an active follow-up of El Niño Project, for which a preparatory assistance phase, amounting to US $84,000, is being negotiated with UNDP, jointly with CPPS.

613 Many Delegations expressed their satisfaction with the exemplary co-operation developed between IOC, CPPS and WMO in relation to regional studies of El Niño.

614 The Delegate of the Federal Republic of Germany expressed the interest of his country in assisting the countries of the region in the implementation of El Niño studies.

615 The Delegate of the USSR likewise offered assistance, particularly in terms of participation in research cruises off the Colombian, Ecuadorian and Peruvian coasts.

616 The Assembly noted with satisfaction the significant progress in the activities of the Joint Working Group.

617 The Assembly also noted the prolonged negotiations with UNDP for support for the proposed project on Training, Education, Research and Monitoring Connected with El Niño Phenomenon, and requested IOC Member States to renew support for this project, particularly as regards its TEMA components.

11. MEDIUM-TERM PLAN, PROGRAMME AND BUDGET

11.1 PROGRAMME AND BUDGET OF THE IOC FOR 1986-1987

618 The First Vice-Chairman IOC, Ms Marie-Annic Martin-Sané, introduced this item. She briefly reviewed the statistical presentation of the budget for the present biennium, 1984-1985, including support from the Organizations Members of ICSPRO, and that of Member States to the IOC Trust Fund, and then the background information on the stages of development of the IOC component of Programme X.4 (The Ocean and its Resources) in the Draft Unesco Programme and Budget for 1986-1987. She drew attention to the exceptional circumstances in which Unesco had been developing the Draft 23 C/5 for 1986-1987, due to the consequences of the withdrawal from the Organization of a Member State. To allow for any possible shortfall in the overall budget of the Organization, the Secretariat had been requested to formulate budget proposals based on 1st and 2nd priorities that corresponded to approximately 2/3 and 1/3, respectively, of the total budget ceiling for operational funds. She was pleased to report that the Director-General, in responding to the views expressed by Member States, as well as those of the Unesco Executive Board and of the Commission's governing bodies, had been able to

identify an additional $200,000 within the budget ceiling allocated for the IOC portion of funds under Programme X.4 within the 2nd priority category. This decision had been taken in recognition of the support given by Member States to Programme X, as a whole, and to the needs of the IOC.

The First Vice-Chairman drew attention to the fact that the Director-General had not been able to take into account, within this additional allocation, all of the original proposals made by the Secretariat, in accordance with the instructions given to the Secretary by the Executive Council at its Seventeenth Session. These proposals had included a total of $600,000 in 'options' to maintain the momentum of the IOC programme, as well as provision for a P-5 post for Ocean Dynamics and Climate, a P-3 post for TEMA, to assist with the promotion and implementation of the Unesco/IOC Comprehensive Plan and the IOC-VCP in accordance with recommendations made by the Working Committee for TEMA, at its Fourth Session, and five supporting staff positions in the General Service category. Information as to which options had been retained and which had been deleted was provided in document IOC-XIII/8 Annex 5 Add. Under the present circumstances, proposals for additional staff were not retained. The First Vice-Chairman also recalled that under these same circumstances, none of the posts approved in the 22 C/5 had been announced for recruitment, although one General Service position had been filled through transfer. 619

Turning to consideration of the budget as presented in the Appendix to document IOC-XIII/8 Annex 5 and to the two summary tables found in the Addendum, which had been adjusted to reflect the most recent situation, she noted that the Chairman had informed IOC Member States of relevant developments regarding the request of the Director-General for the views of Unesco Member States on development of the 23 C/5 and that the Secretary had taken into account the views of those Chairmen of the regional and technical subsidiary bodies that had responded to his request to them on the subject. 620

The First Vice-Chairman called on IOC Member States to take appropriate action to ensure that the views of the Commission were raised at the 121st Session of the Unesco Executive Board, which would consider an Annex to the Draft 23 C/5 on the subject of possible adjustments to the Programme and Budget for 1986-1987 to be prepared by the Director-General. Likewise, she emphasized the responsibility of Member States to take action at the national level so that relevant Draft Resolutions on the IOC Programme and Budget were presented to Unesco in due time for consideration at the twenty-third Session of the General Conference, and that national representation at the Conference be adequately briefed on the desirability of according priority to the IOC component of the Unesco marine science programme. She also encouraged Member States to increase their contributions to the IOC Trust Fund, so as to complement those available under regular programme. 621

The First Vice-Chairman informed the Assembly of the mission she had undertaken to the United States at the request of the Chairman. She stressed the positive response of officials of the Government of the United States, as was reflected in the statement made by the Delegate of the U.S.A. at the opening of the Assembly, and restated her conviction that the long tradition of close co-operation and support from the United States as a Member State of the Commission would not be altered by the present circumstances. 622

In responding to requests for clarification made by a certain number of Delegates, the Secretary provided additional information on the steps taken 623

by the Secretariat in formulating the Draft 23 C/5, as well as the rationale that had been followed in responding to the instructions of the Director-General in accordance with the decisions of the Unesco Executive Board at its 120th and 4th Extraordinary Sessions. He noted that the Categories of '1st' and '2nd' priority and the 'options' had been interpreted in terms of the Commissions's programme as those actions having a mandatory, vital and desirable character. He further stressed the deep understanding of the Director-General and the Assistant Director-General for Science of the Commission's needs and of their willingness to respond positively to its requests, as demonstrated by the efforts they have made to protect the IOC programme and budget and, indeed, to identify additional funding. Likewise, he acknowledged with appreciation the guidance and advice he had received from the Officers of the Commission, especially the First Vice-Chairman, as well as from the Chairmen of the subsidiary bodies.

624 Many Delegates voiced their appreciation of the Draft Programme and Budget proposed by the Secretary, noting that, in general, it was well balanced and reflected the guidelines provided by the Assembly and Executive Council. While there was general recognition that preparation of the reference documents had been dictated by the state of revision of the Draft 23 C/5 within Unesco, some Delegates stressed the difficulties caused by this situation in preparing appropriate position statements.

625 Many Delegates referred to the wide range and large number of activities approved by the Commission and the resultant heavy workload on a relatively small Secretariat. Some Delegates felt that it was better to concentrate on fewer projects. Others offered suggestions as to how staff resources could be better used; for example, by sharing implementation of certain components of the programmes with their respective Officers and/or with other organizations.

626 The Delegate of Sweden, speaking on behalf of the Nordic Group, called for the most efficient use of resources by the Commission and the Unesco Division of Marine Sciences and the avoidance of any duplication. He stated that the relationship between the two entities would be scrutinized at the next Unesco General Conference. He also referred to an artificial separation between Programme X.4 (The Ocean and its Resources) and X.5 (The Management of Coastal and Island Ecosystems). He proposed that a small group be established to examine the programmes of the Commission and the Division to help them to become more efficient, more streamlined and capable of producing better results.

627 The Delegate of the Federal Republic of Germany was concerned by the increasing amount of funds being assigned to travel by IOC Staff, Officers and Consultants, and called for greater selectivity in IOC representation and attendance at meetings. He also called for greater efforts to reduce the duration of IOC meetings.

628 Some Delegates felt that the funds available to assist Member States, although consistent with the policy of the Commission, were not sufficient to meet identified needs.

629 In response to the concern expressed by a few Delegates regarding proposals for growth during a period of austerity, the Representative of Unesco pointed out that the budget proposals of the IOC and the Division of Marine Sciences had been made within an overall zero growth in the budget ceiling of Unesco, and that any growth for the IOC's and Division's programmes had

been obtained by the re-allocation of financial resources within the Organization.

The Delegate of Brazil stated that his country gives top priority to the Commission in the Unesco budget. The budget of the Commission should be increased even within a zero-growth budget of Unesco. He considered the budget proportions between the IOC Programmes and between the modalities of implementation to be well thought out. 630

The Delegate of Japan reaffirmed his Government's commitment to a zero-growth budget for Unesco as a whole, while expressing its appreciation of IOC programme, especially TEMA and WESTPAC activities. However, he reserved his Government's position and the right to discuss the programme and budget of Unesco - including that of the IOC - at the forthcoming session of the Unesco Executive Board and Twenty-Third Session of the General Conference. 631

The Delegate of Mexico reminded the Assembly that DR. 356, presented by a number of countries to the Twenty-Second Session of the General Conference in 1983, was still relevant. He noted that the General Conference offered an opportunity for IOC Member States, through national representation at the Conference, to support the Commission's position that the IOC programme as found in Programme X.4 on the Ocean and its Resources be accorded priority. He restated the view of his Government that consideration should be given to adjusting the Medium-Term Plan so as to ensure that the marine science programme of the Organization, as given in Programme X.4 and X.5, could be implemented as an integrated programme. He suggested that this could be best achieved by merging the marine components of these Programmes into a single element, thus responding to the views of the Unesco Executive Board on the need for concentration. 632

The Assembly recognized that the overall regular programme budget of the Commission was indeed modest when compared with programme requirements and recalled that the organization of major workshops and training exercises are dependent upon the identification of extra-budgetary funding, complemented by seed money from the Regular Budget. 633

The Assembly also recognized that the Unesco-IOC Comprehensive Plan for a Major Assistance Programme to Enhance the Marine Science Capabilities of Developing Countries was an essential element in the mustering of extra-budgetary support through regional and subregional assistance projects. 634

The Assembly agreed that the present situation confronted by Unesco required that Member States muster all possible support at the national level for the IOC Programme and Budget and the views of the Commission should be reflected, whenever possible, in representation at the Twenty-Third Session of Unesco General Conference to be held in Sofia, October/November 1985. 635

The Assembly recognized the need to ensure the most efficient use of the staff and operational funds made available to the Commission, particularly during a period of potential austerity, and to be especially vigilant in regard to duplication of effort or overlap with other Organizations. At the same time, the Assembly noted that the Commission's unique role as the only marine scientific intergovernmental body within the United Nations System carried with it certain functions in a relatively wide range of endeavours. (See also Agenda Item 11.2, below) 636

637 The Assembly recognized the need to carefully weigh the staff resource implications in any decisions on the programme and budget.

638 The Delegate of Canada thanked the First Vice-Chairman and the Secretary for their comprehensive and coherent presentation of the budget and background information, and made a number of suggestions for improvement in the statistical summaries.

639 The Assembly agreed that, if the approved budget for the Biennium 1986-1987 falls short of that required for full implementation of the Commission's planned programme, the Secretary shall, after due consultation with the Chairman and Vice-Chairmen of the Commission and with the appropriate elected officers of subsidiary bodies, take as priority for action the established programmes of the Commission and the participation of all IOC Member States therein.

640 The Assembly instructed the Secretary to include, when preparing future financial reports to the Governing Bodies, a more detailed breakdown of the budget so as to provide more precise information on financial allocations to the various IOC programmes, particularly in regard to TEMA and regional activities.

641 The Delegate of the United States announced the secondment to the IOC Secretariat of another expert to assist in the activities being promoted by the Joint SCOR-IOC Committee on Climatic Changes and the Ocean (CCCO), in collaboration with the Secretary of the Committee, whose post is also supported through funding from the United States. He also noted that secondment of an expert to serve as IGOSS Operations Co-ordinator would be continued when the present incumbent returned to the United States after a three-year secondment to the Secretariat.

642 The Delegate of the USSR announced that, in addition to an expert who was assisting the Secretariat on matters concerning ocean processes and climate, the services of another expert would be placed at the disposal of the Commission through secondment, to assist with the implementation of regional activities and ocean mapping.

643 The Assembly thanked the Delegates of the U.S.A. and USSR for their generous offers to provide supplementary staff to the IOC Secretariat.

644 The Assembly adopted Resolutions XIII-15 and XIII-16.

11.2 PROGRAMME AND BUDGET OF THE UNESCO DIVISION OF MARINE SCIENCES, 1986-1987

645 The Director of the Division of Marine Sciences, Dr D.C. Krause, introduced this item. He noted that the Assembly was faced with the challenge of reviewing, in a short time, a programme that, in some ways, was as full as the IOC programme which had been discussed by the Assembly over the past two weeks. The Assembly had before it the Proposed Draft Programme and Budget of the Division for 1986-1987 (Draft Document 23 C/5), the Approved Programme and Budget for 1984-1985 (22 C/5), and an analysis of the earlier programme through 1983. The programme in fact is jointly planned and executed by the Division and the Unesco Regional Offices of Science and Technology.

646 The Director of the Unesco Division of Marine Sciences stated that the main functions of the Division of Marine Sciences are: (i) the global promotion of marine science; and (ii) particularly, the promotion of marine science in the developing countries (i.e., the development of marine science in these countries.

647 The Marine Science Programme of the Division is characterized by close collaboration with the international non-governmental scientific community such as SCOR to develop research programmes which simultaneously link scientists in developing and developed countries, and are particularly relevant to the former. By combining these research programmes with the development of marine science manpower and infrastructure, the basis is formed for strengthening marine science in countries that are developing their capabilities in this field. This strategy integrates national marine science infrastructure development, manpower development and research programme development in a mutually supportive system of inseparable components. Unesco activities are used to catalyse the establishment of extra-budgetary marine science development projects (e.g., UNDP and Funds-in-Trust), which are seen as a larger-scale implementation phase aimed at the same long-term goals. It is also noteworthy that an inherent character of research is that it simultaneously generates new knowledge and provides intensive training. Marine science training thus has two indispensable components: (i) learning through research; and (ii) learning through formal course work.

648 As presently formulated, the proposed Draft 23 C/5 Budget of the Division for 1986-1987 (not including staff and overhead costs) consists of a Regular Programme component of US $2,120,000 and a Participation Programme component of about US $144,000, all but $23,000 of which is in Programme X.4 'The Ocean and its Resources' and X.5 'Management of Coastal and Island Systems'. About 60 per cent of the budget is given as first priority activities and the rest as second priority. In response to decisions of the Unesco Executive Board concerning priorities and within a budget of zero growth for Unesco as whole, there has been an increase in the Division's budget by reallocation of funds from cancelled posts within the Science Sector plus reallocation of US $200,000 from elsewhere in the Unesco zero-growth envelope for additional second-priority activities. The Unesco General Conference will decide at its Twenty-Third Session (Sofia, 8 October - 12 November 1985) on which activities to approve.

649 Within the context of the 25th Anniversary of the IOC, the programme of the Division of Marine Sciences represents the product of over a decade of evolution and development with the International scientific community and the Member States. One of the most visible outputs available are the publications and documents of the Division of Marine Sciences, which were on display during the present Session. These publications and documents constitute an extensive set of state-of-the-art analysis and recommendations and manuals of methodology for research. Over half of these are prepared in close co-operation with the international scientific community mostly as represented by the Scientific Committee for Oceanic Research (SCOR). Much of the remainder concerns the application of the global approach to regional problems. A less visible product is the trained scientists, laboratories and graduate programmes developed by Unesco.

650 Unesco does follow the relevant recommendations of the various bodies of the Commission where feasible. For example, every concrete recommendation (except one) of the Working Committee for Training, Education and Mutual

Assistance (Lisbon, 4-9 June 1984) at its Fourth Session, has been incorporated into the Division's programme for 1985 and the proposed programme for 1986-1987 (23 C/5); e.g. on strengthening university programmes in marine geoscience and on the teaching of marine science in Africa.

651 In another example in response to Resolution XII-10 of the Twelfth Session of the IOC Assembly, the proposed Draft Programme and Budget for 1986-1987 (23 C/5) clarifies within Programme X.5 (Management of Coastal and Island Systems) the implementation of two components: 'Programme X.5 consists of two components, one marine, executed in the framework of the Major Interregional Project for Research and Training Leading to the Integrated Management of Coastal Marine Systems (COMAR), and the other terrestrial, executed in the framework of the Programme on Man and the Biosphere (MAB)'. COMAR is part of the Division's programme.

652 The Director of the Division of Marine Sciences indicated that co-operation with the Commission occurs on many levels. There are numerous examples of jointly sponsored meetings, weekly meetings of staff of the Secretariats and informal daily programmatic contact, early exchange of budget documents, review of the Division's reports and budgets by the IOC Executive Council and IOC Assembly, etc. In order to bring more closely together the Division's COMAR programme and the IOC's regional programmes, he proposed that the Subcommission for IOCARIBE and the Programme Group for WESTPAC each designate a scientist to serve in his/her personal capacity on the Unesco-SCOR-IABO Consultative Panel on Coastal Systems. The Panel advises the Division on the COMAR project and will next meet in 1986. He considered the proposal (in Draft Resolution 15) to establish a neutral working group to examine and make recommendations to improve the complementarity of the programmes of the Division and IOC to be a positive step towards ensuring the most effective use of Unesco funds.

653 The Secretary stated that the comprehensive review provided by the Director of the Division of Marine Sciences offered a good basis for discussion of the Division's programmes and its interface with that of the Commission. Close co-operation was maintained between the two Secretariats and, although there was always room for improvement, he felt that formulation of the programmes demonstrated this. On the other hand, some clarification regarding the mechanisms through which the programmes of the Division and of IOC were implemented, particularly at the regional level, is required to optimize results.

654 Delegates expressed their appreciation of the excellent report that had been presented and, in particular, the explanation given in regard to the historical development of the Division's programme as well as the strategy and approach defined for its implementation.

655 Many Delegates expressed the view that even closer co-operation between the Division and IOC and a clearer delineation of tasks would facilitate implementation of the programmes within the perpective of working towards the common goal of strengthening international marine science at all levels.

656 Several Delegates, in referring to the technical assistance projects undertaken in their countries, stressed the important work accomplished by the Division in developing national infrastructure and manpower resources.

657 Some Delegates, referring to the importance of coastal marine research to their national economy as well as to its interface with marine studies as

a whole, emphasized the need to consider Programme X.4 and the marine science component of Programme X.5 as a single element within the programme and budget of Unesco. Likewise, it was felt that appropriate technical assistance projects should be developed under the strategy set forth in the Unesco-IOC Comprehensive Plan for a Major Assistance Programme to Enhance the Marine Science Capabilities of Developing Countries, drawing on the experience of the Division and the Commission.

658 The Delegate of the Netherlands announced that an international symposium on the Snellius-II Expedition, a co-operative effort between his country and Indonesia, would take place in 1987 and requested the Division to make provision in the 1986-1987 biennial budget for funds to promote international participation.

659 The Assembly instructed the Secretary, in collaboration with the Director of the Division of Marine Sciences, to provide additional information to Sessions of the Assembly and Executive Council on the complementarity of activities undertaken within the two programmes, as well as areas where there are distinct differences.

660 The Assembly welcomed the proposal made by the Director of the Division of Marine Sciences that the Chairmen of the IOC Subcommission for IOCARIBE and of the Programme Group for WESTPAC designate a scientist to participate in the work of, and ensure liaison with, the Unesco-SCOR-IABO Consultant Panel on Coastal Systems.

661 The Assembly decided that, particularly in a period of austerity, great attention must be given to the best possible use of available resources, and the clarification of the respective roles of the IOC and the Division would be a useful step towards identifying gaps and reducing possible duplication of effort.

662 The Assembly, in spite of the possible reduction of resources due to economy measures within Unesco, invited Unesco to support the Commission's programme to the fullest extent possible.

663 The Assembly adopted Resolution XIII-17.

12. CO-OPERATION WITH OTHER ORGANIZATIONS OF THE UNITED NATIONS SYSTEM AND OTHER BODIES

12.1 TWENTY-THIRD SESSION OF THE INTERSECRETARIAT COMMITTEE ON SCIENTIFIC PROGRAMMES RELATING TO OCEANOGRAPHY (ICSPRO)

664 In introducing this item, the First Vice-Chairman referred to the 'Proposal for an Action Plan for the Formulation of LEPOR-II' (Document IOC-XIII/8 Annex 3), the Summary Report of the Twenty-Third Session of the Intersecretariat Committee on Scientific Programmes Relating to Oceanography (ICSPRO) (Document ICSPRO-XXIII/3), and an appraisal thereof (Document IOC/INF-619). She noted that the Twenty-Third Session of ICSPRO once again had demonstrated the efficient and effective interaction between Member Organizations as well as the important contribution made by IOC as a joint specialized mechanism for co-ordination of marine affairs and related matters. In this respect, notable progress had been made during the intersessional period in the strengthening of joint activities, marine information management and plans to revise and update the Long-term and

Expanded Programme of Oceanic Exploration and Research (LEPOR). She also pointed out that the proposed Marine Science Country Profiles, which would be prepared in co-operation with interested Member Organizations, would be of value to both industrialized and developing countries in that a comprehensive overview of marine science at the national level would serve the interests of the marine science community as a whole, as well as those of governmental decision-makers. In concluding, the First Vice-Chairman emphasized that the Committee had recognized 'that it was particularly desirable, during a period of austerity, to maximize mutual benefits through close collaboration on programmes and activities of common interest to Member Organizations and their respective Member States. In this context, the Intersecretariat Committee had also 'expressed concern in reference to the decision of IMO to change the assignment of its outposted staff officer and requested the Secretary to inform the Secretary-General of IMO of their hope that this situation would be quite temporary'.

665 Professor Warren Wooster was requested to provide background information regarding the formulation of a new phase of LEPOR, in view of the assistance that he had provided to the IOC Secretariat in preparing, in his personal capacity, the proposals which had been considered by ICSPRO. He reminded the Assembly of the original premise upon which LEPOR had been developed over 15 years ago and of the manifold changes in international marine affairs which had transpired since. Not the least among these is, on the one hand, the evolution in marine scientific knowledge and, on the other, the increased interest and potential of an ever-growing number of Member States to acquire such knowledge as a result of the new ocean regime and its attendant responsibilities. He recalled that, as a first step towards the development of a new phase of LEPOR, the IOC scientific advisory bodies had prepared, on behalf of the Commission and Unesco, the report on 'Ocean Science for the Year 2000' which had been presented to the Twelfth Session of the Assembly following review by the international marine science community.

666 The ensuing discussion addressed the principle of a second phase of the expanded programme (LEPOR-II) as well as the required modalities, as agreed upon by the Organizations Members of ICSPRO. The Assembly agreed that the basic purpose of LEPOR, adopted in 1969, continues to be appropriate: 'to increase knowledge of the ocean, its contents and the contents of its subsoil, and its interfaces with the land, the atmosphere and the ocean floor and to improve understanding of processes operating in or affecting the marine environment with the goal of enhanced utilization of the ocean and its resources for the benefit of mankind'.

667 Most of the Delegates approved the proposal and the opportunity it offered to present a cohesive framework for international marine research. They likewise emphasized the valuable contributions which the Chairmen of IOC subsidiary bodies could make and suggested that their respective fields of expertise should be taken into consideration in the composition of any expert group that was convened on the subject. Many Delegates felt that the scientific advisory bodies of the Commission, especially SCOR, should play an active role in the further review of the proposed outline for LEPOR-II.

668 The Chairman of ACMRR stated that ACMRR, in its advisory capacity to both FAO and IOC, would be most interested in contributing to the exercise.

The President of SCOR, referring to the long tradition of close collaboration between his Organization and IOC, stated that SCOR was prepared to assist in this endeavour if this was the wish of the Commission. 669

Some Delegates, while endorsing the concept of LEPOR-II, expressed the opinion that, in so far as IOC was concerned, those programmes officially approved by the Commission and undertaken jointly with other United Nations bodies, should constitute the nucleus for LEPOR-II, as was implied in the proposed action plan. 670

Although some concern was expressed regarding the proposed timetable, the Assembly recognized the desirability of transmitting a framework for LEPOR-II to the United Nations General Assembly, through ECOSOC, by the proposed dates of Autumn 1986 and instructed the Secretary IOC to present a progress report to ECOSOC at its Second Regular Session of 1985 so that the principle of review would be established. 671

In regard to the preparatory stages endorsed by ICSPRO, the Assembly agreed that: 672

(i) an initial draft for LEPOR-II, based upon the outline in Document IOC-XIII/8 Annex 3, could be developed by the Secretariat in close collaboration with the Secretariats of the Organizations Members of ICSPRO and with the assistance of a few experts, appointed by them, with broad experience in international marine research in the fields of competence of the Organizations concerned (e.g., fisheries, meteorology, etc.);

(ii) this draft, to be completed by June/July 1985, should be presented to an expert group, to be organized under the auspices of the scientific advisory bodies of the Commission, in consultation with the Secretary of ICSPRO and the Secretariats of the United Nations Organizations Members of ICSPRO, which would also be represented at the expert consultation;

Among other matters, 673

(iii) the expert group should be requested to take into account the needs and interests of the marine scientific community in identifying programmes that would contribute to the purpose of LEPOR, as well as the special responsibilities of international organizations in responding to the applied scientific requirements of their Member States.

The Assembly adopted Resolutions XIII-18 and XIII-19. 674

12.2 INTERNATIONAL COMMISSION FOR THE SCIENTIFIC EXPLORATION OF THE MEDITERRANEAN SEA (ICSEM)

The Secretary introduced this item. He informed the Assembly that a memorandum of understanding on co-operation between IOC and ICSEM had been signed in May 1984, thus formalizing and creating the basis for the further enhancement of the co-operation that had been going on for many years. The First Vice-Chairman and two members of the Secretariat had attended the 27th General Assembly and Plenary of ICSEM in Lucerne in October 1984, and the First Vice-Chairman addressed the Plenary on the development of co-operation between the two organizations. He also informed the Assembly that he had proposed to the Secretary General of ICSEM: (i) to review the work of the 675

IOC-ICSEM Operational Unit for the Mediterranean with a view to enhancing its usefulness to the two organizations and their Member States; (ii) to discuss possible co-operation in the study of the Physical Oceanography of the Eastern Mediterranean (POEM), for which a Steering Committee of Scientists under the Co-chairmanship of Professor Alan Robinson and Dr Paola Malanotti-Rizzoli had been set up with the support of Unesco; it is expected that this study will be approved at the next session of the Bureau of ICSEM in May 1985; (iii) to further develop co-operation between IOC, ICSEM and UNEP in the study of the marine pollution and monitoring of the Mediterranean Sea; and (iv) to discuss possible co-operation in marine geological studies in the region.

676 The Secretary also reported on ongoing IOC actions in the Mediterranean and the intention to promote IODE and TEMA activities in the region. Beside IBCM and the preparation of related overlay sheets, the IOC is organizing in Venice (23-25 October 1985) a Workshop to Review the Scientific Results of MEDALPEX, with a view to defining future co-operative studies of the physical processes and dynamics of the western Mediterranean. With this in mind, some preliminary contacts have been established with experts from the region who participated in MEDALPEX, with a view to developing research projects on ocean processes and dynamics in the western Mediterranean and a tide-gauge network in the context of the proposed IOC Global Sea-level Observing System.

677 The Representative of the International Commission for the Scientific Exploration of the Mediterranean Sea (ICSEM) expressed the regrets of the Secretary-General at not being able to attend the Assembly owing to prior obligations and the satisfaction of ICSEM with the signature of the Memorandum of Understanding in May 1984. The Representative indicated that discussions on co-operation between IOC and ICSEM could be undertaken on the following subjects: (i) the organization of the VIIIeme Journée d'Etudes sur les Pollutions marines en Mediterranée (in collaboration with UNEP); (ii) a proposal for a multi-disciplinary research study of the continental slope (of the Mediterranean), the preparatory documents for which were officially submitted to IOC in 1985; (iii) a proposal for a research programme on the physical oceanography of the eastern Mediterranean, which has been developed by the Physical Oceanography Committee of ICSEM; (iv) a proposal for a long-term study of pollution of the open sea (in response to IOC Resolution XII-4); (v) the development of Mediterranean mapping exercises; and (vi) the implementation of other programmes developed by various ICSEM Scientific Committees.

678 Several Delegates from the region expressed their satisfaction with these efforts to develop co-operation between IOC and ICSEM, as well as with other relevant international organizations active in the region. They also stressed the importance of acting jointly or in a co-ordinated manner in carrying out the numerous marine scientific activities going on in the region, so as to maximize the benefits to Member States and to facilitate the work of the scientific community concerned.

679 Some Delegates informed the Assembly of ongoing programmes, such as the Italo-Yugoslav Co-operative Programme on Pollution of the Open Sea, and the European Geotraverse.

680 The Assembly noted with satisfaction the prospects for increased co-operation between IOC and ICSEM through activities of mutual interest to both organizations and to the Member States of the Mediterranean Region, particularly the proposed Programme of Physical Oceanography of the eastern

Mediterranean (POEM) prepared by the ICSEM Physical Oceanography Committee with the support of Unesco.

The Assembly welcomed the preparation of the proposal on POEM, now under consideration by ICSEM, and encouraged joint support for it by Unesco and IOC. 681

The Assembly instructed the Secretary to provide support to the POEM Programme, inter alia, through IOC's Ocean Services and TEMA, and to seek close co-operation with ICSEM and Unesco in the POEM study. 682

12.3 COMISION PERMANENTE DEL PACIFICO SUR

The Secretary-General of CPPS, Dr Luis Arriaga, introduced this item. He first presented a description of the different activities co-ordinated by the CPPS in the south-east Pacific region. Then he informed the Assembly of the signature of a Memorandum of Understanding between IOC and CPPS which formalizes the co-operation between the two intergovernmental organizations. The main joint activities have been developed through the follow-up of the ERFEN Programme, including support provided by IOC for the bilingual (Spanish-English) publication of the ERFEN Bulletin, now distributed to about 1,000 interested scientists and institutions. Scientists of the CPPS countries have participated actively in the formulation of the Sardine/ Anchovy Recruitment Project (SARP) under OSLR. The IOC has provided assistance in the implementation of regional marine pollution research and monitoring. Close contacts have been maintained in the follow-up and improvement of the IODE and IGOSS systems in the south-east Pacific. 683

The Secretary-General mentioned the main forthcoming activities for which IOC support was foreseen: the Second International Symposium on El Niño, now planned for mid-1986 in Guayaquil, Ecuador; the organization of a regional training course in observation techniques and data management for studies related to ocean processes and climate; and the conduct of a regional intercalibration exercise on oil pollution monitoring as part of IOC assistance to the UNEP-CPPS Action Plan for the south-east Pacific. 684

The Secretary-General reported on a new IOC-CPPS initiative regarding the project on training, education, research and monitoring in relation to the Phenomenon of El Niño, which is a joint approach to the IDB for funds for the main components of this proposal. Finally, and taking into account the various aspects of IOC-CPPS co-operation, he requested the Secretary IOC to explore possibilities among Member States for an associate technical secretary to be seconded to the IOC to work in the CPPS Secretariat. 685

The Secretary of IOC commended the efficient and permanent liaison developed between both organizations in the implementation of regional activities of mutual interest. 686

Several Delegates expressed their interest in the way that co-operation between IOC and CPPS has been conducted and continually increased. 687

The Delegate of Peru pointed out the important catalytic role played by IOC in the various regional activities of CPPS and asked for the continuing support of IOC Member States to these activities. 688

689 The Delegate of Chile called the attention of the Assembly to the extraordinary research effort made by the CPPS countries during the 1982-1983 El Niño and likewise asked for continuing support to these activities. He recalled the confirmation of Recommendation El Niño-III.1, at the Fourth Session of the Joint IOC-WMO-CPPS Working Group on the Investigation of El niño.

690 The Assembly noted with satisfaction the continual progress in the co-operation between IOC and CPPS.

691 The Assembly requested Member States to further strengthen this fruitful co-operation and consider the request made by the Secretary-General of CPPS to second, through IOC, an associate technical secretary to the CPPS Secretariat.

13. ELECTIONS

692 The Chairman informed the Assembly that there were 28 candidates for 27 seats on the Executive Council, not counting the Officers, but that the number of Member States had increased by two, from 110 to 112, since the last Session of the Assembly. By amending Rule of Procedure No.18, following the criteria agreed at the Twelfth Session of the Assembly, the number of seats on the Executive Council, not counting the Officers, could be increased by one, from 27 to 28, in which case no formal election would be necessary.

693 The Assembly adopted Resolution XIII-20

13.1 ELECTION OF THE OFFICERS OF THE COMMISSION

694 The First Vice-Chairman, Ms Marie-Annic Martin-Sané, took the Chair for the election of the Chairman of the Commission.

695 Professor Inocencio Ronquillo was the sole candidate and was elected by acclamation.

696 He re-assumed the Chairmanship and informed the Assembly that there was only one candidate for each post of Vice-Chairman; all were well known to the Commission and needed no introduction.

First Vice-Chairman - Ms Marie-Annic Martin-Sané (France)
Second Vice-Chairman - Dr José Antonio Galavis Seidel (Venezuela)
Third Vice-Chairman - Dr Klaus Voigt (German Democratic Republic)
Fourth Vice-Chairman - Mr Samuel Allela (Kenya)

These four candidates were then elected by acclamation.

13.2 ELECTION OF THE MEMBERS OF THE EXECUTIVE COUNCIL

697 The Chairman informed the Assembly that by Rule of Procedure No.18, as amended by Resolution XIII-20, there were 28 seats on the Council, not counting Officers, and 28 candidates. He suggested that they be elected by acclamation.

698 The Assembly accepted the Chairman's suggestion and so elected the remaining seats on the Council.

The present Officers of the Commission and the Member States of the Executive Council, as well as the List of Member States of the Commission are given in Annex IV hereto. 699

The Delegate of Egypt informed the Assembly that he attached considerable importance to appropriate geographical representation on the Council, and would present a proposal to a subsequent session. 700

The Delegate of Brazil, supporting the Delegate of Egypt, stressed that the election by acclamation of all the countries nominated for seats to the Executive Council of IOC did not prejudice further adequate consideration of equitable geographical distribution in the membership of the Executive Council, in the light of the present situation of over-representation of certain electoral groups. 701

14. DATE AND PLACE OF THE FOURTEENTH SESSION OF THE ASSEMBLY AND THE NINETEENTH SESSION OF THE EXECUTIVE COUNCIL

The Secretary introduced the item. He suggested that the Fourteenth Session of the Assembly take place in the first quarter of 1987 and the Nineteenth Session of the Executive Council in the first quarter of 1986. 702

Some Delegates expressed their concern that the change from the autumn of the year to the spring, agreed at the last Session of the Assembly with a view to avoiding the difficulties caused by the closeness of the main session of the Unesco Executive Board (September/October), had not had the desired effect of facilitating preparation and distribution of documentation, as required by Rule of Procedure No.11. 703

However, the Delegate of the United Kingdom pointed out that the very important Unesco C/4 (Medium-Term Plan) and C/5 (Programme and Budget) documents are prepared following the main Unesco Executive Board session (September/October) and are comparatively firm by the time of a spring Assembly or Executive Council. Therefore, the Commission is not usually able to exert the required influence on these documents as far as the marine science programme is concerned. 704

Several Delegations thought that the timely distribution of documents was the most important factor and one went so far as to suggest that the time of a session should be decided in the light of document availability, with a decision to postpone being made by the Officers in consultation with the Secretary. 705

This led to a considerable discussion on the duration of sessions and, therefore, the manner in which they are planned and conducted. The reduction of documentation to the absolutely essential was considered necessary, with consideration being given to requiring the Officers and Chairmen of subsidiary bodies to prepare and submit intersessional reports. Although the idea of Technical Sessional Committees followed by plenary sessions was considered desirable, to allow a distinction between scientific and policy questions to be made, this tended to extend the time required for the Assembly; also, many Delegations have only one member, so that technical sessions could not be in parallel with plenary (policy) sessions. 706

The Delegate of the Federal Republic of Germany recalled the instructions of the Executive Council to the Secretary regarding the possible 707

shortening of the Thirteenth Session of the Assembly. He deplored the fact that it had not been possible to accommodate the Agenda of the present Session in a two-week period as envisaged by the Executive Council. He pointed out that the long duration of the Session severely affects continuous attendance at the meeting by scientists and other experts from many Member States. In order to accommodate the Fourteenth Session of the Assembly and the Twentieth Session of the Council, in fourteen days at most, and to make the sessions even more attractive he offered the following proposals: (i) Agenda items should, whenever possible, be introduced by elected Officers of the IOC and its subsidiary bodies. The introductions should be restricted to policy matters and general comments (including criticisms) avoiding any repetition of reports that had been circulated or tabled. No verbal summaries of discussions should be presented. (ii) Member States should be invited to produce national report and position papers, structured, if possible, along the lines of the Agenda. Those national papers should be distributed by the Secretariat at the opening of the Session and should replace verbal statements by Delegates. The national report and position papers might provide a very useful basis for the Summary Report. They will improve the exchange of information between Member States as well as contribute to the preparation of Marine Science Country Profiles. (iii) Short interventions by many speakers focussing on the salient items of the Agenda would make the Session more attractive to experts working in the field and would contribute to the general participation in IOC. Verbal interventions by Delegates should be mainly limited to proposals and criticisms with respect to past and future actions and on general policy of IOC.

708 He recognized that the Action Paper prepared by the Secretary has proved useful. It should be circulated well in advance of the Session so as to facilitate briefing of the national delegations and hence expedite the deliberations of the Assembly. A format for drafting of Resolutions should be produced and adhered to as another measure for more effective work of the Assembly.

709 The Delegate also addressed the timetable of the Executive Council. He felt that the Agenda of the Seventeenth Session had been loaded with too many items that did not ask for action according to the mandate of the governing bodies of the Commission. He saw needs and possibilities to reduce the Agenda of the Executive Council so as to cope with it in four working days, adding two more days for informal discussions as referred to in DR.21.

710 The Delegate of Argentina pointed out that many developing countries were unable to attend so many meetings as organized by the Commission and he stressed the need for careful planning and scheduling of meetings, and substantial advance notice to facilitate decisions to attend.

711 The Delegate of Mexico believed that, besides the important matters raised under the present Agenda Item, the preparation of Executive Summaries by the Chairmen, Assistant Secretaries and Rapporteurs of each meeting of a subsidiary body was very important. Even so, all the measures proposed would have to be implemented in a co-ordinated manner to make them viable.

712 In accordance with the request to the Resolutions Committee by the Executive Council at its Seventeenth Session, the Chairman of the Resolutions Committee proposed a new approach to Resolutions of the governing bodies (and, secondarily, those of the subsidiary bodies). The proposal for procedures to review past Resolutions is given in Annex VI to the present

Report, but the Chairman of the Resolutions Committee stressed that this review would affect the way current Resolutions are prepared and adopted.

The Delegate of Brazil believed that the Resolutions Committee should be a forum of negotiation of Draft Resolutions, as a means of avoiding prolonged discussion on divergent points of view in the Plenary. In order to facilitate its work, the Committee should therefore meet with interpretation services. 713

The Delegate of Japan said he understood the purpose of the Resolutions Committee to be an arbiter of form, precision and general content rather than of substance, and in no way jeopardized a Delegate's right to propose changes at any time before adoption. He informed the Assembly that, as long as the 23 C/5 has not been adopted, and especially in view of the withdrawal of the U.S.A. from Unesco, his country could not commit itself to the budgetary implications of any Draft Resolution adopted by the Session. 714

The Assembly accepted the guidelines proposed by the Resolutions Committee regarding a system for reviewing and making compatible, inter se, previous and current Resolutions of the IOC governing and subsidiary bodies, and instructed the Secretary to implement the proposal. 715

The Assembly recognized the usefulness of many of the suggestions made and requested the Chairman and Vice-Chairman, in collaboration with the Secretary, to submit to the next session of the Executive Council proposals for shortening sessions of the governing bodies and making them more efficient. 716

Notwithstanding the arguments adduced in favour of a return to the autumn, the Assembly decided that the Nineteenth Session of the Executive Council should be held at Unesco, in Paris, in February or March 1986. It also decided that its Fourteenth Session should be held at the same time of the year, in 1987. 717

The First Vice-Chairman informed the Assembly that she had sounded several distinguished personalities in the field of marine science on the subject of the next Bruun Memorial Lectures, and the prevailing recommendation had been to consider marine science at the regional level, since the implementation of the Commission's marine scientific activities is being pursued increasingly at the regional level. Among suggested topics were: monsoons in the Indian Ocean, El Niño phenomenon, Antarctic ecosystems, tectonics in the western Pacific, and red tides or other exceptional plankton blooms. The First Vice-Chairman invited other suggestions; she remarked that only three lectures would be given, so as to allow adequate time for discussion. 718

The Assembly decided that the theme for the 1987 Bruun Memorial Lectures will be regional marine science, and invited the First Vice-Chairman to elaborate the possible subjects to be considered at the Nineteenth Session of the Executive Council. 719

15. ADOPTION OF THE SUMMARY REPORT

The Assembly adopted the Draft Summary Report, authorizing the Secretary to make appropriate corrections and editorial adjustments, particularly as regards the reduction of introductory information material where appropriate. 720

16. CLOSURE

721 The Delegate of Mexico reminded the Assembly of the fine working spirit that had pervaded this Session of the Assembly, and particularly the positive effect of the celebration of the Commission's 25th Anniversary. He stressed the substantial advances being made by the Commission, notably in the ocean sciences, ocean services and TEMA. He believed that all credit was due to the Chairman, Professor Inocencio Ronquillo, who had managed the debate fairly and handled the main problems with skill; it was, in his view, fortunate that Professor Ronquillo had been eligible for reelection.

722 The Delegate of Brazil warmly congratulated the Chairman, the Vice-Chairman, the Secretary and the other members of the Secretariat, including the supporting services (interpreters, translators, printers, etc.). He stressed his country's strong support for IOC even in the currently difficult circumstances in which Unesco finds itself. The present Session of the Assembly had, he thought, revealed a certain maturity in the Commission; the views of the developing countries had been taken more into account. It was clear that the budget question was at the core of the Commission's future work.

723 The Delegate of the United Kingdom added his congratulations to those of the Delegate of Brazil; he particularly emphasized the importance of the Documentation, Interpretation and Translation staff.

724 The Secretary expressed his appreciation of the devoted work of his staff at all levels. He thanked the Assistant Director-General for Science, Professor Abdul Razzak Kaddoura, for his continuing understanding of the problems facing the Commission and for his firm support.

725 The Chairman, in turn, thanked the Delegates, Representatives and Observers for their constructive attitudes. He particularly thanked the Director-General of Unesco, Mr Amadou Mahtar M'Bow, as well as the ADG for Science, for their firm support of the Commission. He also thanked the Secretariat staff and the interpreters for their sound support. He closed the Session at 16.30 on 28 March 1985.

ANNEX I

AGENDA

1. Opening

2. Twenty-fifth Anniversary Celebrations

3. Bruun Memorial Lectures

4. Administrative Arrangements

   4.1 Adoption of the Agenda
   4.2 Designation of the Rapporteur
   4.3 Conduct of the Session, Timetable and Documentation

5. Report on Activities of the Commission 1983-1984

   5.1 Secretary's Report on Intersessional Activities
   5.2 Adoption of the Biennial Report for 1983-1984

6. Ocean sciences

   6.1 Ocean Sciences in Relation to Living Resources (OSLR)
   6.2 Ocean Sciences in Relation to Non-Living Resources (OSNLR)
   6.3 Ocean Mapping and General Bathymetric Chart of the Oceans (GEBCO)
   6.4 Ocean Dynamics and Climate

      6.4.1 First Session of the Programme Group on Ocean Processes and Climate
      6.4.2 Joint SCOR-IOC Committee on Climatic Changes and the Ocean

   6.5 Marine Pollution Research and Monitoring

      6.5.1 The Global Investigation of Pollution in the Marine Environment (GIPME)
      6.5.2 Marine Pollution Monitoring System (MARPOLMON)

7. Ocean services

   7.1 Integrated Global Ocean Services System (IGOSS)
   7.2 Ocean Observing System

      7.2.1 Global Sea-Level Network
      7.2.2 Drifting Buoys

   7.3 International Oceanographic Data Exchange and Marine Information Management

      7.3.1 Marine Information Management

   7.4 International Tsunami Warning System in the Pacific

8. Training, Education and Mutual Assistance in the Marine Sciences (TEMA)

8.1 Fourth Session of the Working Committee for TEMA
8.2 Comprehensive Plan for a Major Programme of Assistance to Enhance the Marine Science Capabilities of Developing Countries
8.3 Improved Use of Research Vessels
8.4 IOC Voluntary Assistance Programme (VAP)

9. Implications for the IOC of Developments in International Affairs

9.1 Third Session of the Ad Hoc Task Team on the Implications, to the Commission, of the United Nations Convention on the Law of the Sea and the New Ocean Regime

10. Regional Subsidiary Bodies

10.1 First Session of the IOC Subcommission for the Caribbean and Adjacent Regions (IOCARIBE)
10.2 Programme Group for the Southern Oceans (IOCSOC)
10.3 Programme Group for the Western Pacific (WESTPAC)
10.4 Programme Group for the North and Central Western Indian Ocean (IOCINCWIO)
10.5 Programme Group for the Central Indian Ocean (IOCINDIO)
10.6 Programme Group for the Central Eastern Atlantic (IOCEA)
10.7 Fourth Session of the Joint IOC-WMO-CPPS Working Group on the Investigations of El Niño

11. Medium-Term Plan, Programme and Budget

11.1 IOC Programme and Budget for 1986-1987
11.2 Programme and Budget of the Unesco Division of Marine Sciences 1986-1987

12. Co-operation with Other Organizations of the United Nations System and Other Bodies

12.1 Twenty-third Session of the Inter-Secretariat Committee on Scientific Programmes Relating to Oceanography (ICSPRO)
12.2 International Commission for the Scientific Exploration of the Mediterranean Sea (ICSEM)
12.3 Comisión Permanente del Pacífico Sur

13. Elections

13.1 Election of the Officers of the Commission
13.2 Election of the Members of the Executive Council

14. Dates and Places of the Fourteenth Session of the Assembly and Nineteenth Session of the Executive Council

15. Adoption of the Summary Report

16. Closure

ANNEX II

ADOPTED RESOLUTIONS

Resolution number	Agenda item	Title
XIII-1	6.1	THE JOINT IOC-FAO PROGRAMME OF OCEAN SCIENCE IN RELATION TO LIVING RESOURCES (OSLR)
XIII-2	6.3	INTERNATIONAL BATHYMETRIC CHART OF THE MEDITERRANEAN AND OVERLAY SHEETS (IBCM)
XIII-3	6.3	INTERNATIONAL BATHYMETRIC CHART OF THE CARIBBEAN SEA AND PART OF THE PACIFIC OCEAN OFF CENTRAL AMERICA (IBCCA)
XIII-4	6.4.1	OCEAN PROCESSES AND CLIMATE
XIII-5	6.5	INCREASED SUPPORT FOR GIPME
XIII-6	7.1	THE INTEGRATED GLOBAL OCEAN SERVICES SYSTEM (IGOSS)
XIII-7	7.2.1	GLOBAL SEA-LEVEL OBSERVING SYSTEM
XIII-8	7.3	INTERNATIONAL OCEANOGRAPHIC DATA EXCHANGE (IODE)
XIII-9	7.3.1	MARINE INFORMATION MANAGEMENT
XIII-10	8.3	INTERNATIONAL CO-OPERATION FOR IMPROVED USES OF RESEARCH VESSELS
XIII-11	8.4	IOC VOLUNTARY CO-OPERATION PROGRAMME (IOC-VCP)
XIII-12	9.1	STRENGTHENING LIAISON BETWEEN THE MEMBER STATES AND THE SECRETARIAT
XIII-13	9.1	REPORT OF THE THIRD SESSION OF THE AD HOC TASK TEAM TO STUDY THE IMPLICATIONS, FOR THE COMMISSION, OF THE UN CONVENTION OF THE LAW OF THE SEA AND THE NEW OCEAN REGIME
XIII-14	10.1	IOC SECRETARIAT SUPPORT FOR THE IOC SUBCOMMISSION FOR THE CARIBBEAN AND ADJACENT REGIONS (SC-IOCARIBE)
XIII-15	11.1	FUNDS-IN-TRUST CONTRIBUTIONS TO THE COMMISSION
XIII-16	11.1	IOC PROGRAMME AND BUDGET 1986-1987
XIII-17	11.2	PROGRAMME AND BUDGET OF THE UNESCO DIVISION OF MARINE SCIENCES
XIII-18	12.1	COLLABORATION WITH THE UNITED NATIONS AND CERTAIN SPECIALIZED AGENCIES (FAO, IMO, UNESCO, WMO) UNDER THE PROVISIONS OF THE ICSPRO AGREEMENT
XIII-19	12.1	FORMULATION OF LEPOR-II
XIII-20	13	MEMBERSHIP OF THE EXECUTIVE COUNCIL

Resolution XIII-1

THE JOINT IOC-FAO PROGRAMME OF OCEAN SCIENCE IN RELATION TO LIVING RESOURCES (OSLR)

The Intergovernmental Oceanographic Commission,

A

Recalling Resolution XII-1 which adopted the Programme of Ocean Science in Relation to Living Resources (OSLR) as a new major scientific programme of the Commission,

Noting with satisfaction that FAO has decided to co-sponsor the OSLR Programme,

Also noting the willingness of Unesco, through its Division of Marine Sciences, SCOR, ACMRR and IABO, and a number of regional organizations, notably ICES and CPPS, to co-operate in this Programme,

Approves the Summary Report and Recommendations of the First Session of the Joint IOC-FAO Guiding Group of Experts on the Programme of Ocean Science in Relation to Living Resources (Document IOC-FAO/GGE-OSLR-I/3);

Urges flexibility in implementing OSLR components and expansion of appropriate activities to additional regions particularly within the Indian Ocean;

B

Noting the proposals resulting from the IOC-FAO Expert Consultation on the Sardine/Anchovy Recruitment Project (SARP), in La Jolla, California, November 1984, organized in the framework of OSLR,

Accepts the proposal for an Eastern Pacific Sardine/Anchovy Recruitment Project, as part of the OSLR Programme;

Requests the IOC-FAO Guiding Group of Experts:

(i) to promote feasibility studies, using various SARP techniques, in other ocean regions where there are similar species complexes, as, for example, in the Atlantic Ocean, the Indian Ocean and the western Pacific Ocean;

(ii) to use also, where appropriate, other approaches to recruitment studies;

(iii) to promote a broader application of ocean science and ocean services to monitoring, and possibly predicting, variations in distribution and abundance of living resources.

Budgetary provisions: $119,000 in the Draft 23 C/5, for four meetings and two pilot projects.

Resolution XIII-2

INTERNATIONAL BATHYMETRIC CHART OF THE MEDITERRANEAN AND OVERLAY SHEETS (IBCM)

The Intergovernmental Oceanographic Commission,

Recalling Resolution EC-XI.9 by which the Executive Council, at its Eleventh Session, instructed the Secretary, inter alia, to set up a temporary group (Task Team) to produce overlay sheets in marine geology and geophysics, as well as the subsequent decision of the Executive Council, at its Seventeenth Session, to establish an Editorial Board for the IBCM and Overlay Sheets in Marine Geology and Geophysics, in replacement of the above-mentioned group,

Approves the Summary Report of the First Session of the Editorial Board for the IBCM and Overlay Sheets, (Document IOC/EB-IBCMOS 1/3); including the Terms of Reference for the Editorial Board contained therein and annexed hereto;

Accepts with great appreciation the offer of the Government of the Soviet Union, made at the First Session of the Editorial Board and now confirmed by the Soviet Delegation to the Thirteenth Session of the IOC Assembly, to print and publish six series of IBCM geological and geophysical maps, a bathymetric chart of the Mediterranean in one sheet and a supporting volume to the IBCM Programme at a cost of several million roubles.

Budgetary provisions: $16,000 in the Draft 23 C/5, for two meetings.

TERMS OF REFERENCE OF THE EDITORIAL BOARD FOR IBCM AND OVERLAY SHEETS

The Editorial Board for the International Bathymetric Chart of the Mediterranean and Overlay Sheets (IBCM) shall:

1. make every effort to ensure continued maintenance and updating by competent national bodies of the 1:250,000-scale master sounding sheets originally developed for the IBCM;

2. undertake all necessary actions to ensure early completion and publication of the series of geological and geophysical overlay sheets for the IBCM, now in preparation;

3. collaborate with the IOC Consultative Group on Ocean Mapping (CGOM) and, as necessary, with other IOC subsidiary bodies, on the preparation of bathymetric charts and overlay sheets for regional projects;

4. identify the needs of various users of the IBCM and Overlay Sheets, study the means whereby these needs can be met, and advise the IOC Governing Bodies (through the CGOM) accordingly;

5. investigate and develop revised criteria, so that decisions can be reached on the need for, and timing of, further editions of the IBCM and its geological/geophysical overlay sheets;

6. identify new sources of data with the object of ensuring that the IBCM sheets are updated and that maximum available data are submitted to the World Data Centre for Bathymetry (IHO);

7. collaborate closely with the GEBCO Sub-Committee on Digital Bathymetry with a view to developing a compatible data base of digitized contours for the sea areas covered by the IBCM;

8. provide advice on Mediterranean Sea mapping in consultation with the Joint IOC-IHO Guiding Committee for GEBCO, as and when requested by appropriate intergovernmental and non-governmental bodies.

Resolution XIII-3

INTERNATIONAL BATHYMETRIC CHART OF THE CARIBBEAN SEA AND PART OF THE PACIFIC OCEAN OFF CENTRAL AMERICA (IBCCA)

The Intergovernmental Oceanographic Commission,

Noting Recommendation SC-IOCARIBE-I.4 (in Document SC-IOCARIBE-I/3) in which the IOC Sub-Commission for the Caribbean and Adjacent Regions, at its First Session, decided to undertake the preparation of International Bathymetric Charts of the Caribbean and Pacific Coast off Central America,

Noting also the kind offer of Mexico to play an active role in the preparation of the above-mentioned bathymetric charts,

Expresses its appreciation to the Government of Mexico for this generous offer;

Establishes an Editorial Board for the International Bathymetric Chart of the Caribbean Sea and Part of the Pacific Ocean off Central America (IBCCA), with the Terms of Reference annexed to this Resolution;

Instructs the Secretary:

(i) to invite Member States of the region and other interested Member States to designate their experts to the Editorial Board;

(ii) to invite Mexico to provide the Chief Editor for the IBCCA;

(iii) to seek extra-budgetary funds for this activity;

Invites the International Hydrographic Organization, through the regional Hydrographic Commission for the Caribbean (shortly to be established), to work in close collaboration with the Editorial Board for IBCCA in matters related to the compilation of bathymetric data for the international series of nautical and of bathymetric charts.

Budgetary provisions: $10,000 - $12,000 not in Draft 23 C/5, but foreseen in Annex to Resolution XIII-16, for meeting. (Extra-budgetary funds required).

Annex to Resolution XIII-3

TERMS OF REFERENCE FOR THE EDITORIAL BOARD FOR THE INTERNATIONAL BATHYMETRIC CHART OF THE CARIBBEAN SEA AND PART OF THE PACIFIC OCEAN OFF CENTRAL AMERICA (IBCCA)

The IOC Editorial Board for the International Bathymetric Chart of the Caribbean Sea and Part of the Pacific Ocean off Central America (IBCCA) shall:

1. direct its work to the main objective of ensuring early completion and publication of the International Bathymetric Chart of the Caribbean Sea and Part of the Pacific Ocean off Central America (IBCCA);

2. bear in mind at all times that, at a later stage, after the bathymetric series has been published, it may be considered desirable to prepare and publish complementary maps of geological and geophysical parameters;

3. prepare a chart scheme on a scale of 1:1 million (or appropriate scale) to cover the area of the Caribbean Sea and part of the Pacific Ocean off Central America;

4. prepare a master plotting sheet scheme for the collection of bathymetric (and other geological and geophysical) data based on the 1:250,000 plotting sheets of the International Hydrographic Organization;

5. identify individual scientists and/or scientific institutions prepared to undertake compilation of all the above-mentioned master bathymetric plotting sheets;

6. collaborate closely with the IOC Consultative Group on Ocean Mapping (CGOM) concerning the technical specifications for the IBCCA, taking into account the "Specification for the GEBCO (5th Edition)";

7. work closely with the Dirección General de Geografía of Mexico in all matters connected with the production and publication of the bathymetric chart series;

8. identify all sources of bathymetric data with the object of ensuring that the maximum available data are located for use as input to the series, taking into account, in particular, the holdings of the World Data Centre for Bathymetry (IHO) and the World Data Centre 'A' (Marine Geology and Geophysics);

9. take note of the needs of various potential users of the IBCCA (and possible eventual geological/geophysical sheets), with a view to meeting these needs so far as available effort and finances permit.

Resolution XIII-4

OCEAN PROCESSES AND CLIMATE

The Intergovernmental Oceanographic Commission,

A

Recalling Resolutions XI-3 (IOC's Role in the Study of Climate Changes and the Ocean), XII-4 (Ocean Dynamics and Climate) and EC-XVII.2 (Programme Group on Ocean Processes and Climate),

Having considered the Executive Summary of the First Session of the Programme Group on Ocean Processes and Climate, and the Recommendations contained therein (Document IOC/PG-OPC-I/3S),

Invites WMO to accept IOC's offer to co-sponsor the Informal Intergovernmental Planning Meeting on the Implementation of the WCRP, in 1986, and, together with SCOR, the International Conference on the World Ocean Circulation Experiment (WOCE), in 1987-88;

Also invites WMO to define, jointly with IOC, the arrangements and procedures for co-ordination of intergovernmental aspects of the implementation of the TOGA and WOCE experiments, and identify specific contact points in both organizations;

Further invites the Division of Marine Sciences of Unesco to provide support for the training, education and development components of ocean-observing activities;

Expresses its appreciation to SCOR for its continuing strong support to the Joint SCOR-IOC Committee on Climatic Changes and the Ocean, and the progress made in collaboration with the Joint WMO-ICSU Scientific Committee for WCRP in formulating and planning the oceanographic activities in the WCRP;

Urges Member States of the Commission:

(i) to co-ordinate their participation in the World Climate Research Programme, and to mobilize their oceanographic and meteorological communities to this effect; and

(ii) to strengthen their assistance in the framework of TEMA in order to enable the developing countries to participate more effectively in the proposed experiments.

B

Noting arrangements to establish an international WOCE Planning Office in an IOC Member State,

Invites SCOR to join with IOC, in consultation with the host country, in the development of appropriate arrangements and liaison for dealing with matters concerning the International WOCE Planning Office which require intergovernmental action through IOC.

Budgetary provisions: $4,000 in Draft 23 C/5 for staff and officer liaison with WCRP.
$40,000 in the Draft 23 C/5, for WOCE Conference.

Resolution XIII-5

INCREASED SUPPORT FOR GIPME

The Intergovernmental Oceanographic Commission,

A

Approves the Summary Report (Document IOC/WC-GIPME-V/3) of the Fifth Session of the Working Committee for GIPME and the Recommendations thereof;

B

Bearing in mind the need for open-ocean baseline studies, as recommended in the GIPME Action Plan,

Invites interested Member States to implement or continue such studies through national and international scientific research programmes in open-ocean areas, particularly in the North Atlantic Ocean and the Mediterranean Sea.

C

Noting the considerable support for the GIPME Programme offered by the Member States at the Thirteenth Session of the Assembly,

Recognizing, nevertheless, that the resources - financial and human - made available by the Member States for this Programme are still below the level required for adequate implementation of the agreed Plan of Action.

Bearing in mind the on-going activities and the progressive establishment of MARPOLMON components in many ocean regions,

Urges Member States to increase their participation in the GIPME Programme and MARPOLMON, and their regional components;

Also urges Member States to increase the Commission's resources for the implementation of GIPME and MARPOLMON by appropriate contributions to the IOC Trust Fund and/or in kind;

D

Noting the Recommendations of the GIPME Groups of Experts on Methods, Standards and Intercalibration (GEMSI), and on the Effects of Pollutants (GEEP),

Instructs the Secretary to: (i) organize, with the eventual participation of other interested organizations, a symposium and workshop to identify the current availability of standards and reference materials for use in international marine pollution research and monitoring activities; (ii) organize, with the eventual participation of other interested organizations, notably IMO and UNEP, and under the guidance of the Group of Experts on Effects of Pollution, a practical workshop on biological effects measurements with a view, inter alia, to establishing the scientific basis for the definition of vulnerability of marine areas to marine pollutants.

Budgetary provisions: None; extra-budgetary funds required.

Resolution XIII-6

THE INTEGRATED GLOBAL OCEAN SERVICES SYSTEM (IGOSS)

The Intergovernmental Oceanographic Commission,

A

Noting: (i) the progress made in the intersessional period by the Joint IOC-WMO Working Committee for IGOSS; (ii) the new requirements for timely ocean data and data products arising from the World Climate Research Programme, in addition to the continuing requirements of operational meteorology, fisheries, and other practical purposes; (iii) WMO Resolution 7 (EC-XXXVI) which calls for an increase in BATHY/TESAC data, in particular through the increased contribution of such data from WMO Voluntary Observing Ships,

Taking into account the growing capabilities afforded by new measurement and telecommunication techniques,

Requests, subject to a similar decision by the WMO Executive Council at its Thirty-Seventh Session, the Joint IOC-WMO Working Committee for IGOSS, at its forthcoming Fourth Session, to develop an Implementation Plan for an Acceleration Phase for IGOSS, along the lines described in the annex to this resolution;

B

Considering: (i) that more than half of presently gathered data of interest to IGOSS are not exchanged through IGOSS and are therefore lost for many marine uses; (ii) that some of the presently data-sparse areas of the oceans are plied by ships that may be recruited to serve as ships-of-opportunity; and (iii) the need to apply existing technology to improving the dissemination of ocean-data products,

Taking into account the view of the Programme Group on Ocean Processes and Climate, at its First Session, on the importance of the promotion and further development of ocean subsurface thermal-structure monitoring in the framework of IGOSS,

Urges Member States to: (i) respond to IGOSS needs and to its Acceleration Phase; (ii) ensure that relevant ocean data from national and international programmes are, as far as possible, contributed to IGOSS, following existing procedures; and (iii) identify, through close collaboration between their meteorological and oceanographic communities, ships that could be used in the ships-of-opportunity project;

Requests Member States to provide the required assistance in the framework of TEMA that would contribute to the successful implementation of the Acceleration Phase for IGOSS, and pass information on this assistance to the IOC and WMO Secretariats to be taken into account in the preparation of the Implementation Plan for the Acceleration Phase;

Instructs the Secretary to: (i) intensify the efforts of the Secretariat in the promotion and establishment, by Member States, of ships-of-opportunity lines to meet the needs of the Acceleration Phase of IGOSS, and of other required ocean-observing projects; and (ii) study ways of facilitating the implementation of IGOSS, in liaison with relevant programmes of WMO;

C

Noting with concern that, in spite of the very important and sophisticated programme and the actions planned under IGOSS, only a very few developing countries are participating in the system,

Requests the Joint IOC-WMO Working Committee for IGOSS to study in depth the reasons hampering participation by developing countries in the system, to suggest measures to correct this situation, particularly through TEMA actions, so as to ensure the success of IGOSS, and to report to the Nineteenth Session of the Executive Council.

Budgetary provisions: None; extra-budgetary funds required.

Annex to Resolution XIII-6

THE INTEGRATED GLOBAL OCEAN SERVICES SYSTEM (IGOSS)

Introduction

1. The ability of scientists to describe and predict ocean processes has always been hampered by a lack of data. The cost of collecting good-quality measurements versus depth on an ocean-wide basis, even for the relatively simple temperature parameter, is prohibitive. Furthermore, the economic burden of operational ocean-data collection is compounded by the technical problems in deploying sensors and transmitting error-free data to analysis centres. The Integrated Global Ocean Services System (IGOSS) was created to help solve this problem. To meet existing operational requirements for ocean data (such as those coming from operational meteorology and fisheries) and the new ones emerging from the World Climate Research Programme (WCRP), IGOSS has to accelerate its development. Two main IGOSS elements have to be addressed in this Acceleration Phase: the IGOSS Observing System and the IGOSS Data Processing and Services System.

The Acceleration Phase for the IGOSS Observing System (IOS)

2. The purpose of the IOS is to provide an appropriate global mechanism for the timely collection and exchange of standardized oceanic and related meteorological data for synoptic analysis. It consists of various facilities and arrangements for obtaining these data from research ships, ships-of-opportunity and voluntary observing ships, ocean weather stations, automated means such as buoys and fixed platforms, and airborne means such as satellites and aircraft.

3. The Acceleration Phase for the IOS is an extension of the IGOSS Observing System and will, therefore, be comprised of internationally agreed efforts intended to increase the quantity and quality of subsurface thermal data available by facilitating the establishment of new ships-of-opportunity lines and by improving the efficiency of on-going or planned field programmes of participating Member States. To the maximum extent possible, the Acceleration Phase should call upon and utilize the personnel and facilities of existing organizations and programmes. It is recognized that several Member States are in a position to participate, or to participate more fully, in IGOSS by making available for exchange operational data which are already being obtained but which are not presently being entered into the system. Also, several Member States will be increasing their observational efforts in support of the WCRP and other programmes. It is firmly believed that a combined and co-ordinated undertaking increase in efficiency and greater utilization of the resulting data. Ships-of-opportunity lines should utilize, inter alia, ships within

the WMO Voluntary Observing Ship Scheme whenever possible,, and each Member State should be encouraged to associate its Port Meteorological Officers and Harbour Offices with the Acceleration Phase.

4. The objectives of the Acceleration Phase for the IOS are:

(i) to increase the total number of subsurface data available in an operational time frame to users;

(ii) to improve the existing organizational and managerial structure to ensure the most cost-effective joint efforts aimed at addressing the data needs of multiple users;

(iii) to develop appropriate guidelines and make available advice on appropriate structures to facilitate the establishment of ships-of-opportunity lines; and

(iv) to encourage and facilitate the participation of additional Member States in IGOSS.

5. There are many users of subsurface data. In the context of the Acceleration Phase, they fall into two primary categories: those who wish to initiate a ships-of-opportunity line or expand observations for scientific/research purposes; and those who require additional data for operational needs. IGOSS should co-ordinate the communications among these users so as to facilitate the exchange of resources, technical expertise, and data required by Member States. To engender a general awareness of the global observational network, an annual report which summarizes activities for the past year should be published and distributed. The report should document all the activities under the Acceleration Phase, including requests received, requests fulfilled, status of the network and planning of new field programmes.

Implementation of the Acceleration Phase for the IOS

6. The development of the Acceleration Phase for the IOS is the responsibility of the Joint IOC-WMO Working Committee (JWC) for IGOSS under the guidelines provided by the governing bodies of IOC and WMO. Starting from existing requirements for operational ocean data, the JWC-IGOSS should:

(i) prepare plans for responding to requirements from various active or anticipated scientific observational programmes, identifying available ships and the necessary equipment, probes and training for implementation;

(ii) formulate requests to participating Member States to direct their data acquisition efforts towards meeting those needs;

(iii) identify and promote requests for training through appropriate WMO, IOC and other sources to facilitate the development of the necessary managerial as well as shore and ship-based operational capabilities; and

(iv) encourage the production and distribution of appropriate IGOSS products to meet users' requirements for subsurface thermal data and shipboard needs for both feedback and operational use.

7. Member States are requested to designate, if they have not yet done so, a National Representative for IGOSS (as requested through the Joint IOC-WMO Circular

letter No. 79-56 dated 27 August 1979), who, in the context of the Acceleration Phase, should:

(i) be responsible for ensuring the active participation of his country in IGOSS to the maximum extent practicable;

(ii) make arrangements with the appropriate national authorities for:

(a) the provision of assistance (equipment, supplies, training, funds, etc.) to IGOSS activities, or

(b) the adequate and efficient utilization of such assistance for IGOSS activities;

(iii) make arrangements with the appropriate national authorities for the free flow of equipment, supplies and data in support of the IGOSS Observing System into and out of his country;

(iv) assist in the designation of Port Meteorological Officers, as necessary and appropriate, and in the mobilization of support for them;

(v) act as a focal point for the exchange of information on activities and requirements related to IGOSS;

(vi) ensure that all relevant subsurface thermal data already being taken within his country (especially by research and fisheries vessels) are entered into IGOSS; and

(vii) encourage the active participation in IGOSS of ocean research institutions and the scientific community in his country.

8. It might be helpful if certain National Representatives for IGOSS were considered as focal points for an 'oceanic region' to assist in the implementation of the Acceleration Phase in the region. It should be recalled, in this respect, that the IOC Executive Council, at its Seventeenth Session, 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' (extract from the summary report of the Session, para. 223). Whatever they might look like, such 'regional co-ordinators' or 'regional co-ordination mechanisms' could consolidate requirements for their region of interest and assist in co-ordinating initiatives and arranging mutual activities, such as training courses. This concept should be further studied by the JWC-IGOSS.

9. The IOC and WMO Secretariats should assist in the development and operation of the Acceleration Phase. Among other activities, they should:

(i) assist in the preparation and dissemination of plans for action (see 6 (i), above);

(ii) provide all required official contacts with the participating Member States and Organizations via circular letters and other communications;

(iii) promote, as appropriate, the designation of national representatives for IGOSS and 'regional co-ordinators' or 'regional co-ordination mechanisms';

(iv) prepare and disseminate annual and other relevant reports on the implementation of the Acceleration Phase;

(v) request support, assistance and participation in the Acceleration Phase from Member States;

(vi) explore opportunities for training and support to participants through the appropriate WMO and IOC mechanisms;

(vii) facilitate the utilization of the ICO-VCP, WMO-VCP and other sources of funding and equipment in support of the implementation of the Acceleration Phase;

(viii) ensure the co-ordination of activities undertaken in support of the Acceleration Phase with other activities under the purview of the IOC and WMO;

(ix) encourage joint efforts to facilitate the most efficient and cost-effective data collection commensurate with scientific and operational needs as expressed by participants; and

(x) encourage the participation of additional Member States in IGOSS.

The Acceleration Phase for the IGOSS Data Processing and Services System (IDPSS)

10. The purpose of the IDPSS is to make available to users processed observational data, analyses and forecasts needed for marine activities. The system is intended to provide a common basis for the operation of the IGOSS ocean-data-processing centres, provide for the standardization of ocean products, ensure that the requirements for ocean-data products of all Member States are recognized, and minimize duplication. It consists of national, specialized and world oceanographic centres for the processing of observational data, the provision of products and services to various marine user groups and promotion of operational data-exchange.

11. IGOSS should produce a regular set of ocean data products based on a 'best available product' approach. It is recognized that such a set of products would not satisfy all the requirements of climate scientists and other users. However, on the assumption that it is better to amend an existing programme than to wait for consensus and perfection before proceeding, IGOSS should undertake to accelerate the development of the IDPSS.

12. Regional data management charts should be produced by IGOSS Specialized Oceanographic Centres (SOCs) summarizing the data collected during the past month and specifying the location and platform. These charts would enable scientists to identify where effort is being directed and by whom. Therefore, participating scientists and organizations could address data-sparse areas, remedy data transmission problems, enhance co-operative planning and avoid duplication of effort.

13. For each ocean basin or portion thereof, a standardized set of surface and subsurface charts should be produced by Specialized Oceanographic Centres. These charts should be standardized in scale and format so that similar charts from adjacent regions would be compatible. Based on IGOSS data, the charts should cover such parameters as:

(i) surface temperature;
(ii) mixed-layer depth;
(iii) subsurface temperatures at specified depths;
(iv) salinities and currents (if feasible).

This category of charts should be directly related to the scientific requirements and should be able to be adapted to different needs, especially over the initial stages of the project.

14. In the context of the Acceleration Phase, the global products presently put out by some Specialized Oceanographic Centres should be standardized in scale and format and the methods used in the analysis specified. This would allow comparisons to be made among products and the global products improved.

Implementation of the Acceleration Phase for the IDPSS

15. It is necessary that a number of Specialized Oceanographic Centres (SOCs) be designed. The respective SOCs should be volunteered by participating Member States and each should produce a standard set of IGOSS ocean products for its respective region. These regions could overlap by 5 to 10 latitude and/or longitude to ensure compatibility of products. As a minimum, four SOCs should be envisaged covering the Pacific, Atlantic, Indian and Southern Oceans, respectively. However, it may be found necessary to divide some ocean basins into smaller regions.

16. For co-ordination purposes, each SOC should nominate an individual to be part of an ad hoc group that would operate in an expert capacity to initiate the programme, agree on standard products and improve their usefulness and quality at every opportunity. As soon as the WCRP has formulated its requirements for IGOSS products, the ad hoc group should meet to finalize the content of the set of products in consultation with the main users. In general, the group should work by correspondence or electronic mail. The contents of the set of products would inevitably be a compromise amongst the range of needs of the users, the availability of data, the quality of data, the availability of analysis techniques and the economics of each SOC.

17. The distribution of products each month should allow for a minimum of one copy to a designated national distribution address (preferably the National Representative for IGOSS) for each participating Member State. SOCs might distribute additional copies at their own discretion to national or regional addresses, but in general, it should be the responsibility of the national distribution point to satisfy national requirements of Member States. This possibility should be further explored by the JWC-IGOSS.

18. It is important that a system be introduced to compile and archive the collected data sets in order to make the maximum and most effective use of the products. The composite annual collection of products should therefore be published annually as an IGOSS data product summary in a joint IOC-WMO technical bulletin. The series would form a continuing record of the IGOSS ocean-product contribution to marine users. It would be valuable for the technical bulletin also to contain an inventory of the IGOSS data sets, together with a description of how they can be assessed.

Conclusion

19. Being a service, IGOSS must be on the watch for users' requirements and take the necessary steps to meet these requirements to the maximum extent possible. Present requirements, including those from the WCRP, make it necessary to accelerate the development of IGOSS without imposing too heavy a burden on participating Member States. The Acceleration Phase for IGOSS, described above, tries to show how this could be done.

Resolution XIII-7

GLOBAL SEA-LEVEL OBSERVING SYSTEM

The Intergovernmental Oceanographic Commission,

Appreciating the long series of mean sea-level data archived by the ICSU Permanent Service for Mean Sea-Level, and the role played over many years by hydrographic, geodetic and scientific organizations in sea-level measurements and analysis,

Noting the request addressed to the Commission by the Joint SCOR-IOC Committee on Climatic Changes and the Ocean to assist in the development of a Global Sea-Level Observing System in support of the World Climate Research Programme,

Recognizing the success of the IGOSS Sea-Level Pilot Project (ISLPP) in the operational collection of sea-level data and dissemination of derived monthly mean sea-level anomaly products for the Pacific basin,

Having reviewed the Executive Summary and Recommendations of the First Session of the Programme Group on Ocean Processes and Climate (Doc. IOC/PG-OPC-1/3S),

Adopts the Proposal for the Global Network of Sea-Level Stations as a basis for an extension under the auspices of IOC of the existing sea-level network (to be published in the Technical series);

Requests the regional subsidiary bodies of the Commission, as well as other co-operating regional bodies, to give priority to the implementation of sea-level observing networks in their respective ocean regions;

Requests the Joint SCOR-IOC Committee on Climatic Changes and the Ocean to continue its work on formulating scientific requirements for sea-level data and analyses for various ocean regions;

Also requests the Joint IOC-WMO Working Committee for IGOSS to continue the operational exchange of sea-level data and the dissemination of operational sea-level products by the Specialized Oceanographic Centre on Sea-Level Data;

Urges the Members States to participate in the implementation of the Global Sea-Level Observing System by:

(i) maintaining, up-grading, re-activating and establishing new sea-level stations;

(ii) providing assistance and support to developing countries through TEMA activities and/or bilateral and multilateral assistance mechanisms, in the installation, operation, and maintenance of tide gauges, and in the analyses of data therefrom; and

(iii) submitting sea-level data in accordance with the requirements of the Global Sea-Level Observing System.

Instructs the Secretary to call upon a task team of experts, including those assisting the Commission in the development of tide-gauge networks in IOC regions, to draft an implementation plan for the Global Sea-Level Observing System, for submission to the next session of the Executive Council for approval, and to invite the co-operation of the Unesco Division of Marine Sciences;

Instructs the Secretary IOC, and invites the Director of the Division of Marine Sciences of Unesco, with the support of Member States and organizations concerned, to develop and promote the required TEMA components in support of the Global Sea-Level Observing System and of its regional networks;

Instructs the Secretary to maintain consultations with the IHO on matters of common interest in the field of sea-level measurements and their analysis.

Budgetary provisions: $15,000 in 1985 budget; $46,000 in Draft 23 C/5.
Extra-budgetary funds also required.

Resolution XIII-8

INTERNATIONAL OCEANOGRAPHIC DATA EXCHANGE (IODE)

The Intergovernmental Oceanographic Commission,

Recalling Resolution XII-6 (International Oceanographic Data Exchange) and the decisions taken by the IOC Executive Council, at its Seventeenth Session, relevant to IODE activities,

A

Realizing that the timely submission of oceanographic data to the IODE system is one of the key elements for the success of the World Climate Research Programme, and other international marine scientific research programmes,

Noting that this timely submission of data will depend mainly on the goodwill of Member States and individual scientists,

Calls upon Member States to improve national procedures to meet the data submission requirements of international scientific programmes, and other users;

Urges Member States to take measures to achieve prompt submission of data by originators to Oceanographic Data Centres and to make it available to the IODE system with the minimum of delay;

Requests the Chairman of the Working Committee on IODE, in consultation with the Secretary IOC, to invite Member States to identify climate-related data sets that have not yet been exchanged internationally and to make them available.

B

Taking into account the increased interest of IOC Member States in the RNODC scheme, the importance of promoting the RNODC concept as a potentially important component of future climate-data management schemes and the additional responsibilities placed on the members of the IOC Group of Experts on RNODCs,

Decides to expand the Group of Experts on RNODCs from four to six members.

Budgetary provisions: $10,000 in Draft 23 C/5; an additional $3,000 - $5,000 required.

Resolution XIII-9

MARINE INFORMATION MANAGEMENT

The Intergovernmental Oceanographic Commission,

Recalling its decisions at the Twelfth Session of the Assembly and at the Seventeenth Session of the Executive Council that the role of the Working Committee on International Oceanographic Data Exchange in marine information management be enlarged, giving particular attention to the needs of developing countries,

Recognizing the potential value of regional marine information exchange,

Noting with satisfaction the close collaboration on marine information management established with the Organizations members of ICSPRO and UNEP and, in particular, the participation of those Organizations in the continuing work of the IODE Group of Experts on Marine Information Management,

Noting with appreciation the offers made by the UN(OETB), FAO and Unesco to consider sharing the cost of preparation of a Programme Development Plan for Marine Information and Related Matters,

Instructs the Secretary to: (i) seek additional funds for the preparation of the Programme Development Plan for Marine Information and Related Matters; (ii) develop the relationship between the IODE Group of Experts on Marine Information Management and other relevant organizations; (iii) invite IOC regional bodies to report on the action needed to improve the exchange of marine information, both between Member States and with UN organizations active in their respective regions; (iv) bring this Resolution to the attention of the Organizations members of ICSPRO and to UNEP; and (v) call on Member States to ensure adequate representation of information experts at the sessions of the Working Committee on IODE.

Budgetary provisions: IOC share ($15,000) of cost of preparing the Programme Development Plan not in Draft 23 C/5; extra-budgetary funds are required.

Resolution XIII-10

INTERNATIONAL CO-OPERATION FOR IMPROVED USES OF RESEARCH VESSELS

The Intergovernmental Oceanographic Commission,

Being aware of the vital importance of research vessels to the development and further enhancement of marine scientific research,

Sharing the concern expressed by Member States at sessions of IOC regional subsidiary bodies, and at scientific workshops such as the IOC Workshop on Regional Co-operation in Marine Science in the Central Eastern Atlantic, over problems of effective management, operation and use of such vessels,

Noting Recommendation TEMA-IV.2 (International Co-operation for the Improved Uses of Research Vessels),

Expresses its appreciation to the Norwegian Agency for Development (NORAD) for the support given and to FAO for its co-operation in the organization and follow-up of the Workshop on Improved Uses of Research Vessels, held in Lisbon, 29 May - 2 June 1984,

Invites FAO to collaborate with the Commission in the preparation of a Guide on the Management, Operation and Use of Research Vessels, and in the organization of related regional training courses;

Invites Member States to notify the Secretary on the availability of national research vessels for use on a co-operative basis;

Urges Member States, especially those with large experience in the management, operation and use of research vessels, particularly in co-operation with developing countries, to contribute to the TEMA activities referred to in Recommendation TEMA-IV.2;

Instructs the Secretary, in consultation with FAO, to explore responsibilities, with the assistance of UNDP and international funding agencies, for the creation of pools of equipment and technical personnel, to assist with the maintenance of equipment and vessels, particularly in support of the implementation of regional scientific programmes.

Budgetary provisions: $10,000 (as seed money) in the 1985 budget.

Resolution XIII-11

IOC VOLUNTARY CO-OPERATION PROGRAMME (IOC-VCP)

The Intervovernmental Oceanographic Commission,

Recalling the request of the Assembly, at its Twelfth Session, to the Working Committee for TEMA to discuss in detail, at its Fourth Session, the Commission's activities under the IOC Voluntary Assistance Programme (IOC-VAP) and to submit recommendations on how to improve its operation,

Being convinced that the underlying principle of partnership is a major element in the promotion of the scheme and its implementation,

Agrees to rename the scheme the IOC Voluntary Co-operation Programme (IOC-VCP);

Approves the amendments recommended by the Working Committee (Recommendation TEMA-IV.1) to the Rules of Utilization Nos. 15 and 24, whereby the authority for approving applications under IOC-VCP is vested in an ad hoc panel consisting of the Secretary IOC and the Vice-Chairman in charge of TEMA and the Chairman and Vice-Chairman of the Working Committee for TEMA, in consultation with the Chairman of the appropriate IOC subsidiary body representing the requesting Member States' regional and programme interests;

Invites the potential donor Member States of the Commission to:

(i) identify an appropriate national body (with adequate mandate, having access to, or being in the position to, mobilize funds, and having experience in technical assistance) to act as a national focal point for matters relating to IOC-VCP, or to make alternative arrangements;

(ii) give particular attention to IOC programmes and IOC-VCP requests when developing bilateral and multilateral marine technical assistance programmes;

Also invites potential recipient Member States of the Commission to:

(i) consider major global IOC programmes and their regional components as the priority areas for IOC-VCP assistance requests;

(ii) consider the provision of adequate counterpart resources;

Instructs the Secretary to provide a progress report on the IOC Voluntary Co-operation Programme to the Executive Council and to the regional subsidiary bodies, upon request, and routinely to the IOC Assembly.

Budgetary provisions: None; extra-budgetary funds required.

Resolution XIII-12

STRENGTHENING LIAISON BETWEEN THE MEMBER STATES AND THE SECRETARIAT

The Intergovernmental Oceanographic Commission,

Recognizing that liaison between Member States and the Secretariat of the Commission needs strengthening in order to avoid existing communication and operational difficulties,

Believing that the creation, or the strengthening if already existing, of national mechanisms for this purpose would not only improve national marine scientific capabilities but also greatly enhance Member State involvement in the programmes and activities of the Commission,

Realizing, nevertheless, that the creation of new structures or mechanisms will require careful consideration in each Member State since each has different circumstances, some already having a National Oceanographic Commission and/or National Representatives to the Commission,

Urges the Member States each to designate, by written notification to the Secretary of the Commission, a National Representative to act on scientific and technical matters for the Member State;

Suggests, with due regard to national practices, that: the Officers of the Commission elected, and the Representatives of the States Members of the Executive Council designated, in accordance with Article 5 of the Statutes of the Commission, also be the National Representatives of their Member States;

Recommends that such National Representatives be the normal channel of communication between the Commission and their respective countries on scientific and technical matters, and maintain contact with the competent authorities, governmental and non-governmental, of their own countries on matters concerning the work of the Commission;

Further Recommends that:

(i) Member States members of technical and regional subidiary bodies of the Commission designate National Focal Points for the programmes and activities being conducted by these bodies;

(ii) these National Focal Points work closely with the National Representatives referred to above;

(iii) when Member States of the Commission designate their delegations to, or their representatives on, the different technical and regional subsidiary bodies, or other bodies, of the Commission, their specialized scientific and technical character be taken into account.

Budgetary provisions: None required.

Resolution XIII-13

REPORT OF THE THIRD SESSION OF THE AD HOC TASK TEAM TO STUDY THE IMPLICATIONS, FOR THE COMMISSION, OF THE UN CONVENTION ON THE LAW OF THE SEA AND THE NEW OCEAN REGIME

The Intergovernmental Oceanographic Commission,

Having considered the Summary Report of the Third Session of the ad hoc Task Team to Study the Implications, for the Commission, of the UN Convention on the Law of the Sea and the New Ocean Regime (Document IOC/TT-LOSI-III/3),

Invites Dr. A. Ayala-Castañares, former Chairman of the Commission, to arrange for the preparation, in collaboration with the Officers of the Commission and with the Secretary, of in-depth studies on:

(i) measures to ensure the stability and continuity of the resources required for the implementation of the Commission's programme of work, including aspects related to the financial contributions of IOC Member States that are not Member States of Unesco;

(ii) the present structure of the Commission, recommending revisions to the Guidelines for the Structure and Responsibilities of the Subsidiary Bodies of the Commission;

(iii) measures to enhance the role and efficiency of the Commisssion in the long term to meet the new needs of Member States and the world community;

Instructs the Secretary to:

(i) arrange for these studies to be sent to all IOC Member States at least three months in advance of the Nineteenth Session of the Executive Council;

(ii) place these studies before the Executive Council at a meeting of about 3 days immediately preceding, and preparatory to, the Nineteenth Session of the Council.

Budgetary provisions: $12,000 in Draft 23 C/5, for 3 days additional conference services etc.

Resolution XIII-14

IOC SECRETARIAT SUPPORT FOR THE IOC SUB-COMMISSION FOR THE CARIBBEAN AND ADJACENT REGIONS (SC-IOCARIBE)

The Intergovernmental Oceanographic Commission,

Recalling that, by Resolution XII-16, the Assembly established the IOC Sub-Commission for the Caribbean and Adjacent Regions (SC-IOCARIBE),

Recalling also that the IOC "Guidelines for the Structure and Responsibilities of IOC Sub-Commissions" (ref.: Summary Report of the Twelfth Session of the IOC Assembly - Doc. SC/MD/73 - Annex V) permits outposted IOC supporting staff for IOC Sub-Commissions to be located in a Member State of the region, "provided that such a State offers facilities considered adequate by the regional Sub-Commission and approved by a governing body of the Commission",

Noting the offer of the Government of Colombia to host the IOC Secretariat for the Sub-Commission for IOCARIBE,

Noting also that the terms of the offer, including the location, in Cartagena, of the IOC Secretariat in support of IOCARIBE, fulfils the requirement that the facilities to be provided should be considered adequate for the satisfactory operation of the Secretariat,

Requests the Director-General of Unesco to accept the offer of the Government of Colombia and to take, with the urgency that the situation requires, the necessary steps to sign a formal agreement with the Government of Colombia on the establishment of the IOC Secretariat for the Sub-Commission for IOCARIBE in Cartagena;

Also requests the Director-General of Unesco to take the necessary action to appoint the IOC Assistant Secretary in charge of the Sub-Commission for IOCARIBE, as soon as possible, this post having already been established in the Unesco Programme and Budget 1984-85 (22 C/5).

Budgetary provisions: $10,000 for logistical support included in Draft 23 C/5;
General Service post foreseen in Annex to Resolution XIII-16.

Resolution XIII-15

FUNDS-IN-TRUST CONTRIBUTIONS TO THE COMMISSION

The Intergovernmental Oceanographic Commission,

Bearing in mind Rule of Procedure No. 55,

Accepts with appreciation the contributions of Australia, France, the Federal Republic of Germany, Japan, Panama, the United States of America, the International Development Research Council of Canada, and the Norwegian Agency for International Development in the amounts and for the purposes designated below, and extends its thanks to these Member States and Organizations for their contributions:

Australia	A$10,000 for implementation of WESTPAC programmes;
France	Ffr. 551,600 for the period 1983-1985 for general support to the IOC programme, with particular emphasis on certain activities;
	Ffr. 20,000 for 1984 in support of the IOC programme on Ocean Science in Relation to Non-Living Resources;
	Ffr. 19,000 for 1984 in support of preparation of a bathymetric chart for the Central Eastern Atlantic;
Germany (Federal Republic)	$23,180 for the period 1984-1985 in support of the IOC programme on marine pollution research and monitoring;
Japan	$30,000 per annum for two years (1984-1985) for implementation of the WESTPAC programme;
Panama	$1,000 for 1984 in support of the IOCARIBE programme;
United States of America	Up to $150,000 to support the post and related activities of the Secretary of the Joint SCOR-IOC Committee on Climatic Changes and the Ocean within the IOC Secretariat for the period 1984-1985;
IDRC (of Canada)	$22,735 to assist the IOC in developing a Handbook on Marine Scientific and Technological Information Resources;
NORAD (of Norway)	$50,000 to assist IOC in organizing a workshop on improving the use of oceanographic research vessels;

Authorizes expenditure of these contributions, when received, for the specific purposes designated by the contributors, pursuant to Rule of Procedure No. 55;

Instructs the Secretary to report on the use of these funds to each session of the Executive Council or Assembly.

Budgetary provisions: None required.

Resolution XIII-16

IOC PROGRAMME AND BUDGET 1986-1987

The Intergovernmental Oceanographic Commission,

A

Having considered the Proposal for the IOC Programme and Budget for 1986-1987, contained in Document IOC-XIII/8 Annex 5 and Annex 5 Add.,

Taking into account the budgetary implications of decisions taken at the Thirteenth Session of the Assembly,

Recalling Resolutions EC-XIV.1, EC-XV.2, XII-10 (all on the Unesco Medium-term Plan) and EC-XVII.1 (on the IOC Programme and Budget for 1986-87) and its Annex, in which the Commission voiced its concern regarding the need to ensure the appropriate financial resources required to execute its programme properly, as well as the desirability of adjusting the formulation of the overall marine science programme of Unesco, so as to ensure its implementation through an integrated approach to the study of the ocean, coastal and offshore,

Noting that the responses of Unesco Member States to the Director-General's request to provide guidance on the formulation of the Draft 23 C/5 for the period 1986-1987 indicate strong support for Programme X.4, "The Ocean and its Resources",

Being aware that adjustments to the Draft 23 C/5 may be required to allow for the shortfall resulting from the withdrawal of a Member State from Unesco, and that the Director-General has been invited to present an annex to the 23 C/5 document in which the problem of adjustments and priorities will be examined by the Unesco Executive Board at its 121st Session in May/June 1985,

Noting also the recommendations made by the Unesco Executive Board through Decisions 120/4.1 and 4X EX/2, which call for the concentration of the programme, and, in particular, the view that "the regrouping, wherever possible, of activities ... should further enhance the expected results ... and increase the impact of the intergovernmental science programmes",

Recalling Resolution XII-10 in which the Assembly recognized that marine research on coastal systems is an inseparable component of oceanographic research that interfaces with open-ocean research, as well as providing input to coastal management, and re-emphasized the importance of maintaining the integrity of the marine science programme of Unesco, including that of the Commission and the Division of Marine Sciences,

Invites the Director-General Unesco to consider Programme X.4 (The Ocean and its Resources) and the ocean-related activities included in Programme X.5 (Management of Coastal and Island Systems) as the marine science component of the Medium-term Plan, to be executed as an integrated programme;

Expresses its appreciation to the Director-General for his decision to include at least a modest growth level in funding for the Commission within the Draft 23 C/5;

Draws attention to the fact that, in spite of the efforts made by the Director-General, the proposed programme and budget has not been able to take into account a certain number of essential activities originally foreseen to maintain the momentum of the IOC programme, notably those found in the Annex to this Resolution, the budgetary implications of which amount to $400,000 for programme implementation, plus the funds required to strengthen the staff;

Invites the Director-General to consider the programme of the IOC as a special case when he develops the Annex to the 23 C/5 document referred to above, so as to protect, as far as possible, the Commission's overall budget, including 1st and 2nd priorities,

Also invites the Director-General of Unesco to consider adjustments to the Medium-term Plan so that Programme X.4 and the marine component of Programme X.5 could be integrated, with a view to concentrating the Programme as recommended by the Unesco Executive Board (ref. Executive Board Decisions 120/4.1 and 4X EX/2);

Further invites the Director-General to authorize the recruitment of the staff positions approved within the IOC programme and budget for 1984-1985, in particular that of a P-4 post for Ocean Science and Non-Living Resources and that of a P-5 post to serve as IOC Assistant Secretary for SC-IOCARIBE, and the supporting General Services positions, since these posts are considered to be essential to the implementation of the Commission's programme;

Endorses, as a basis for future planning, the Proposal for the IOC Programme and Budget for 1986-1987 (Document IOC-XIII/8 Annex 5 and Annex 5 Add.);

Urges Member States to muster all possible support for the Commission's programme and budget when it is considered by the General Conference of Unesco at its Twenty-third Session, in order to further strengthen the financial resources, including staff, of the IOC;

Invites those Member States with Members on the Executive Board of Unesco to bear in mind the particular requirements of the Commission with a view to giving priority to the programme and budget of Programme X.4 on the Ocean and its Resources, when possible adjustments to the 23 C/5 are discussed at the 121st Session of the Unesco Executive Board;

B

Welcoming the statement made by the Delegate of the United States of America, as reflected in paragraph 123 of the Summary Report, on his country's intention to remain an active Member State of the Commission,

Calls on Member States, including those that are not Member States of Unesco, to offer support to the IOC programme, either through direct contributions to the IOC Trust Fund or by in-kind support, including secondment of staff and operational funds especially for those activities that cannot be accommodated within the Draft 23 C/5.

Budgetary provisions: $400,000 plus staff.costs are not included in the Draft 23 C/5; see budgetary implications indicated in the Annex to this Resolution.

Annex to Resolution XIII-16

The following actions were identified by the Assembly, at its Thirteenth Session, as being required to ensure the momentum of the Commission's programme:

1. Implementation of oceanographic experiments and programmes within the oceanographic component of the World Climate Research Programme and development of supporting ocean observing systems.

1.1 Sea-Level Network Programme Implementation $ 34,000

Advice to Member States on installation and maintenance of tide gauges and one regional demonstration workshop and one training course on sea-level measurements.

1.2 Carbon Dioxide Fluxes Between the Ocean and the Atmosphere $ 36,000

Expert studies to determine the need for a World Climate Research Programme oceanographic component for CO_2 observations. Design, planning and co-ordination will be undertaken by consultants and groups of experts.

2. Pilot Projects for marine research

2.1 Ocean Science in Relation to Non-Living Resources $ 55,000

Geological and geophysical surveys in selected regions (Western Pacific, and North and Central Western Indian Ocean) organized under the guidance of expert groups. Provision of baseline information for the location and assessment of non-living resources through ocean mapping projects in regions not yet covered by the programme (e.g., Caribbean and Pacific coast off Central America)

2.2 Assessment of Marine Pollution $ 40,000

Demonstration workshops on techniques to measure the presence of dissolved/dispersed hydrocarbons and chlorinated insecticides in selected ocean regions, including intercalibration and provision of standard samples to laboratories in developing countries.

3. Operational ocean services in developing countries (under TEMA)

3.1 Oceanographic Data and Warning Services $ 55,000

Advice to Member States on the operational aspects of ocean service systems and assistance to reinforce or establish national oceanographic data and tsunami warning centres. Demonstration workshops on the structure and operation of data and tsunami warning centres in two regions.

3.2 Marine Information Services $ 55,000

Demonstration workshops on the use of micro-computers and micro-fiches for institutions in countries with minimal access to international marine scientific literature. Provision of computerized information products and expert advice to institutions in developing countries within the context of the FAO-IOC-UN (OETB) Aquatic Sciences and Fisheries Information System (ASFIS).

4. Implementation of the Unesco-IOC Comprehensive Plan for a Major Assistance Programme to Enhance the Marine Scientific Capabilities of Developing Countries

4.1 Assistance to Member States for the assessment of their needs and resources and development of national ocean capabilities $ 50,000

Organization (in conjunction with UNU, UNCLOS Secretariat, etc.) of a workshop aimed at promoting co-operation in marine scientific research. Expert group meeting to oversee the second phase of the Long-term and Expanded Programme of Ocean Exploration and Research (LEPOR-II). Provision of advisory services to Member States to assist them in increasing their participation in LEPOR-II.

4.2 Assistance to Member States for the development of proposals for extra-budgetary support $ 30.000

Expert and advisory missions to assist Member States in assessing their scientific and institutional requirements for oceanographic research, including the preparation of Marine Science Country Profiles.

4.3	Assistance to Member States to facilitate their participation in the programmes of the Commission Training seminars on subjects such as the quality control of IGOSS data, ocean mapping, and marine pollution monitoring methods.	$ 45,000
	TOTAL A (Programme)	$400,000

Proposals for Staffing

P-5	Ocean Processes and Climate	$ 170,000	(full period)
P-3	TEMA	$ 59,000	
GS-6	Conference and Documentation Clerk	$ 46,000	
GS-4	IOCARIBE (field post)	$ 34,000	
GS-4	Administration	$ 40,000	
GS-3	TEMA	$ 31,000	
GS-3	Ocean Processes and Climate	$ 31,000	
	TOTAL B (Staff)	$ 411,000	
	TOTAL	$ 811,000	

Resolution XIII-17

PROGRAMME AND BUDGET OF THE UNESCO DIVISION OF MARINE SCIENCES

The Intergovernmental Oceanographic Commission,

Recalling that, under Article 2 (h) of its Statutes, the Commission shall "make recommendations and provide technical guidance as to the formulations and execution of the marine science programmes of the United Nations Educational, Scientific and Cultural Organization",

Further recalling Resolution EC-XVII.1 and its Annex, as well as the discussions and recommendations of the IOC Working Committee for Training, Education and Mutual Assistance in the marine sciences (TEMA), at its Fourth Session (Lisbon, 4-9 June 1984) concerning the marine science programme of Unesco (Doc. IOC/TEMA-IV/3),

Having reviewed the draft programme and budget for 1986-1987 of the Unesco Division of Marine Sciences with respect to Programme X.4 (The Ocean and its Resources) and Programme X.5 (Management of Coastal and Island Systems), as well as its existing programme,

Recalling Resolution XII-10 which recommends the Programme X.4 and the ocean-related activities in Programme X.5 be carried out in an integrated manner,

Reiterates the invitation to the Director-General to consider this recommendation;

Appreciates Unesco's clarification, within the proposed Unesco Programme and Budget, of the marine role of the Division of Marine Sciences and the terrestrial role of the Man and Biosphere Programme in Programme X.5 (Management of Coastal and Island Systems);

Further appreciates the increase in the draft budget of the Division;

Notes with concern the possible major reduction of the resources devoted to the programme of the Division of Marine Sciences because of economy measures which probably will be necessary within Unesco;

Invites Unesco, with due regard to any austerity measures that might be taken within Unesco, to recognize the importance of the programme of the Division of Marine Sciences to Member States both in regard to the strengthening of scientific capabilities and, in particular, to training, education and development, and to continue its support to the programme to the fullest possible extent;

Recommends strongly that continued efforts be made to ensure that the programme of the Division of Marine Sciences and the IOC programmes are developed in a complementary and mutually supporting way, taking particularly into account the Unesco/IOC Comprehensive Plan for a Major Assistance Programme;

Instructs the Secretary, in collaboration with the Director, Division of Marine Sciences, to set up a small study group of experts under the Chairman of the Working Committee for TEMA, with the task of advising on measures to strengthen co-ordination of their programme activities in marine research and training, and to submit the report of the study group, together with an evaluation by the Secretary IOC and the Director, Division of Marine Sciences, to the Nineteenth Session of the Executive Council;

Invites Member States to forward in writing to the Secretary their proposals for strengthening the co-ordination of the programme activities in marine research and training, and make the reports available to the study group before 15 May 1985.

Budgetary provisions: $2,000 - $3,000 (IOC share) in 1985 budget, for expert consultation.

Resolution XIII-18

COLLABORATION WITH THE UNITED NATIONS AND CERTAIN SPECIALIZED AGENCIES (FAO, IMO, UNESCO, WMO) UNDER THE PROVISIONS OF THE ICSPRO AGREEMENT

The Intergovernmental Oceanographic Commission,

A

Recalling the Inter-secretariat Committee on Scientific Programmes Relating to Oceanography (ICSPRO) Agreement concluded, on the initiative of the Director-General of Unesco, in 1969, between the Executive Heads of the United Nations and a number of the United Nations Specialized Agencies (FAO, IMO, Unesco and WMO) which have jointly agreed to participate in the work of the Committee and which have indicated their willingness, subject to certain provisions, to contribute to the Secretariat of the Commission,

Having become increasingly concerned by the very heavy Secretariat workload resulting from the initial impetus required to develop new programmes - such as those on Ocean Science in Relation to Living Resources (OSLR) and Ocean Science in Relation to Non-Living Resources (OSNLR) - and to expand, or maintain the momentum of, the older programmes - such as Ocean Mapping, Marine Pollution Research and Monitoring, and Ocean Dynamics and Climate, as well as the Ocean Services, such as IGOSS and IODE,

Having listened with great interest to the opening statements and reiteration of close collaboration and support made by the Director-General of Unesco, the Secretary-General of WMO, the Under Secretary-General of the United Nations (Geneva), the Assistant Director-General (Fisheries) of FAO and the Representative of the Secretary-General of IMO, during the Commission's 25th Anniversary Celebrations, at the present Session of the Assembly,

Expresses its sincere thanks to these organizations for their past and on-going participation in (and, in several cases, co-sponsorship of) appropriate programmes of the Commission, in the hope that the agencies consider these to have been of mutual benefit.

B

Recalling a statement by the Representative of the United Nations at the First Session of ICSPRO that "the United Nations envisages providing a geologist to the IOC Secretariat from time to time...",

Requests the Secretary-General of the United Nations to investigate ways and means of providing an outposted professional to the IOC Secretariat in Paris, in support of the IOC-UN(OETB) Programme of Ocean Science in Relation to Non-Living Resources (OSNLR), and of defraying the cost of secretarial support for the UN staff member.

C

Having been informed that, due to pressure of work in headquarters, the Secretary-General of IMO feels obliged to recall to IMO Headquarters in London their staff member outposted to the IOC Secretariat,

Also requests the Secretary-General of IMO to review his Organization's decision regarding the outposting of a staff member to the IOC Secretariat, taking into account the provisions of the ICSPRO Agreement, and to investigate ways and means of providing the necessary funds in future IMO budgets for the maintenance of an outposted professional staff member in the IOC Secretariat in Paris, in support of the Global Investigation of Pollution in the Marine Environment (GIPME), and of the Marine Pollution Monitoring System (MARPOLMON), as well as the maintenance of funding for secretarial support of the IMO staff member.

Budgetary provisions: None required.

Resolution XIII-19

FORMULATION OF LEPOR-II

The Intergovernmental Oceanographic Commission,

A

Recalling the responsibility assigned to the Commission by the United Nations General Assembly in 1970 through Resolution 2560 (XXIV), to keep the Long-term and Expanded Programme of Oceanic exploration and Research (LEPOR) up to date and to co-ordinate its implementation,

Noting the decisions taken by the Fourteenth and Fifteenth Sessions of the Executive Council and the Twelfth Session of the Assembly in regard to the need to formulate a new phase of LEPOR, based upon the study undertaken by SCOR, ACMRR and ECOR on "Ocean Science for the Year 2000",

Having considered the views of ICSPRO on the subject and the Proposal for an Action Plan for the Formulation of LEPOR-II (Document IOC-XIII/8 Annex 3).

Expresses its appreciation to the Organizations Members of ICSPRO for their participation in this exercise;

B

Bearing in mind the need to ensure an appropriate interface between the international marine scientific community and the requirements of Member States in meeting their national goals in marine affairs, and the need to facilitate internal co-ordination of co-operative oceanographic activities,

Reaffirms the principle that the purpose of LEPOR is "to increase knowledge of the ocean, its contents and the contents of its subsoil, and its interfaces with the land, the atmosphere and the ocean floor and to improve understanding of processes operating in or affecting the marine environment, with the goal of enhanced utilization of the ocean and its resources for the benefit of mankind",

Instructs the Secretary, in consultation with the Organizations Members of ICSPRO and, as required, calling on the advice of a few persons associated with the work of the Commission and that of the Member Organizations, to develop a draft for LEPOR-II based on the outline contained in the above-mentioned Proposal for an Action Plan;

Requests the advisory bodies of the Commission, on the initiative of SCOR, to assist in the convening of an expert group, under the auspices of IOC and the Organizations Members of ICSPRO, to review the draft of an updated version of LEPOR (LEPOR-II);

Also instructs the Secretary to transmit this draft version of ICSPRO for consideration at its Twenty-fourth Session;

Further instructs the Secretary to prepare a final draft version incorporating the comments of ICSPRO, if any, and to submit it to the IOC Executive Council at its Nineteenth Session, for approval;

Authorizes the Executive Council to forward, in the name of the Commission, the updated version of LEPOR, (LEPOR-II), if approved, to ECOSOC at its Second Regular Session of 1986 for transmittal to the United Nations General Assembly, with a request that LEPOR-II be adopted as a co-operative programme of the UN.

Budgetary provisions: $8,000 (IOC share) in 1985 budget, for preparation of draft of LEPOR-II.

Resolution XIII-20

MEMBERSHIP OF THE EXECUTIVE COUNCIL

The Intergovenmental Oceanographic Commission,

Noting that the number of Member States of the Commission is now 112,

Recognizing that it would be of considerable benefit to the Commission's work to have an enlarged membership of the Executive Council, taking into account the principle of geographical representation,

Recalling its decision, at its Twelfth Session, to interpret Article 5 para 4(b) in sensu lato,

Decides to ammend Rule of Procedure No. 18, paragraph 1, to read 'The Executive Council shall consist of the Chairman, the four Vice-Chairmen and the representatives of twenty-eight Member States of the Commission to be elected by the Assembly in accordance with Article 5 of the Statutes of the Commission. State Members of the Executive Council shall be eligible for re-election'.

Budgetary provisions: None required.

ANNEX III

A. Opening address by Professor Inocencio A. Ronquillo, Chairman of the Intergovernmental Oceanographic Commission (IOC)

Mr Director-General of Unesco,
Mr Secretary General of WMO,
Mr Minister of Science and Technology of France,
Distinguished Fellow Officers, Past and Present,
Mr Assistant Director-General of Unesco
Distinguished delegates, representatives and observers,

It is for me a great pleasure to declare open the Thirteenth Session of the IOC Assembly, to welcome you to this ceremony by which we initiate the commemoration of the 25th Anniversary of IOC. We are to be honoured by the presence of the Director-General who is returning from a United Nations mission only this morning, and will address us immediately upon his arrival, at the end of this ceremony.

We are also particularly honoured by the presence of the Secretary-General of WMO and other high-ranking officials of the United Nations Organizations Members of ICSPRO, of representatives of various other United Nations and intergovernmental and non-governmental organizations co-operating with the Commission, of our Advisory Bodies. We are also most encouraged by the level of the Delegations of Member States, some of which are represented at this commemorative session at Ministerial or Ambassadorial level.

I also wish to express our satisfaction at having with us today, five Past-Chairmen, Dr Cameron, Professor Lacombe, Admiral Langeraar, Dr Humphrey and Dr. Ayala-Castanares, and four former Secretaries, Professor Wooster, Dr Holt, Dr Fedorov and Commander Scott, of the Commission, as well as many other Officers, ex-staff members and distinguished experts who, by their competence, wisdom and effort have contributed so much to IOC. The contribution of these men to the work of the Commission is inestimable.

This large and diversified participation is, in itself, an indication of the progress made by our Commission in this first quarter of a century. What a difference from earlier days when the Commission was formed by a relatively small number of States, mainly those traditionally involved in marine affairs, and a few from the southern hemisphere that were newcomers to oceanographic research. It also reflects not only the broader basis on which the Commission is now operating but also the comprehensive nature of the IOC research programme which now covers all relevant marine scientific and technical disciplines.

This afternoon, the Bruun Memorial Lectures will review progress in gaining a better knowledge of the oceans and their resources in recent decades, and the leading role played by IOC through the concerted efforts of its Member States and of their scientific communities. In making this appraisal, I am

trying to be objective and not merely self-congratulatory, as is often the case on occasions like this. The success in IOC's work is due, in no small measure, to the continuing evaluation of our programmmes and structures, which has allowed the Commission to adjust to new trends in ocean affairs and to new demands of the Member States. By the candid and open discussion in our governing bodies, which have always been characterized by a spirit of mutual understanding, we have overcome difficulties and have been able to find a common approach to the solution of our problems. In this process, we have consolidated the scientific and technical nature of our organization.

I wish to pay tribute to Unesco, and to you, Mr Director-General, for the deep understanding of the needs and goals of the Commission, and for the support provided to IOC which made possible our growth and consolidation. By the same token, I also pay tribute to the Organizations Members of the Intersectariat Committee on Scientific Programmes Relating to Oceanography. ICSPRO is indeed an outstanding example, in the United Nations system, of long-term inter-agency collaboration in the development of co-operative international marine science and related aspects for the benefit of the participating organizations and, therefore, of their Member States and the world community. We have also benefited from the solid guidance of our major technical subsidiary bodies, formed by competent and respected experts from our Member States, as well as the advice of SCOR, ACMRR and ECOR, which so effectively contribute to strengthening the link between the commission and the world marine scientific community.

The policy followed by the Commission in operating in a complementary manner at the global and regional levels has proved to be correct.

It is worth recalling the evolution that has taken place since the large-scale international co-operative investigations of the 1960s up to the recent concept and creation of the subcommissions, aimed at facilitating a more effective partnership between the coastal developing countries and the industrialized countries.

This progress resulted basically from Member States' efforts. It was nevertheless, facilitated by the training, education and mutual assistance activities of the Commission (TEMA). We hope that the technical assistance projects being promoted in the framework of the Comprehensive Plan for a Major Assistance Programme to Enhance the Marine Science Capabilities of Developing Countries, initiated by IOC and later endorsed by Unesco, will contribute to this central objective.

Evidently, we have not always succeeded in our endeavours, which is normal in all human enterprises. At our last Executive Council, you, Mr Director-General, encouraged us to take advantage of the Commemoration of our 25th Anniversary to undertake a critical review of the work of the Commission with a view to formulating guidelines for its future work, and to advise Unesco accordingly. A number of initiatives are, in fact, under way which are aimed at a more precise formulation of the Commission's scientific programmes and ocean-service requirements, and at defining the most appropriate modalities for their implementation. During these last few years, the Commission has made an effort to define priorities for some traditional programmes like the Global Investigation of Pollution in the Marine Environment. We have launched, jointly with SCOR, promising research experiments to study the ocean's effects on climate, as input to the WMO-ICSU World Climate Research Programme. The Commission has also filled two gaps of special relevance from scientific and

practical viewpoints by initiating programmes on Ocean Science in Relation to Living Resources jointly with FAO, and in Relation to Non-Living Resources, jointly with the United Nations; the latter is backed up by expanding ocean-mapping activities in co-operation with IHO.

In the field of ocean services, we are entering a period of expansion of International Oceanographic Data Exchange (IODE), and an accelerated phase of the IOC-WMO IOC-WMO Integrated Global Ocean Services System (IGOSS). Regarding the latter, much credit is due to your Organization, Mr Secretary-General of WMO, and I am glad to note that the relations between our two organizations are a model of inter-agency collaboration.

These ventures are complemented by a steady effort by IOC to promote required ocean-observing systems (such as the Global Sea-Level Observing System) and the increasing use, for that purpose, of new technologies providing opportunities for ocean-data acquisition, such as satellites and drifting buoys. Our goal is to provide the basis for an adequate ocean monitoring system by the end of the century.

In parallel with this area of activity, and with a view to facilitating the implementation of global programmes at the regional level, as well as to responding to specific needs and phenomena of interest to the Member States, the Commission is now operating in all major ocean regions of the world, through our main regional subsidiary bodies and through special arrangements with co-operating organizations. This is the case for the North Atlantic with the International Council for the Exploration of the Sea (ICES), for the Southeast Pacific, with the Permanent Commission for the South Pacific (CPPS), and the Mediterranean, with the International Commission for the Scientific Exploration of the Mediterranean (ICSEM).

These trends reflect the increased demand for the scientific knowledge a demand accelerated by the new ocean regime shaped by the practice of States and incorporated in the United Nations Convention of the Law of the Sea.

These demands on the Commission have always seemed to exceed the ways and means available to the Commission for the effective implementation of its programmes. Our Secretariat to which I wish to pay sincere tribute for their deep sense of duty and devotion to the interest of the Commission, has done its best to copy with the disparity, but now the Commission is slowly but steadily moving from the planning of major programmes to their implementation, and from a predominantly scientific activity to a growing role in the provision of ocean services.

The demands on the Commission for adequate servicing of its programmes by the Secretariat and the maintenance of common supporting services, confront the Commission's Member States with major policy decisions required to maintain the momentum of our programmes. We have undertaken, but not yet completed, an in-depth study of these questions and of some related aspects through a special Task Team to Study the Implications, for the Commission, of the United Nations Convention on the Law of the Sea and the New Ocean Regime. The major conclusions it has reached so far are to be considered by this Assembly, which may recommend some adjustments in the Commission's Statutes and Rules of Procedures to reflect better the new needs of the Member States and its objectives and role up to the end of the century and beyond. Without doubt, this will be a period in which ocean affairs will progressively occupy a vital role in national goals and international affairs.

We must determine the course of action to be taken to create the necessary continuity in the work of the Commission and the stability in the resources available to it, particularly in terms of budget and secretariat staff; to consolidate our regional activities, possibly through the progressive merging of certain programme groups into subcommissions covering major ocean regions (for example, merging in a few years from now the programme groups of IOCINCWIO AND IOCINDIO into a subcommission covering the Indian Ocean as a whole), so as better to study the natural phenomena and large-scale oceanographic processes of these major ocean regions. Another major goal of the Commission in the coming years in the establishment of the basis for an adequate ocean monitoring system (a World Ocean Watch analogous and complementary to the World Weather Watch of WMO) which is required for the new studies of ocean and climate and other scientific systems, and safety purposes, without which the utilization of ocean resources is handicapped. These goals can only be achieved by careful planning and implementation based on an objective analysis of the capabilities of Member States and depend on their political will and the active collaboration of their scientific communities.

In bringing these thoughts to your attention, all of us - Member States, the organizations Members of ICSPRO and others, and each of us individually - need to rethink IOC in terms of the future, as did those, to whom we should pay tribute today, who conceived IOC and created it in the framework of Unesco, 25 years ago. In our view, such a decision, even if controversial at that time, when alternatives (as, for example, to establish an autonomous organization or an inter-agency body) were envisaged, has proved wise. In fact, Unesco's special concern with educational aspects and the general development of science, allowed the IOC to grow steadily as our membership became year after year more nearly universal, and this contributed to fostering the participation of interested developing countries in the Commission's work.

Now that a partnership between the developing countries and the industrialized countries is beginning to emerge, we recognize that it is increasingly important and necessary to improve liaison between, the Member States and the Secretariat, with a view to enhancing co-operation and performance. We, therefore, attach the greatest importance, as recommended by IOC's governing bodies, to the creation, if and when necessary, of National Oceanographic Commissions or other similar co-ordinating bodies, to facilitate the achievement of national goals in ocean affairs and the increased participation of Member States in IOC activities and, indeed, amongst the Member States themselves.

If the Commission is to perform its role as the appropriate body in the United Nations system:

to serve its Member States effectively:

to promote and facilitate international marine scientific research;

to discharge the mandate given to it by the United Nations General Assembly to co-ordinate the Long-term and Expanded Programme of Ocean Exploration and Research;

to serve as a joint specialized mechanism of the Organizations Members of ICSPRO.

It must:

strengthen its scientific and technical competence and capabilities;

have the fullest possible involvement of its Member States, whatever their level of marine scientific and technical competence:

strengthen its relationships and collaboration with the organizations members of ICSPRO, and with the other organizations of the United Nations system concerned with marine affairs;

and it must have a clear vision of the evolution of international co-operative marine science and technology for the coming decade.

Finally, may I conclude by saying that the last 25 years have been for IOC what I would call a period of great experiment in human endeavour, directed towards the advancement of frontiers of our knowledge and the oceans. These achievements were dictated by one important principle - the principle of co-operation among the community of nations. These achievements are also exemplified by the increasing involvement, over the years, of the Member States in the work and programmes of the Commission, as well as in its decision-making process, and by the establishment of ICSPRO which has already demonstrated the fruitful relationship among the member organizations to be not only vital, but also to provide a great potential for the solution of the multidisciplinary and multisectorial problems that are the fabric of the study of the oceans, their resources and their interface with the atmosphere and land.

I, therefore, wish to appeal to the international scientific community to use the opportunities provided to them by the Commission through its various fora, to their maximum benefit. I wish also to appeal to the governments, Unesco and other organizations in the United Nations system and the funding agencies, to make a special effort to respond, in a creative and constructive manner, to the future needs of the international community in the use of the oceans for the benefit of all mankind and in a spirit of effective partnership.

B. Address by Mr Amadou-Mahtar M'Bow, Director-General of the United Nations Educational, Scientific and Cultural Organization (Unesco)

Mr Chairman,
Honourable Ministers,
Mr Secretary-General of WMO,
Your Excellencies,
Ladies and Gentlemen,

It gives me great pleasure to welcome you to Unesco House for this thirteenth session of your General Assembly, which presents us with the opportunity to celebrate the twenty-fifth anniversary of the establishment of the Intergovernmental Oceanographic Commission.

Although the Commission was set up within the framework of Unesco, in accordance with the recommendations of the Copenhagen Conference, my predecessor, the late René Maheu, observed at the opening of the first session of the General Assembly, on 19 October 1961, that it was desirable that the Commission should co-operate closely with other institutions of the United Nations system, 'respecting their various fields of competence', he emphasized that, 'but working together with them to arrange meetings and other forms of useful collaboration'.

Thus, it has been the constant concern of Unesco and of its Director-General, throughout the development of the IOC and of the Organization's programmes in the marine sciences, to encourage and strengthen the most fruitful bonds of co-operation, not only with the organizations of the United Nations system, the international, governmental and non-governmental organizations and national bodies, but also with the world scientific community as a whole.

For this reason the anniversary that we are celebrating today goes well beyond the scope of Unesco, and I should like to express our profound gratitude to all those who have been associated over the last 25 years with the development of the IOC. I also wish to say to the distinguished persons here today how glad we are to have them with us and how much we appreciate their taking part in this ceremony.

The action taken by Unesco since its inception with regard to the marine sciences all stems from a constant desire to contribute to the strengthening of international scientific co-operation and to the progress of its Member States.

As early as 1955 there was established an International Advisory Committee on Marine Sciences (IACOMS) responsible for advising the Director-General on all matters concerning the development of international co-operation in this field. Two years later, the International Council of Scientific Unions (ICSU) established in its turn a special committee which was to become the Scientific Committee on Oceanic Research (SCOR).

The Intergovernmental Oceanographic Commission was born, it might be said, of the close co-operation established between these two committees and with the assistance, in particular, of the United Nations, the Food and Agriculture Organization of the United Nations, the World Meteorological Organization and the International Atomic Energy Agency, to all of which I should like to pay tribute for their valuable co-operation.

As the objective assigned to the IOC is 'to promote scientific investigation with a view to learning more about the nature and resources of the oceans through the concerted actions of its members', only 40 States considered themselves to be in a position to join it following its first session. Those were countries which, possessing relatively substantial resources, already accorded a high priority to oceanographic activities.

At the present time, however, the IOC consists of 112 Member States, and the measures taken by Unesco have done much to promote this development. In addition to providing the Secretariat of the IOC and contributing to the diversification and strengthening of its activities, Unesco has made a particular effort to encourage co-operation by all its Member States in the programmes prepared and implemented by the Division of Marine Sciences, in conjunction with the activities of the Commission.

As a result, a number of States were gradually able to benefit from international co-operation which enabled them to encourage the development of the marine sciences and increase their training and research capacities. It was quite natural, therefore, that they should decide in their turn to become members of the IOC.

Their membership opened up new prospects for them, since it enabled them to participate more fully in the joint efforts undertaken, in particular, in the context of the United Nations system. In fact, Unesco is not the only institution to have competence in the marine sciences. Other organizations have specific responsibilities in this field, including the exploration and exploitation of living, mineral and energy resources in the sea, the interactions between the ocean and the atmosphere which influence the climate and the weather, or the protection of marine waters against the effects of pollution.

Thus, it became necessary to develop more fully appropriate forms of co-operation between the organizations of the United Nations system which play an important role in oceanography, so as to avoid any duplication in the planning and implementation of an expanded programme of international co-operation.

With this end in view, in 1968, on the initiative of Unesco, the Inter-Secretariat Committee on scientific programmes relating to oceanography was established. It then became necessary to clarify the role of the Commission as a specialized body, common to the organizations of the United Nations system and designed to act as an instrument for them in carrying out some of their responsibilities in the marine sciences.

It hardly seems appropriate for me to outline to you the historical background of the Commission, or even to remind you of its main tasks, since you are already well acquainted with them. However, I should like to call to mind the turning point, decisive in my opinion, which occurred in September 1969 during the sixth session of the Commission.

The United Nations General Assembly had just requested you to intensify, in accordance with your mandate and in conjunction with other interested bodies, the scientific activities of the Commission, particularly as regards the co-ordination of the scientific aspects of an expanded long-term programme for the worldwide exploration of the oceans and their resources. In addition to projects carried out by international bodies, this programme was to include a broader exchange of data from national programmes and also worldwide action to build up research methods in all the countries concerned, taking into account, in particular, the needs of the developing countries.

You responded to this request by establishing the Long-Term and Expanded Programme of Oceanic Exploration and Research (LEPOR). At that same session you approved new statutes providing, inter alia, for the establishment of your Executive Council. In addition, you adopted the general plan and the programme for the implementation of the first phase of the Integrated Global Ocean Services System. It was also on this occasion that you recommended that there should be a substantial increase in the human and financial resources devoted to the IOC Secretariat.

If I have dwelt on the events of 1969 as being a turning point, it is because a new development seems now to be under way, which could well be of similar scope and, indeed, there is no lack of signs that would seem to support this view. As an example, I would cite the updating of LEPOR. This operation, which is now under discussion, must be carried out in the light of the experience acquired during recent years and must take account of the probable development of the marine sciences from now until the end of the century. You are also undertaking the development of new activities relating to ocean services in the form of ocean observation systems, which could regularly provide those using the sea with the basic data they need. These 'operational' activities appear to me to be of great practical benefit, and I can, for my part, only encourage the initiatives you have taken.

However, the most striking event in recent years will undoubtedly have been the signing of the United Nations Convention on the Law of the Sea. This Convention is an exceptional event which stands in a long line of standard-setting texts, each of which marks an important stage in the history of international law. The adoption of the Convention highlights the considerable changes which have taken place both in scientific and technological terms and in political terms. These changes have given a new dimension to the exploitation of the oceans and, as a result, have opened up new vistas for your Commission, whose responsibilities would now seem destined to broaden. It is therefore quite natural that you should now be thinking of adapting the structures of the Commission to these new trends and that you have envisaged changes in its statutes.

This presents me with an opportunity to pay tribute to the work undertaken by the special team which you set up to study the implications, for the Commission, of the United Nations Convention on the Law of the Sea and of the new regime of the oceans. Its examination of these topics has made it possible to draw up a picture of the prospects which could be open to the Commission in the new international context.

I have already had occasion, during your preceding session, to emphasize the historic importance of the new Charter of the Oceans for the whole of mankind. Henceforth, the oceans will be places where the efforts of all nations can be combined in mutual solidarity in the search for the common welfare. Let us hope that the Intergovernmental Oceanographic Commission will play a special role both in co-ordinating and in carrying out activities in order to attain this objective, which is in accordance with the mission of Unesco and with that of all the institutions of the United Nations system that co-operate with it in the Commission.

In any event you may be sure that Unesco will always be attentive to your efforts, that it remains receptive to your aspirations and that it places great hopes in the Commission as we approach the year 2000. It is in reaffirming this in the most solemn terms that I should like to wish your proceedings every possible success.

C. Address by Mr Hubert Curien,
Minister of Scientific Research and Technology of France

Mr Chairman,
Mr Director-General,
Ladies and Gentlemen,

It is a pleasure and honour for me to address you at this opening meeting of the Thirteenth Session of your Assembly - a particularly solemn occasion as it celebrates the Twenty-fifth Anniversary of the establishment of the Intergovernmental Oceanographic Commission.

Mingled with these feelings, there is also the satisfaction of reflecting that France was one of the 40 Member States of the Commission present at its first session in October 1961. France can thereby pride itself on being one of the Commission's 'founding members', and this, indeed, is only right for a country to which history has given a presence in the three great oceans of the world.

As it happens, this Twenty-fifth Anniversary coincides with the historic situation brought about by the gradual establishment of a new ocean regime which, independently of the entry into force of the United Nations Convention on the Law of the Sea, puts into practice, in customary law, most of the provisions of that Convention.

The objective that your Commission set itself from the outset, i.e. to promote oceanographic research through the joint action of its members, is in this way proving to be fully justified. The potential resources of the sea are immense, and still little known. They can be used wisely only if there is better scientific knowledge of the marine environment and more complete control of the corresponding technologies. In fact, the potential of the sea is matched by new and promising technologies, of which satellites are one example.

Today, we find ourselves facing a challenge which, while confronting each country individually, can only be taken up if there is co-operation by all concerned and if there is joint action at both the international and the regional levels.

This is clear to those who have to conduct world affairs at the highest levels of responsibility. Thus the President of the French Republic recently stated in a television broadcast that space and the oceans were the key factors in all foreign policy-making. For their part, the European Ministers of Science meeting in Paris last September included oceanography among the networks to be created in the Member States of the Council of Europe.

However, where the marine environment is concerned, the pooling of knowledge according to the cultural or scientific affinities which may exist between countries in a given region is not sufficient. Co-operation still has to be established between the most scientifically and technically advanced countries and those which are less advanced. In striving to organize regional activities, your Commission has taken the successful initiative of bringing together countries whose coasts touch on the same ocean area and those countries entering the area to conduct research. In this atmosphere of mutual

understanding, we see a practical example of the NorthSouth dialogue to which, as you know, the French Government attaches particular importance. It is certainly no coincidence that this example appears in a field that is one of the factors determining the development of mankind in the twenty-first century.

The task before us is by no means an easy one. But I have come here today to assure you that it is France's firm intention to participate fully in this endeavour, and that it will spare no effort to promote international co-operation, both in the research programmes pursued by IOC and in the introduction of the necessary ocean services - the one being the complement of the other. I must be careful not to forget the 'training' aspect which underlies all the Commission's activities, since the aim is to bring about the participation of all by increasing each country's national capabilities in the marine sciences, ocean services, and related technologies.

To be in a position to co-operate effectively, France must first build up its own oceanographical capabilities and means of action, and this objective is the subject of an ambitious programme which I shall now outline for you.

At the national level, we have begun by grouping our technical capabilities into two agencies: IFREMER and INSU:

IFREMER (Institut Français de Recherche pour l'Exploitation de la Mer) resulted from the merger of CNEXO (Centre National pour l'Exploitation des Océans) and ISTPM (Institut des Pêches). IFREMER will devote its efforts to the development and improvement of its programmes having economic and technological aims.

INSU (Institut National des Sciences de l'Univers) will co-ordinate the research activities of the CNRS (Centre National de la Recherche Scientifique) and of the Universities with a view to achieving a significant expansion of upstream research in the marine sciences by placing special emphasis on international co-operation.

Furthermore, at the national level, joint action by industrialists, marine professionals and scientists will be assisted by the launching this year of an ambitious programme entitled 'Ocean', which will use what has been learned in our programme 'Espace'. The 'Ocean' programme is based on a considerable technological effort which includes the renewal of our oceanographical fleet over a fifteen-year period, as well as increased research and development efforts in underwater robotics. As you know, we are already equipped in this field with high performance vessels such as the underwater research vehicle Cyana and the 6,000-metre SM 97, submersible recently name 'Le Nautile'. This programme also includes an augmented research effort for the development of fish farming and aquaculture sites. Finally, France is making a particular effort to improve the organization of its oceanological centres in its Overseas Departments and Territories (the Caribbean and the Indian Ocean). These centres will have the special task of encouraging co-operation with neighbouring countries, especially with respect to living marine resources.

At the international level, France is at present involved in several different projects. A few examples are:

the joint construction with Canada of the first civilian diver-carrying submersible, Saga, for use under ice floes in the Arctic. This vessel is able to send divers out to perform various prospecting and maintenance tasks on underwater production units in any weather;

the Ocean Drilling Program (O.D.P.) which is a vital operation for enlarging our knowledge of the earth sciences;

finally, the international research programme on climate, in which the major role played by the oceans justifies the contribution made by France to the building, with the United States, of the Topex-Poseidon satellite.

You may think that these are highly sophisticated programmes and technologies which are not accessible to everyone. To this I must reply that our aim is to ensure that countries which have not yet acquired the experience made necessary by the de- mands of the modern world will be assisted by the others in a way which is free from self-interest.

To my mind, IOC's role in this connection is vital. Independently of the tur- moil of today's world, it must be a meeting place where assistance or training can be requested and obtained, a centre for dialogue between countries, regardless of their level of development or their politics. France intends to contribute to this dialogue. It has spared no effort in the past to encourage the Commission's acti- vities, and it fully intends to continue in this direction in the future.

I am convinced that if we work together, we will be able to make a successful transition to the twenty-first century. To this end, Member States must become aware of the need to play an active part in the Commission, following the old adage: 'The Lord helps those who help themselves', so that it can live up fully to the expec- tations we have of it.

There is a vast amount to be done and close co-ordination of the activities of international organizations - governmental and non-governmental alike - will there- fore be necessary. In this respect, Mr Chairman, I wish to pay tribute to Unesco which sponsored the Commission and provided it with the necessary infrastructure. I should also like to thank the other organizations of the United Nations system which support IOC's science programmes and which have devised a suitable system for the provision of this support, as well as those organizations which have made working arrangements with the Commission and co-operate with it.

ANNEX IV

A. List of IOC Member States
(as at 25 March 1985)

B. Officers of the Commission
(as at 25 March 1985)

C. State-Member Representatives on
the Executive Council
(as at 25 March 1985)

A. List of Member States of the Commission (112)
(as at 25 March 1985)

* ALGERIA
* ANGOLA
* ARGENTINA
* AUSTRALIA
AUSTRIA
(THE) BAHAMAS
BANGLADESH
BELGIUM
* BRAZIL
* BULGARIA
CAMEROON
* CANADA
CAPE VERDE
CHILE
* CHINA
COLOMBIA
CONGO (THE)
* COSTA RICA
CUBA
CYPRUS
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA
* DENMARK
DOMINICAN REPUBLIC (THE)
ECUADOR
* EGYPT
ETHIOPIA
FIJI
FINLAND
* FRANCE
GABON
* GERMAN DEMOCRATIC REPUBLIC (the)
* GERMANY, FEDERAL REPUBLIC OF
GHANA
* GREECE
GUATEMALA
GUINEA
GUINEA-BISSAU
GUYANA
HAITI
ICELAND
* INDIA
* INDONESIA
IRAN, ISLAMIC REPUBLIC OF
* IRAQ
IRELAND
ISRAEL
* ITALY
* IVORY COAST (THE)
JAMAICA
* JAPAN
JORDAN
* KENYA
KUWAIT
LEBANON
LIBYAN ARAB JAMAHIRIYA (THE)
MADAGASCAR
MALAYSIA
MALTA
MAURITANIA
MAURITIUS
* MEXICO
MONACO
MOROCCO
MOZAMBIQUE
NETHERLANDS (THE)
NEW ZEALAND
NICARAGUA
* NIGERIA
NORWAY
OMAN
PAKISTAN
PANAMA
* PERU
* PHILIPPINES (THE)
POLAND
PORTUGAL
QATAR
REPUBLIC OF KOREA (THE)
ROMANIA
SAMOA
SAUDI ARABIA
* SENEGAL
SEYCHELLES
SIERRA LEONE
SINGAPORE
SOLOMON ISLANDS
SOMALIA
SOUTH AFRICA (suspended)
SPAIN
SRI LANKA
SUDAN (THE)
SURINAME
SWEDEN
SWITZERLAND
SYRIAN ARAB REPUBLIC (THE)
* THAILAND
TOGO
TONGA
TRINIDAD AND TOBAGO
TUNISIA
* TURKEY
UKRAINIAN SOVIET SOCIALIST REPUBLIC (THE)
* UNION OF SOVIET SOCIALIST REPUBLICS (THE)
UNITED ARAB EMIRATES (THE)
* UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND (THE)
UNITED REPUBLIC OF TANZANIA (THE)
* UNITED STATES OF AMERICA (THE)
URUGUAY
* VENEZUELA
VIET NAM
YEMEN
YUGOSLAVIA

* Members of the Executive Council.

B. OFFICERS OF THE COMMISSION
(as from 25 March 1985)

Chairman

Prof. Inocencio A. Ronquillo
Chief, Division of Research
Bureau of Fisheries and Aquatic Resources
P.O. Box 623
Manila
Philippines

(Tel. 98-70-51
Telex: 2566 BFAR-PU/RONQUILLO
Cable: Fisheries Bureau-Manila)

First Vice-Chairman

Miss Marie-Annic Martin-Sané
Coordinateur multilatéral
Direction Générale des Relations
Culturelles, Scientifiques et
Techniques (DGRCST)
Ministère des Relations Extérieures
34, rue La Pérouse
75116 Paris
France

(Tel. 502-14-23, extension 45-85)

Second Vice-Chairman

Dr. José Antonio Galavis-Seidel
Ministerio de Energía y Minas
Dirección de Geología
Torre Oeste, Piso 4
Parque Central
Caracas
Venezuela

(Tel. 41-64-60
Cable: DIREGEOL-CARACAS o
MINIMINAS CARACAS)

Third Vice-Chairman

Prof. Dr. sc. Klaus Voigt
Director
Institut fur Meereskunde der
Akademie der Wissenschaften
der DDR
DDR - 2530 Rostock - Warnemunde
German Democratic Republic

(Tel. 58288 or 58289
Telex: 31133 ifm dd)

Fourth Vice-Chairman

Mr. Samuel O. Allela
Director
Kenya Marine and Fisheries
Research Institute
P.O. Box 81651
Mombasa
Kenya

(Tel. MOMBASA 472245)

Secretary

Dr. Mario Ruivo
Intergovernmental Oceanographic
Commission
Unesco
7, Place de Fontenoy
75700 Paris
France

(Tel. 568-3983
Telex: 204461 Paris
Cable: Unesco Paris)

C. STATE-MEMBER REPRESENTATIVES ON THE EXECUTIVE COUNCIL
(as from 25 March 1985)

I.A. Ronquillo	Philippines (Chairman)
M.A. Martin-Sané	France (First Vice-Chairman)
J.A. Galavis-Seidel	Venezuela (Second Vice-Chairman)
K. Voigt	German Democratic Republic (Third Vice-Chairman)
S. Allela	Kenya (Fourth Vice-Chairman)
A. Chouikhi	Algeria
D. Van-Dunem	Angola
S.R. Olivier	Argentina
D.G. Keeley	Australia
J. do Cabo Teixeira de Carvalho	Brazil
B. Ormanov	Bulgaria
N.J. Campbell	Canada
Luo Yuru	China
M. Murillo	Costa Rica
K.V. Hansen	Denmark
A.R. Bayoumi	Egypt
G. Hempel	Germany, Federal Republic of
C. Kribas	Greece
S.Z. Qasim	India
A. Sogiarto	Indonesia
N.A. Hussein	Iraq
C. Morelli	Italy
G.F. Zabi Soko	Ivory Coast
T. Nemoto	Japan
A. Ayala-Castañares	Mexico
J.G. Tobor	Nigeria
J.M. Bakula	Peru
D.Y. Kane	Senegal
T. Pongsapipatt	Thailand
T.I. Balkas	Turkey
E. Tolstikov	Union of Soviet Socialist Republics
D.P.D. Scott	United Kingdom of Great Britain and Northern Ireland
P.M. Wolff	United States of America

ANNEX V

ANTON BRUUN MEMORIAL LECTURES 1985
(abstracts)

Tuesday, 12 March 1985

PAST AND FUTURE PERSPECTIVES OF THE COMMISSION

(Chairman: Mlle M.A. Martin-Sané, First Vice-Chairman, IOC)

Prof. W.S. Wooster (United States of America)	On the Benefits of Ocean Studies
Dr. S.Z. Qasim (India)	What Steps Should Be Taken to Meet the Challenges of the Future in Ocean Services and Technology and in the Identification of Disturbances caused by Man?
Prof. A. Yankov (Bulgaria)	How can the International Scientific Community Work Together in the Era of an Emerging Ocean Regime to Help All Partners to Achieve a Better Understanding of Ocean Phenomena and their Impact on Man

ON THE BENEFITS OF OCEAN STUDIES

by Prof. W.S. Wooster
University of Washington
Institute for Marine Studies HF-05
Seattle - Washington 98195, USA

ABSTRACT

1. WHO MIGHT BENEFIT, AND HOW?

1.1 What activities might be expected to benefit?

1.2 What kinds of benefits could be anticipated?

2. KNOWLEDGE AND RESEARCH

2.1 Empirical versus scientific knowledge.

2.2 Different activities benefit from different kinds and domains of research.

3. BENEFITS OBTAINED DURING PAST 25 YEARS

3.1 General review for all activities.

3.2 Case study: the climate fishery connection.

4. THE ROLE OF INTERGOVERNMENTAL CO-OPERATION

4.1 IOC and other international organizations.

4.2 Impact of the new ocean regime.

5. CONCLUSIONS TO BE DRAWN

WHAT STEPS SHOULD BE TAKEN TO MEET THE CHALLENGES OF THE FUTURE IN OCEAN SERVICES AND TECHNOLOGY AND IN THE IDENTIFICATION OF DISTURBANCES CAUSED BY MEN?

by Dr. S.Z. Qasim
Department of Ocean Development
Mahasagar-Bhavan
Block n° 12 - CGO Complex
Lodi Road
New Delhi 110003, India

ABSTRACT

1. OCEAN SERVICES

(a) Ocean and climate.
(b) Development of oceanographic data and information system.
(c) Control of marine pollution.

Steps to be taken under (a) "Ocean and climate" will include forecasting the weather, storms, sea state and storm surge. The global climate programme will witness large-scale space-based platforms which have a continuous link with satellites and large computer capabilities for simulating ocean-atmosphere exchange. Under (b), the storage, retrieval and dissemination of oceanographic data will be dealt with within the framework of regional and global oceanographic data and information network. Under (c), suitable solutions to pollution problems in coastal waters and oil pollution problems in the high seas will be discussed.

2. OCEAN TECHNOLOGY

(a) Living resources.
(b) Use of biotechnology.
(c) Mineral resources.

Steps to be taken under (a) are increased food production from coastal and offshore waters by using efficient and cost-effective technology of mechanized fishing and the extensive use of mariculture to generate a substantial increase in food production. Under (b), explosive development of biotechnology and its related science/genetic engineering have reached marine science. Fascinating natural products are being discovered in marine animals and plants and the new technology allows the transfer of genetic material from the organisms to bacteria whereby the compounds, metabolites or gene products will be produced by bacteria instead of the marine organisms. Under (c), the importance of coastal (placer) deposits of chemically stable minerals will be dealt with and their importance and value will have to be emphasized. Similarly, the development of technology to mine polymetallic nodules from a depth range of 4,000 - 6,000 metres and the extraction of economically important metals from the nodules will be summarized. In addition, production of oil and gas from the offshore areas and the development of various support services will be described.

3. IDENTIFICATION OF DISTURBANCES CAUSED BY MAN

(a) Multiple use of the oceans.
(b) Coastal zone management.
(c) Engineering tasks.

Steps to be taken under (a) should include the concept that environmental protection will not be ignored in search of profitability and what is required is wise and judicious use of the sea so that the oceans will continue to fulfil our social, economic and recreational needs for a long time to come. Steps to be taken under (b) "Coastal zone management" will include resolving conflicting demands of exploitation of various coastal resources by different interest groups and user agencies. Need for the development of national policies and guidelines with requisite enforcing powers for managing the coastal zone. Under (c), the steps to be taken are to develop innovations to reduce the cost of engineering tasks which are many times more expensive than similar activities on land. Similarly to reduce the hazards of work which are far more risk-prone and the management operations more demanding than similar operations on land.

4. CONCLUSION

Future oceanographic programmes in all countries of the world and more particularly in developing countries should be carefully planned to suit many important and urgent steps, described above, so that a new era of exploration and exploitation of our vast ocean resources opens.

In all the sectors, the steps will highlight the related programmes of IOC and the tremendous incentive the IOC has provided for the promotion of ocean science, ocean services and training, education and mutual assistance in marine science.

HOW CAN THE INTERNATIONAL SCIENTIFIC COMMUNITY WORK TOGETHER IN THE ERA OF AN EMERGING OCEAN REGIME TO HELP ALL PARTNERS TO ACHIEVE A BETTER UNDERSTANDING OF OCEAN PHENOMENA AND THEIR IMPACT ON MAN

by Prof. A. Yankov
Professor of International Law
Complex Lenin - Blocus 73
1111-Sofia, Bulgaria

ABSTRACT

1. The significance of the United Nations Convention on the Law of the Sea as a general legal framework for the promotion of international co-operation in the uses of the seas, the exploration and exploitation of their resources and the protection of the marine environment

1.1 The new Convention should be assessed as an attempt to reflect the increasing role of the world's ocean in the context of the major economic and political developments of our time.

1.2 The provisions on marine scientific research and transfer of marine technology express the growing perceptions as to the prominent role of ocean science and its application in the effective utilization and management of the seas and their resources.

1.3 The impact on the freedom of oceanic investigation of the emerging new concepts of maritime law justifying the expansion of the scope and field of application of national jurisdiction over large areas of the ocean space, such as the exclusive economic zone and the continental margin.

1.4 The new trends in ocean affairs have called for new legal framework for international co-operation in the area of marine scientific research and development of marine technology in order to strike a meaningful balance between the zonal approach to the regime of marine scientific research and the global dimensions of the exploration, exploitation, management and preservation of the seas and their resources.

2. International co-operation as a fundamental principle underlying the new regime for the conduct of marine scientific research and transfer of information and technology

2.1 The scope and significance of the principle of international co-operation under contemporary international law.

2.2 Partnership as the main aspect of international co-operation relating to marine science and technology.

2.3 The emerging trends in the practical implementation of the requirements for international co-operation: promotion of marine sciences and acquisition of competence; creating favourable conditions for oceanic research; education and training; enhancing research and technological infrastructure; dissemination of scientific information; encouraging the establishment and operation of national, regional and international institutions in the field of marine science and technology.

2.4 The main provisions of the UN Convention on the Law of the Sea relating to international co-operation in the field of ocean science and technology.

2.5 The functions of the new regime of marine scientific research viewed not only as a framework defining the rights and obligations of researchers and coastal states but also as a legal set-up for effective partnership and mutual confidence in the conduct of ocean investigation and enhancing the scientific and technological capabilities of the partners and particularly those from the developing countries.

3. The institutional aspects of the new regime for the promotion of marine scientific research and the development of marine technology

3.1 The role assigned by the new Convention to international organizations on local, regional and global levels through bilateral and multilateral agreements and the implementation of regional and global programmes for action.

3.2 The special mission of IOC under the provisions of the new Convention to facilitate, promote and create favourable conditions for the conduct of marine scientific research; to strengthen the co-ordination of marine scientific activities; and to render ocean services.

3.3 The need to improve the functioning of the international institutional system in view of the new requirements and challenges of maritime activities in general and the conduct of marine scientific research in particular.

4. Conclusion

The regime of marine scientific research under the new Convention should be regarded not as a legal restraint but should be considered in a positive way as a foundation for promoting mutual confidence and stability in the conduct of marine scientific research and furthering international co-operation in marine science and technology.

In this connection, the IOC, together with other international organizations, is in a position to make an invaluable contribution towards the integration of the efforts of the scientific community in achieving a better understanding of ocean phenomena and promoting the peaceful uses of ocean space and its resources. This would represent a new stage in the evolving new role of IOC.

ANNEX VI

PROCEDURES FOR THE REVIEW OF PAST RESOLUTIONS

General

The Assembly at the present (Thirteenth Session) instructed the Resolutions Committee to make a study of the ways and means by which past resolutions could be reviewed, in order to determine which operative paragraphs were now obsolete or contradictory, one with another, and could therefore be formally dropped.

In carrying out this task, the Resolutions Committee took into account the method followed by WMO, but considered that it was not entirely applicable to IOC. The Committee was given a short presentation on the subject by Mr S. Mizuno, the Representative of WMO to IOC-XIII.

The Committee was informed that the Working Committee for IGOSS, being a joint IOC-WMO body, is already following the WMO guidelines in regard to its past resolutions and recommendations.

The Resolutions Committee decided that the routine review of Past Resolutions could only be a part of a wider procedure which dealt with the preparation of the draft resolutions for governing body sessions whether these be new or replacements/updating of past resolutions. The procedures below have been based on this concept; they were accepted by the Assembly which instructed the Secretary to implement the proposal (paragraph 715 of the present Summary Report).

A. Governing Body Resolutions

The Resolutions Committee recommends that the following procedures be followed in future:

1. Before the Session

1.1 The Secretary, when preparing pre-session working documents, attaches as necessary and where appropriate draft resolutions thereto; in preparing these resolutions, account should be taken of all past resolutions concerning the subject covered by the document. These new draft resolutions should be considered by delegates at home, prior to the Governing Body Session.

1.2 A document entitled "Review of Past Resolutions" be prepared on the basis of contributions from all Secretariat units; e.g., Document IOC/WMO-IGOSS-III/8 Annex 13. This document should list all Past Resolutions still in force and make recommendations regarding Past Resolutions considered obsolete or time-expired, as well as those which will be superseded by the Draft Resolutions attached to the working documents of the session (para. "a" above).

2. During the Session

2.1 A Rapporteur should be appointed to study the "Review" document, together with a member of the Secretariat; the Rapporteur should submit his report to the Plenary in the form of a Draft Resolution; e.g., Resolution 5 (JWC-IGOSS-III).

2.2 Any Delegation wishing to submit a Resolution is invited to avail itself of the services of the Secretariat for assistance in the preparation of the first draft and provision of necessary cross-references, etc.

3. After the Session

The Secretary amends the IOC computer record of past resolutions from the adopted Resolutions of the Session, one of these being the "Review" Resolution submitted by the Rapporteur (para. "2a" above).

The Resolutions Committee noted that WMO and several other organizations issue loose-leaf publications containing all Past Resolutions of their Governing Bodies still in force. The advisability of preparing a similar publication containing IOC Governing Body Resolutions might be worth considering when the "Review" of Past Resolutions has been completed and the above procedures are working smoothly.

In addition, it is considered that it would be helpful if the past practice of printing the resolutions of Executive Council sessions in the Summary Reports of Assembly sessions, could be reinstated.

B. Subsidiary Body Resolutions and Recommendations

In general, Subsidiary Bodies should be able to follow similar procedures to those proposed above for the Governing Bodies.

It is understood that Subsidiary Body Resolutions and Recommendations have not yet been computerized. It is suggested that this be done as soon as each Subsidiary Body has completed its "Review" (not before, as in the case of the Governing Bodies).

As stated in the general preamble above, the IGOSS Resolutions and Recommendations have already been reviewed and can be computerized as soon as the necessary effort is available.

It should be noted that Subsidiary Bodies should review all relevant Governing Body Resolutions still in force, as well as their own Resolutions and Recommendations (see Document IOC/WMO-IGOSS-III/8 Annex 13).

Action to be taken on Past Resolutions as a one-off exercise needed to reach the situation where the routine Review Procedure proposed above can be put into effect

1. Before the existing Past Resolutions of the Governing Bodies can be reviewed, the Secretary should prepare a complete listing of all Past Resolutions of the Governing Bodies which might contain material that should be retained.

Note: This first action by the Secretary would only be a very preliminary review; if there is any doubt about a Resolution, it should be retained at this stage.

2. Resolutions should be listed under Subsidiary Body headings where applicable, leaving a residue of Resolutions for which no Subsidiary Body has responsibility.

3. Each Subsidiary Body, at its next session, shall then be required to carry out a detailed review of all Resolutions of the Governing Bodies which have been allocated to it by the Secretary (para. "2" above) (as well as its own past Resolutions and Recommendations), and shall adopt a new Resolution giving details of all Governing Body Resolutions (or parts of such Resolutions) which it considers should remain in force.

4. The residual Resolutions should be reviewed by the Secretary, using the same criteria.

5. On completion of these individual reviews by the Secretary and the Subsidiary Bodies, the Secretary should prepare a full "Review" document, incorporating both the Subsidiary Body reviews and that of the residual Resolutions. This document should be submitted to Member States several months before an Assembly session when it would be approved.

6. When the "Review" document has been approved by the Assembly, the Secretary would amend the IOC computer record of Past Resolutions, and thereafter follow the routine procedures outlined earlier in this document.

As all Subsidiary Bodies of the Commission should meet at least once in every biennium, it is hoped that their part of the above proposed action could be completed over a period of two years, but the successful conclusion of the whole exercise will depend on the capacities of Member States and the workload in the Secretariat.

ANNEX VII/ANNEXE VII/ANEXO VII/ПРИЛОЖЕНИЕ VII/
الملحق السابع / 附 件 VII

LIST OF PARTICIPANTS / LISTE DES PARTICIPANTS/ LISTA DE PARTICIPANTES/ СПИСОК УЧАСТНИКОВ
قائمة المشتركين / 与会者名单

Names and titles in the following lists are reproduced as handed in to the Secretariat by the delegations concerned. Countries are shown in the English alphabetical order.

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.

Фамилии и звания, указанные в нижеприведенном списке, воспроизводятся в том виде, в каком они были представлены Секретариату соответствующими делегациями. Страны перечислены в порядке английского алфавита.

ادرجت الأسماء والألقاب فى هذه القائمة كما قدمتها للسكرتارية الوفود المعنية ، ورتبت أسماء البلاد بحسب الترتيب الهجائى الانجليزى

下列名单系根据各有关代表团提交秘书处之姓名和头衔复制。国名按英文字母顺序排列。

I. IOC OFFICERS
BUREAU DE LA COI
MESA DE LA COI
ДОЛЖНОСТНЫЕ ЛИЦА
أعضاء هيئة مكتب كوى / 政府间海洋学委员会主席团

Chairman

Prof. I.A. Ronquillo
Chief, Division of Research
Bureau of Fisheries and Aquatic Resources
P.O. Box 623
Manila
Philippines
(Tel.: 98-70-51
Cable: Fisheries Bureau-Manila)

First Vice-Chairman

Mlle. Marie-Annic Martin-Sane
Ministre Plenipotentiaire
DGRST (Coordination Multilaterale)
Ministere des Relations Exterieures
34, rue La Perouse
75016 Paris
(Tel.: 502-14-23, extension 45.85)

Second Vice-Chairman

Prof. Dr. A.R. Bayoumi
Director
Institute of Oceanography and Fisheries
Academy of Scientific Research and Technology
101, Kasr El-Ainy Street
Cairo
Egypt
(Tel.: 31780 or 31381
Telex: 93069 ASRT-UN
Cable: INOFISH CAIRO)

Third Vice-Chairman

Dr. Jose Antonio Galavis-Seidel
Ministerio de Energia y Minas
Direccion de Geologia
Torre Oeste, Piso 4
Parque Central
Caracas
Venezuela
(Tel.: 41.64.60
Cable: DIREGEOL-CARACAS o
MINIMINAS CARACAS)

Fourth Vice-Chairman

Prof. Dr. sc. Klaus Voigt
Director
Institut fur Meereskunde der Akademie der Wissenschaften der DDR
DDR - 2530 Rostock - Warnemunde
German Democratic Republic

Past Chairman

Dr. Agustin Ayala-Castanares
Director
Instituto de Ciencias del Mar y Limnologia
Universidad Nacional Autonoma de Mexico
Apartado Postal 70-157
Mexico 20 DF

II. Personalities who Honoured the Celebration of the 25th Anniversary of the Intergovernmental Oceanographic Commission by their presence on 12 March 1985/Personnalités ayant honoré de leur présence la commémoration du 25e anniversaire de la Commission océanographique intergouvernementale le 12 mars 1985/Personalidades que honraron con su presencia la conmemoración des 25° Aniversario de la Comisión Oceanográfica Intergubernamental el día 12 de marzo de 1985.
Выдающиеся деятели, присутствовавшие на празднованни 25-й годовщины Межправительственной океанографической комиссии 12 марта 1985 года
الشخصيات التي شرّفت بحضورها الاحتفال الذي اقيم بتاريخ ٢٥ مارس/آذار ١٩٨٥ بمناسبة مرور خمسة وعشرين عاما على انشاء اللجنة الدولية الحكومية لعلوم المحيطات.

光临１９８５年3月１２日政府间海洋学委员会二十五周年庆祝议式的人士

Mr. Amadou Mahtar M'Bow
Director-General
United Nations Educational, Scientific and Cultural Organization (Unesco)

Mr. Hubert Curien
Ministry of Scientific Research and Technology, of France

Mr. G.O.P. Obasi
Secretary-General
World Meteorological Organization (WMO)

Mr. Erik Suy
Under Secretary-General
United Nations (UN)
UN Geneva

Mr. Jean Carroz
Assistant Director General (Fisheries)
Food and Agriculture Organization of the United Nations (FAO)

Mr. Abdul-Razzak Kaddoura
Assistant Director-General for Science
United Nations Educational, Scientific and Cultural Organization (Unesco)

Mr. Luis Carbonell Izquierdo
Minister of Science and Technology, of Venezuela

Mr. S.Z. Qasim
Secretary of State for Ocean Development, of India

Mr. Mahmoud Mestiri
Secretary of State for Foreign Affairs, of Tunisia

Mr. Jerzy Vonau
Representative of Secretary-General
International Maritime Organization (IMO)

Mr. Genady Golubev
Deputy Executive Director
United Nations Environment Programme (UNEP)

Mr. Warren Wooster
President
International Council for the Exploration of the Sea (ICES)

Mr. Luis Arrfaga
Secretary-General
Permanent Commission for the South Pacific (CPPS)

Mr. Gerold Siedler
President
Scientific Committee on Oceanic Research (SCOR)

Mr. Ascensio Lara
President
Engineering Committee on Oceanic Resources (ECOR)

III. PARTICIPANTS FROM MEMBER STATES
PARTICIPANTS DES ETATS MEMBRES
PARTICIPANTES DE LOS ESTADOS MIEMBROS
УЧАСТНИКИ ИЗ ГОСУДАРСТВ-ЧЛЕНОВ
مشتركون من دول أعضاء / 会员国与会者

Algeria/Algérie/Argelia/ Алжир/الجزائر/ 阿尔及利亚

Head of Delegation

Mr. M. Bramini El-Mili
Ambassadeur, Delegue Permanent
Delegation Permanente de l'Algerie aupres de l'Unesco
1, rue Miollis
75015 Paris

Alternates

Mr. R. Touri
Ministre Plenipotentiaire
Delegue Permanent Adjoint
Delegation Permanente de l'Algerie aupres de l'Unesco
1, rue Miollis
75015 Paris

Dr. A. Chouikhi
Coordinateur du Comite National pour la COI
Ministere de l'Enseignement et de la Recherche Scientifique
Jetee Nord Amiraute
B.P. 90
Alger 1er Novembre

Representatives

Mr. M. Bensadek
Service Hydrographique de la Marine Nationale
123, rue de Tripoli
Alger

Mr. A. Ounoughi
Service Hydrographique de la Marine Nationale
123, rue de Tripoli
Alger

Mr. A. Atroun
Conseiller Technique charge des questions Scientifiques
Vice-Ministre de la Peche
Ministere de la Peche
2, rue d'Angkor
Alger Port

Angola/ Ангола/ انجولا/安哥拉

Head of Delegation

Mr. D. Van Dunem
Delegue Permanent
Delegation Permanente de l'Angola aupres de l'Unesco
1, rue Miollis
75015 Paris

Argentina/Argentine/ Аргентина/ الارجنتين/阿根廷

Head of Delegation

Prof. Fernando Vila
Consejo Nacional de Investigaciones Cientificas y Tecnicas (CONICET)
Comite Argentino de Oceanografia
Viamonte 1636 - 3 A
1055 Buenos Aires

Alternate

Dr. Santiago R. Olivier
Consejo Nacional de Investigaciones Cientificas y Tecnicas (CONICET)
Diagonal 79 No. 525
1900 La Plata

Representative

Mr. Adrian G. Mirson
Delegacion Permanente de Argentina ante la Unesco
1, rue Miollis
75015 Paris

Australia/Australie/ Австралия/ استراليا/ 澳大利亚

Head of Delegation

H. E. the Hon. E.G. Whitlam, A.C., Q.C.
Ambassador and Permanent Delegate of Australia to Unesco
Australian Embassy
4, rue Jean Rey
75724 Paris Cedex 15

Alternate

Dr. Doug G. Keeley
Assistant Secretary
International Policy and Programmes
Department of Science
P.O. Box 65
Belconnen ACT 2616

Representative

Dr. John S. Bunt
Director
Australian Institute of Marine Science
PMB No. 3
Townsville M.S.O.
Queensland 4810

Adviser

Dr. Eric Lindstrom
CSIRO Marine Labs
G.P.O. Box 1538
Hobart, Tasmania

Austria/Autriche/Австрия/ النمسا/ 奥地利

Not represented

The Bahamas/Les Bahamas/Bahamas Багамские Острова/ جزر بهاما / 巴哈马

Not represented

Bangladesh/Бангладеш/ بنجلاديش / 孟加拉国

Head of Delegation

Mr. Muhammad Abdur Rahman
Ambassade de Bangladesh
5, square Petrarque
75016 Paris

Alternate

Mr. Abu K.M. Jalaloddin
Ambassade de Bangladesh
5, square Petrarque
75016 Paris

Representative

Mr. Mahmood Hasan
Ambassade du Bangladesh
5, square Petrarque
75016 Paris

Belgium/Belgique/Bélgica/Бельгия/ بلجيكا / 比利时

Head of Delegation

Mr. Roger Brulard
Delegation Permanente de la Belgique auprez de l'Unesco
4, Villa de Saxe
75007 Paris

Brazil/Brésil/Brasil/Бразилия/ البرازيل/ 巴 西

Head of Delegation

Vice-Amiral Jose do Cabo Teixeira de Carvalho
Director
Directoria de Hidrografia e Navegacao
Ponta da Armacao - NITEROI
24040 Rio de Janeiro

Alternate

Captain Hugo Bernardi Jr.
Head of Geophysical Department
Directoria de Hidrografia e Navegacao
Ponta da Armacao - NITEROI
24040 Rio de Janeiro

Representatives

Mr. A.A. Dayrell de Lima
Conseiller d'Ambassade
Delegation Permanente du Bresil aupres de l'Unesco
1, rue Miollis
75015 Paris

Mr. S. de Abreu e Lima Florencio
Conseiller d'Ambassade
Delegation Permanente du Bresil aupren de l'Unesco
1, rue Miollis
75015 Paris

Commander Luiz Carlos Ferreira da Silva
Oceanography Division
Diretoria de Hidrografia e Navegacao
Ponta da Armacao - NITEROI
24040 Rio de Janeiro

Mr. Pedro Motta Pinto Coelho
Premier Secretaire d'Ambassade
Ministere des Relations Exterieures du Bresil
Palacio Itamaraty
Brasilia D.F. 70292

Adviser

Mrs. Izabel Maria do Nascimento Gurgel
Secretariat de la Commission Interministerielle des Ressources de la Mer
Ministerio da Marinha
4o andlr.
70055 Brasilia, D.F.

Bulgaria/Bulgarie/Болгария/ بلغاريا/ 保加利亚

Head of Delegation

Admiral Branimir Ormanov
National Oceanographic Committee
Chapaev Str. No. 55
Sofia

Alternates

Mr. Oguemiz Stoimenov
Permanent Delegation of Bulgaria to Unesco
1, rue Miollis
75015 Paris

Eng. Michael Ganchev
Chief Secretary
National Oceanographic Committee
Chapaev Str. No. 55
Sofia

Cameroon /Cameroun/ Camerún / Камерун /الكاميرون/喀麦隆

Head of Delegation

M. Henri Djeumo
Delegation Permanente du Cameroun aupres de l'Unesco
Ambassade du Cameroun
73, rue d'Auteuil
75016 Paris

Alternate

Mme. Catherine Nga Onana
Delegation Permanente du Cameroun aupres de l'Unesco
Ambassade du Cameroun
73, rue d'Auteuil
75016 Paris

Canada/Canadá/Канада/ كندا /加拿大

Head of Delegation

Dr. N.J. Campbell
Director General
Marine Sciences and Information Directorate
Department of Fisheries and Oceans
12th Floor - 200 Kent Street
Ottawa - Ontario K1A 0E6

Alternate

Mr. G.L. Holland
Director
Ocean Sciences Affairs Branch
Department of Fisheries and Oceans
12th Floor - 200 Kent Street
Ottawa - Ontario K1A 0E6

Representatives

Dr. R. Fournier
Vice-President
Scientific Research
Department of Oceanography
Dalhousie University
Halifax, Nova Scotia B3H 4J1

Dr. C.R. Mann
Director General
Institute of Ocean Sciences
Department of Fisheries and Oceans
P.O. Box 6000
9860 West Saanech Road
Sidney, B.C. V8L 4B2

Adviser

Mr. J.D. Bradford
Chief, Intergovernmental Ocean Sciences
Department of Fisheries and Oceans
12th Floor - 200 Kent Street
Ottawa - Ontario K1A 0E6

Cape Verde/Cap-Vert/Cabo Verde/ Острова Зеленого Мыса/الراس الاخضر /佛得角

Head of Delegation

S. Exc. A. Rodrigues Pires
Delegue Permanent
Delegation Permanent du Cap Vert aupres de l'Unesco
Viale Algeria 85
00144 Rome
Italy

Alternate

Mr. Antonio Germano Lima
President
Comite d'Installation de la Commission Nationale pour l'Unesco
P.O. Box 111
Praia

Representative

Mrs. Marie-Jeanne Galvao-Moulin

Chile/Chili/Чили/ شيلى /智 利

Head of Delegation

S. Exc. Embajador Alfredo Prieto B.
Delegado Permanente
Delegacion Permanente de Chile ante la Unesco
1, rue Miollis
75015 Paris

Alternate

Sr. Bernardo Ucculletti Nocetti
Secretario Ejecutivo
Comite Oceanografico Nacional
Erraquiriz 232
Valparaiso

Representatives

Sr. Roberto Cabezas Bello
Director Ejecutivo
Instituto de Fomento Pesquero
Coordinador del Grupo de Ejecucion de Programas y OSLR del Comite Oceanografico Nacional
Jose Domingo Canas 2277
Nunoa - Santiago

Sr. Rolando Kelly Jara
Jefe Unidad Oceanografia
Instituto de Fomento Pesquero
Asesor de Programas Oceanograficos
Instituto Antartico Chileno
Coordinador de IOCSOC del Comite Oceanografico Nacional
Jose Domingo Canas 2277
Santiago

Adviser

Sra. Maria Lucia Rodriguez
Delegacion Permanente de Chile ante la Unesco
1, rue Miollis
75015 Paris

China/Chine/Китай/ الصين /中 国

Head of Delegation

Mr. Luo Yuru
Director-General
National Bureau of Oceanography (NBO)
Beijing

Representatives

Prof. Liu Ruiyu
Director
Director of Institute of Oceanology
Academia Sinica
17, Nankai Road
Qingdao

Mr. Yu Gou Hui
Associate Research Fellow
Director of No. 2 Institute of Oceanography
National Bureau of Oceanography (NBO)
Hangzhou

Mr. Ge Youxin
Director of Scientific and Technological Department
National Bureau of Oceanography (NBO)
Beijing

Mr. Hou Wenfeng
Assistant Research Fellow
Deputy Director of the Institute of Marine Scientific and Technological Information
In charge of the Chinese National Marine Data Center
National Bureau of Oceanography (NBO)
Tianjin

Mr. Liu Hanhui
Deputy, Foreign Office
National Bureau of Oceanography (NBO)
Beijing

Prof. Xu Si
Associate Professor
Director of Computer Center
Shandong College of Oceanography
Ministry of Education
Qingdao

Advisers

Mr. Yu Huming
Secretary
Foreign Affairs Office
National Bureau of Oceanography (NBO)
Beijing

Mr. Li Wen Hai
China National Marine Data Center
National Bureau of Oceanography (NBO)
Tianjin

Mr. Zhou Qiu Lin
Science Co-ordinator
Third Institute of Oceanography
National Bureau of Oceanography (NBO)
Xiamen, Fujian

Colombia/Colombie/Колумбия/كولومبيا/ 哥伦比亚

Head of Delegation

Mr. Guillermo Hernandez R.
Embajador
Delegacion Permanente de Colombia ante la Unesco
1, rue Miollis
75015 Paris

Alternate

Capitan de Fragata Ernesto Cajiao Gomez
Presidente
Comision Oceanografica Nacional
Cra. 27 No. 43-39
Bogota

Representative

Capitan de Fragata Rafael Steer Ruiz
Centro de Investigaciones Oceanograficas e Hidrograficas
Escuela Naval
Manzanillo
Cartagena

Adviser

Dra. Blanca Delgado
Delegacion Permanente de Colombia ante la Unesco
1, rue Miollis
75015 Paris

Congo/Конго/الكونغو /刚 果

Not represented

Costa Rica/Коста-Рика/كوستاريكا/ 哥斯达黎加

Head of Delegation

Dr. Manuel M. Murillo
Director CIMAR
Universidad de Costa Rica
San Jose

Alternate

Sr. Nestor Mourelo
Delegado Permanente
Delegacion Permanente de Costa Rica ante la Unesco
1, rue Miollis
75015 Paris

Representatives

Sra. Iris Leiva de Billault
Delegacion Permanente de Costa Rica ante la Unesco
1, rue Miollis
75015 Paris

Sra. Yvette Bourillon-Rickebusch
Delegacion Permanente de Costa Rica ante la Unesco
1, rue Miollis
75015 Paris

Advisers

Sr. Rodolfo Carvajal
Delegacion Permanente de Costa Rica ante la Unesco
1, rue Miollis
75015 Paris

Ms. Leda-Maria Melendez-Howell
Delegacion Permanente de Costa Rica ante la Unesco
1, rue Miollis
75015 Paris

Cuba/Куба/كوبا/古 巴

Head of Delegation

Lic. Guillermo Garcia Montero
Director
Instituto de Oceanologia
Calle 1ra No. 18406,
Ciudad de La Habana

Representatives

Lic. Alfredo Ramos Rivas
Instituto Cubano de Hidrografia
Calle 4 esq. 3ra Miramar, Playa
Ciudad de La Habana

Ing. Reinaldo Ramos del Sol
Instituto Cubano de Hidrografia
Calle 4 esq. 3ra. Miramar, Playa
Ciudad de La Habana

Sr. Jose Antonio Gonzalez
Consejero
Delegacion Permanente de Cuba ante la Unesco
1, rue Miollis
75015 Paris

Ms. Rita Solis
Primer Secretario
Delegacion Permanente de Cuba ante la Unesco
1, rue Miollis
75015 Paris

Cyprus/Chypre/Chipre/Кипр/قبرص/塞浦路斯

Head of Delegation

Mr. Christos Cassimatis
Deputy Permanent Delegate
Permanent Delegation of Cyprus to Unesco
86, avenue Foch
75016 Paris

Democratic People's Republic of Korea
République populaire démocratique de Corée
República Popular Democrática de Corea
Корейская Народно-Демократическая Республика/جمهورية كوريا الديمقراطية الشعبية/朝鲜民主主义人民共和国

Head of Delegation

Mr. Byeung Rok Moun
Delegue Permanent
Delegation Permanente de la Republique Populaire Democratique de Coree aupres de l'Unesco
1, rue Miollis
75015 Paris

Alternate

Mr. Tchang Sik Pak
Delegation Permanente de la Republique Populaire Democratique de Coree aupres de l'Unesco
1, rue Miollis
75015 Paris

Denmark/Danemark/Dinamarca/Дания/الدنمارك/丹 麦

Head of Delegation

Dr. Kristian Vagn Hansen
Assistant Director
Danish Institute of Fisheries and Marine Research
P.O. Box 101
9850 Hirtshals

Alternate

Dr. Torben Wolff
Zoologisk Museum
Universitetsparken 15
2100 Kobenhavn

Representatives

Prof. Gunnar Kullenberg
Institut for fysisk Oceanografi
Haraldsgade 6
2200 Kobenhavn N

Mr. Vogg Harald Jacobsen
Danmarks Fiskeri - og Havundersogelser
Charlottenlund Slot
2920 Charlottenlund

Mr. Arne Nielsen
Director
Marine Pollution Laboratory
Jagersborg Alle 1B
2920 Kobenhavn

Dominican Republic
République dominicaine
República Dominicana
Доминиканская Республика/ جمهورية الدومينيكان/ 多米尼加共和国

Head of Delegation

Mr. Rafael Solano
Delegue Permanent
Delegation Permanente de la Republique Dominicaine aupres de l'Unesco
1, rue Miollis
75015 Paris

Alternates

Mr. Hector Estrella-Polanco
Delegue Permanent Adjoint
Delegation Permanente de la Republique Dominicaine aupres de l'Unesco
1, rue Miollis
75015 Paris

Sra. Rosanna Garcia de Collado
Delegation Permanente de la Republique Dominicaine aupres de l'Unesco
1, rue Miollis
75015 Paris

Ecuador/Equateur/ Эквадор/ اكوادور/厄瓜多尔

Head of Delegation

Dr. Edwin Johnson
Delegacion Permanente del Ecuador ante la Unesco
1, rue Miollis
75015 Paris

Representative

Dr. Galo Yepez
Delegacion Permanente del Ecuador ante la Unesco
1, rue Miollis
75015 Paris

Egypt/Egypte/Egipto/ Египет/ مصر/埃 及

Head of Delegation

Prof. Ahmed El Refai Bayoumi
Director
Institute of Oceanography and Fisheries
Academy of Scientific Research and Technology
101, Kasr El-Ainy Street
Cairo

Representatives

Dr. Sami Elsayed Selim
Egyptian General Petroleum Corporation
Nasr City
Cairo

Prof. Dr. Mohammed Ibrahim Rousdhy
Deputy Director
Petroleum Research Institute
7th Region - Nasr City
Cairo

Mr. Wagdi Mahmoud
Permanent Delegation of Egypt to Unesco
1, rue Miollis
75015 Paris

Ethiopia/Ethiopie/Etiopía/ Эфиопия/ اثيوبيا/ 埃塞俄比亚

Not represented

Fiji/Fidji/Фиджи/ فيجى/斐济

Not represented

Finland/Finlande/Finlandia/ Финляндия
فنلندا/芬 兰

Head of Delegation

Dr. Pentti Malkki
Head of Department
Institute of Marine Research
P.O. Box 33
SF - 00931 Helsinki

Alternate

Dr. Matti Perttila
Head of Division
Institute of Marine Research
P.O. Box 33
SF - 00931 Helsinki

Representative

Mr. Iivo Salmi
Deputy Permanent Delegate
Permanent Delegation of Finland to Unesco
1, rue Miollis
75015 Paris

France/Francia/Франция/ فرنسا/法 国

Heads of Delegation

Mlle. Marie-Annic Martin-Sane
Ministre Plenipotentiaire,
President du Comite National Francais pour la COI
DGRST (Coordination Multilaterale)
Ministere des Relations Exterieures
34, rue La Perouse
75016 Paris

Mr. Yves Sillard,
President Directeur General
Institut Francais de Recherche pour l'Exploitation de la Mer (IFREMER)
66, avenue d'Iena
75016 Paris

Representatives

Mme. Christiane Aveline
Delegation Permanente de la France aupres de l'Unesco
1, rue Miollis
75015 Paris

Mr. Yvon Balut
Terres Australes Antarctiques Francaises
34, rue des Renaudes
75017 Paris

Mr. Etienne Caillieau
Service Hydrographique et Oceanique de la Marine
3, avenue Octave Gerard
75200 Paris NAVAL

Mr. Francois Callot
Observatoire des Matieres Premieres
120, rue du Cherche Midi
75006 Paris

Mr. Roger Chesselet
Directeur du Programme Interdisciplinaire de Recherches Oceanographiques (PIROCEAN)
15, quai A. France
75700 Paris
(Also representing SCOR)

Mlle. Michelle Delaygue
Commission Francaise pour l'Unesco
42, avenue Raymond Poincare
75016 Paris

Mr. Francois Gerard
Chef de la Mission "Recherche"
Secretariat d'Etat a la Mer
9, rue Anatole de la Forge
75017 Paris

Mr. Joseph Gonella
Ministere de la Recherche et de la Technologie
Departement Sciences de l'Univers
1, rue Descartes
75005 Paris

Mr. Eric Isphording
Directeur des Relations Economiques et de la Cooperation
Institut Francais de Recherche pour l'Exploitation de a Mer (IFREMER)
66, avenue d'Iena
75016 Paris

Mr. Pierre Lasserre
Directeur
Laboratoire de Biologie Marine de Roscoff
Station Marine
29211 Roscoff
(Also representing IABO and ICSU)

Mr. Claude Latouche
IGBA, Universite de Bordeaux 1
351, Cours de la Liberation
33405 - Talence

Mr. Jacques Merle
Laboratoire de Physique et Dynamique de l'Atmosphere de l'Universite Paris VI
Tour 15
Universite Pierre et M. Curie
75230 Paris

Mr. Pierre Nounou
Secretaire du Comite National Francais pour la COI
IFREMER
66, avenue d'Iena
75763 Paris Cedex 16

Mr. Jean-Claude Sainlos
Mission Interministerielle de la Mer
3, place de Fontenoy
75015 Paris

Mr. Jean-Francois Stuyck-Taillandier
Sous-directeur de la Recherche et de la Technologie
Ministere des Relations Exterieures
34, rue La Perouse
75016 Paris

Mr. Jean-Paul Troadec
Directeur General Adjoint
Institut Francais de Recherche pour l'Exploitation de la Mer (IFREMER)
66, avenue d'Iena
75016 Paris

Mr. Michel Vigneaux
Directeur
Institut de Geologie du Bassin d'Aquitaine
Universite de Bordeaux I
351, Cours de la Liberation
33405 Talence

Mr. Jean-Guy de Wargny
Adjoint au Coordinateur Multilaterale
Ministere des Relations Exterieures
Quai d'Orsay
75007 Paris

Gabon/Gabón/Габон/ جابون/加 蓬

Head of Delegation

Mr. Augustin Ze Mezui
Delegation Permanente du Gabon aupres de l'Unesco
1, rue Miollis
75015 Paris

German Democratic Republic/ République démocratique allemande/ República Democrática Alemana/ Германская Демократическая Республика/ جمهورية المانيا الديمقراطية/ 德意志民主共和国

Head of Delegation

Prof. Dr. Klaus Voigt
Director
Institut fur Meereskunde
Seestr. 15
2530 Rostock-Warnemunde

Alternate

Mr. Gerhard Rost
Deputy Director
Hydrographic Service
Dierkower Dam 45
2500 Rostock

Representative

Mr. Heinz Jung
Deputy Permanent Delegate
Permanent Delegation of the German Democratic Republic to Unesco
Maison de l'Unesco
1, rue Miollis
75732 Paris Cedex 15

Germany, Federal Republic of Allemagne, République fédérale d' Alemania, República Federal de Германия, Федеративная Республика/ المانيا (جمهورية ـ الاتحادية)/ 德意志联邦共和国

Head of Delegation

Prof. Dr. G. Hempel
Director
Alfred-Wegener-Institut fur Polarforschung
Columbus Centre
D-2850 Bremerhaven
(also representating ACMRR and SCAR)

Alternate

Dr. G. Giermann
Secretariat of the National IOC Committee of the Federal Republic of Germany
Alfred-Wegener-Institut fur Polarforschung
Colombus Center
D-2850 Bremerhaven

Representatives

Mr. D.P. Kohnke
Deutsches Hydrographisches Institut
Postfach 220
D-2000 Hamburg 4

Mr. Dietrich Nelle
Federal Ministry for Research and Technology
Ref. 223
Heinemannstr. 2
5 300 Bonn 2

Mr. R. Zoellner
Deutscher Wetterdienst - Seewetteramt (DWA-SWA)
Bernhard-Nocht-Strasse 76
D-2000 Hamburg 4

Ghana/ Гана/ غانا/ 加 纳

Head of Delegation

Mrs. K. Abankwa
Deputy Permanent Delegate
Permanent Delegation of Ghana to Unesco
Embassy of Ghana
8, Villa Said
75016 Paris

Alternate

Mrs. D. Kusi
Permanent Delegation of Ghana to Unesco
1, Rue Miollis
75015 Paris

Greece/Grèce/Grecia/Греция/ اليونان/ 希 腊

Head of Delegation

Dr. Alexander Bousoulengas
Director
National Center for Marine Research
Agios Kosmas
Hellinikon

Alternate

Mr. Alexander Maratos
Deputy Hydrographer
Hydrographic Service of the Navy
Pentagonon, Holargos
Athens

Representatives

Mrs. Chryssoula Vlavianou
Delegue Permanent Adjoint
Delegation Permanente de la Grece aupres de l'Unesco
1, rue Miollis
75015 Paris

Mr. Alexander Theocharis
Oceanographer
National Centre for Marine Research
Aghios Kosmas
Hellinika GR 166 04

Mr. Spyridon Theocharopoulos
Secretaire d'Ambassade
Ministere des Affaires Etrangeres
1, Anadimias
10671 Athenes

Advisers

Mr. Constantin Tsigaridas
Hellenic Generar Staff
Holorgos

Mr. Vassilios Moutsoglou
Secretaire d'Ambassade
Ministere des Affaires Etrangeres
1, rue Akakademias
10671 Athenes

Guatemala/Гватемала/ جواتيمالا / 危地马拉

Head of Delegation

Sr. Guillermo Putzeys-Alvarez
Delegado Permanente
Delegacion Permanente de Guatemala ante la Unesco
73, rue de Courcelles
75008 Paris

Alternate

Sr. Fernando Sesenna-Olivero
Delegado Permanente Adjunto
Delegacion Permanente de Guatemala ante la Unesco
73, rue de Courcelles
75008 Paris

Representative

Sra. Angela Carroz-Cabrera
Delegacion Parmanente de Guatemala ante la Unesco
73, rue de Courcelles
75008 Paris

Guinea/Guinée/Гвинея/ غينيا / 几内亚

Head of Delegation

Mr. Alpha Oumar Diallo
Delegation Permanente de la Guinee aupres de l'Unesco
1, rue Miollis
75015 Paris

Guinea-Bissau/Guinée-Bissau/Гвинея-Бисау/ غينيا بيساو / 几内亚比绍

Not represented

Guyana/Guyane/Гайана/ غيانا / 圭亚那

Not represented

Haiti/Haïti/Haití/Гаити/ هايتى/海 地

Head of Delegation

Mrs. Marie-Paule Keranflec'h
Delegation Permanente de Haiti aupres de l'Unesco
9, rue du Montoir
92140 Clamart

Iceland/Islande/Islandia/Исландия/ ايسلندا/ 冰 岛

Head of Delegation

H. Exec. Mr. Haraldur Kroyer
Permanent Delegate
Permanent Delegation of Iceland to Unesco
124, boulevard Haussmann
75008 Paris

Alternate/

Mr. Gunnar Snorri Gunnarsson
Deputy Permanent Delegate
Permanent Delegation of Iceland to Unesco
124, boulevard Haussmann
75008 Paris

India/Inde/Индия/ الهند/印 度

Head of Delegation

Dr. S.Z. Qasim
Secretary, Department of Ocean Development
Government of India
Mahasagar-Bhavan
Block No. 12 - CGO Complex
Lodi Road
New Delhi 110003

Alternates

Dr. V.V.R. Varadachari
Director
National Institute of Oceanography (CSIR)
Dona Paula
Goa 403004

Dr. Saiyed A.H. Abidi
Principal Scientific Officer to the Government of India
Department of Ocean Development
Government of India
Mahasagar Bhawan, Block XII
Lodi Road
New Delhi 110003

Representative

Capt. P.T. Oomnen
Director
Naval Oceanology and Meteorology
Naval Headquarters
New Delhi

Indonesia/Indonésie/Индонезия/اندونيسيا/印度尼西亚

Head of Delegation

H.E. Mr. Achjan Atmakusuma
Permanent Delegate
Indonesian Permanent Delegation to Unesco
1, rue Miollis
75015 Paris

Alternate

Dr. Aprilani Soegiarto
Director
Indonesian National Institute of Oceanology
Jl. Pasir Putih 1, Ancol Timur
Jakarta

Adviser

Mr. Imron Harjito
Deputy Permanent Delegate
Indonesian Permanent Delegation to Unesco
1, rue Miollis
75015 Paris

(The) Islamic Republic of Iran
République islamique d'Iran
República Islámica del Irán
Исламская Республика Иран
جمهورية إيران الاسلامية
伊朗伊斯兰共和国

Head of Delegation

Mr. Amir Hossein Moussavi
Director
Groundwater Department
Ministry of Energy
North Pelestin Ave.
Tehran

Representatives

Mr. Mehdi Babakhani
Director
Iranian Naval Oceanographic Office
Navy Headquarters
Tehran

Mr. Hossein Letafat
National Iranian Oil Company
Tehran

Dr. Mostafa Sohrabdour
Director
Gamma Irradiation Centre
North Kargar avenue
Tehran AEOI

Iraq/Irak/Ирак/ العراق/伊拉克

Head of Delegation

Dr. Al-Haj Aziz
Delegue Permanent
Delegation Permanente d'Irak aupres de Unesco
1, rue Miollis
75105 Paris

Alternate

Dr. Amer Jomard
28a, Ch. de Petit Saconnex
1209 - Geneva

Ireland/Irlande/Irlanda/Ирландия/ ايرلندا/爱尔兰

Not represented

Israel/Israël/Израиль/ اسرائيل/以色列

Head of Delegation

Mr. Meir Shamir
Permanent Delegate
Permanent Delegation of Israel to Unesco
3, rue Rabelais
75008 Paris

Italy/Italie/Italia/ Италия/ ايطاليا/意大利

Head of Delegation

Prof. Carlo Morelli
Universita di Trieste
Instituto di Miniere e Geofisica Applicata
Via Romolo Gesse No. 4
34100 - Trieste

Alternate

Prof. Bruno Battaglia
Instituto di Biologia del Mare C.W.R.
30122 Venezia

Ivory Coast/Côte-d'Ivoire/ Costa de Marfil/ Берег Слоновой Кости/ ساحل العاج/象牙海岸

Head of Delegation

Mr. Soko Guillaume Zabi
Directeur de la Valorisation de la Recherche et de l'Information Scientifique et Technique
Ministere de l'Education Nationale et de la Recherche Scientifique
B.P. V 151
Abidjan

Representative

Mr. Deya Metola
Sous-Directeur des Travaux Juridiques (Marine)
Ministere de la Marine
B.P. V 67
Abidjan

Adviser

Mr. Christophe Wondji
Delegation Permanente de la Cote d'Ivoire aupres de l'Unesco
1, rue Miollis
75015 Paris

Jamaica/Jamaïque/Ямайка/ جامايكا/牙买加

Head of Delegation

Miss. Delia Richmond
Deputy Permanent Delegate
Permanent Delegation of Jamaica to Unesco
1, rue Miollis
75015 Paris

Japan/Japon/Japón/Япония/ اليابان/ 日本国

Head of Delegation

Prof. Dr. Takahisa Nemoto
Ocean Research Institute
University of Tokyo
2-2, Kasumigaseki 3-chome, Chiyoda-ku,
Tokyo, 100

Representatives

Dr. Yosiaki Toba
Faculty of Science, Tohoku University
2-2, Kasumigaseki 3-chome, Chiyoda-ku
Tokyo, 100

Mr. Sadao Oshima
Ministry of Education
International Science Division
Science and International Affairs Bureau
Ministry of Education
2-2, Kasumigaseki 3-chome, Chiyoda-ku
Tokyo, 100

Adviser

Mr. Masao Homma
Deputy Permanent Delegation of Japan to Unesco
Permanent Delegation of Japan to Unesco
1, rue Miollis
75015 Paris

Jordan/Jordanie/Jordania/Иордания/الاردن/ 约 旦

Head of Delegation

Mr. Salem Bader
Deputy Permanent Delegate
Jordanian Permanent Delegation to Unesco
30, bld. Maurice-Barres
92200 Neuilly sur Seine

Alternate

Dr. Elias Baydoun
Assistant to the President
Yarmouk University
Irbid

Kenya/ Кения/ كينيا/ 肯尼亚

Head of Delegation

Mr. S.O. Allela
Director
Kenya Marine and Fisheries Research Institute
P.O. Box 81651
Mombasa

Alternate

Mr. J.K. Mbaluli
Deputy Permanent Delegate
Permanent Delegation of Kenya to Unesco
1, rue Miollis
75015 Paris

Representative

Mr. G. Kingori
Permanent Delegation of Kenya to Unesco
1, rue Miollis
75015 Paris

Kuwait/Koweït/ Кувейт/ الكويت/ 科威特

Head of Delegation

Dr. Faisal Al-Salem
Permanent Delegate
Permanent Delegation of Kuwait to Unesco
1, rue Miollis
75015 Paris

Representatives

Mr. Abdul Nabi Al-Ghadhban
Department of Environmental Science KISR
Education, Science and Culture
P.O. Box 3266
Safat

Dr. Jowing Wah Lee
Head, Oceanography and Fish Resources,
Marine Culture Department - KISR
Education, Science and Culture
P.O. Box No. 3266
Safat

Lebanon/ Liban/ Líbano/ Ливан/ لبنان / 黎巴嫩

Head of Delegation

Mr. William Habib
Delegue Permanent
Delegation Permanente du Liban aupres de l'Unesco
1, rue Miollis
75015 Paris

Alternate

Mr. D. Barakat
Delegue Permanent Adjoint
Delegation Permanente du Liban aupres de l'Unesco
1, rue Miollis
75015 Paris

Socialist People's Libyan Arab Jamahiriya
Jamahiriya arabe libyenne populaire et socialiste
Jamahiriya Arabe Libia Popular y Socialista
Социалистическая Народная Ливийская Арабская Джамахирия/ الجماهيرية العربية الليبية الشعبية الاشتراكية / 阿拉伯利比亚人民社会主义民众国

Head of Delegation

Dr. Yusef I. Elmehrik
Head of the National Committee for Marine Sciences
National Academy for Scientific Research
P.O. Box 8004
Tripoli

Alternates

Dr. Ghebani Ali Ghannudi
Head of Aquaculture Studies
Marine Biology Research Centre
P.O. Box 30830
Tajura, Splaj

Capt. Sif Ennasar A. Giahmi
Secretariat of Communication
Salvage Tower and Marine Services Co.
Tripoli

Prof. Omar S. Hammuda
College of Science
Al Fatah University
P.O. Box 13258
Tripoli

Representatives

Mr. Bashir Ali Salem
Membre du Bureau Populaire de la Jamahiriya Arabe Libyenne
7, rue Baudin
Courbevoie

Mr. Faraj Inaya
Bureau Populaire de la Jamahiriya Arabe Libyenne Populaire et Socialiste
2, rue Charles Lamoureaux
75016 Paris

Mr. Abdalla Al Gaidi
Ministry of Foreign Affairs
34061 Tripoli

Madagascar/ Мадагаскар/ مدغشقر / 马达加斯加

Head of Delegation

Dr. L.H. Rakotovao
Directeur d'Appui aux Recherches sur les Sciences de l'Environment
Ministere de la Recherche Scientifique et Technologique pour le Developpement
B.P. 694
Tsimbazaza

Malaysia/Malaisie/Malasia/Малайзия/ ماليزيا / 马来西亚

Head of Delegation

H.E. Tan Sri Datuk Haji Hamdan
Permanent Delegate
Permanent Delegation of Malaysia to Unesco
1, rue Miollis
75015 Paris

Alternate

Mr. Yusof Jusoh
Deputy Permanent Delegate
Malaysian Permanent Delegation to Unesco
1, rue Miollis
75015 Paris

Malta/Malte/ Мальта/ مالطة / 马耳他

Not represented

Mauritania/Mauritanie/ Мавритания/ موريتانيا/ 毛里塔尼亚

Not represented

Mauritius/Maurice/Mauricio/ Маврикий/ 毛里求斯 / موريشيوس

Not represented

Mexico/Mexique/México/ Мексика/ المكسيك/ 墨西哥

Head of Delegation

Dr. Agustin Ayala-Castanares
Director
Instituto de Ciencias del Mar y Limnologia
Universidad Nacional Autonoma de Mexico
Apartado Postal 70-157
Mexico 20 DF
Mexico

Alternates

Capitan Octavio Diaz Gonzalez
Secretaria de Educacion Publica
Direccion General de Ciencia y Tecnologia del Mar
Apartado Postal M-9439
C.P. 06000
Mexico, D.F.

Dr. Victor Manuel Alcaraz Romero
Embajada de Mexico
9, rue du Longchamps
75016 Paris

Adviser

Sr. Juan Manuel Gonzalez Bustos
Delegacion Permanente de Mexico ante la Unesco
1, rue Miollis
75015 Paris

Monaco/Mónaco/Монако/ موناكو / 摩纳哥

Head of Delegation

Son Exc. M. Cesar C. Solamito
Delegue Permanent
Delegation Permanente de Monaco aupres de l'Unesco
Villa "Girasole"
16, boulevard de Suisse
MC - 98030 Monaco Cedex

Alternate

Mr. Alain Vatrican
Secretaire General du Centre Scientifique de Monaco
16, boulevard de Suisse
MC-98030 Monte Carlo Cedex

Morocco/Maroc/Marruecos/ Марокко/ المغرب/ 摩洛哥

Head of Delegation

Mr. Mohamed Mchachti
Directeur
Institut Scientifique des Peches Maritimes
2, avenue de Tiznit
Casablanca

Alternate

Mr. Driss Amor
Delegue Permanent Adjoint
Delegation Permanente du Maroc aupres de l'Unesco
1, rue Miollis
75015 Paris

Mozambique/ Мозамбик/ موزمبيق / 莫桑比克

Not represented

Netherlands/Pays-bas/Países Bajos/ Нидерланды/ الاراضي الواطئة / 荷 兰

Head of Delegation

Dr. P. Tindemans
Director
Ministry of Education
Science Policy Department
P.O. Box 25000
2700 LZ Zoetermeer

Alternate

Dr. J.E. van Dam
Chief, Environmental Research
Ministry of Education and Sciences
P.O. Box 25000
Zoetermeer 2700 LZ

Representatives

Dr. Carel van Eykelburg
Director
Department of International Co-operation
Ministerie van Onderwys en Wetenschappen
P.O. Box 27000
Zoetermeer

Dr. J. van der Land
Rijksmuseum Van Natuurlijke Historie
P.O. Box 9517
2300 RA Leiden

Dr. L. Otto
Oceanographic Research Division
Royal Netherlands Meteorological Institute
P.O. Box 201
3730 AE de Bilt

Mr. J.J. Zijlstra
Director
Netherlands Institute for Sea Research (NIOZ)
P.O. Box 59
Texel

Mr. A. Holleman
Delegue Permanent
Delegation Permanente des Pays-Bas aupres de l'Unesco
7, rue Eble
75007 Paris

Mr. Jacob Kuiber
Ministry of Education and Science
Postbox 25000
2700 LZ Zoetermeer

New Zealand/Nouvelle-Zélande/ Nueva Zelandia/ Новая Зеландия/ نيوزيلندا / 新西兰

Head of Delegation

Mr. Neil D. Walter
Permanent Delegate
New Zealand Permanent Delegation to Unesco
1, rue Miollis
75015 Paris

Nicaragua/ Никарагуа/ نيكاراجوا / 尼加拉瓜

Head of Delegation

Sr. Octavio Rivas
Delegacion Permanente de Nicaragua ante la Unesco
1, rue Miollis
75015 Paris

Alternate

Sr. Rafael Gorea
Delegacion Permanente de Nicaragua ante la Unesco
1, rue Miollis
75015 Paris

Representative

Sra. Gloria Antonia Henriquez
Delegacion Permanente de Nicaragua ante la Unesco
1, rue Miollis
75015 Paris

Nigeria/Nigéria/ Нигерия/ نيجيريا / 尼日利亚

Head of Delegation

Mr. J.G. Tobor
Director
Nigerian Institute for Oceanography and Marine Research
Lagos

Alternate

Mr. Y. Nwafor
Deputy Permanent Delegate
Permanent Delegation of Nigeria to Unesco
1, rue Miollis
75015 Paris

Norway/Norvège/Noruega/Норвегия/ النرويج / 挪威

Head of Delegation

Mr. Ole Johan Ostvedt
Research Director
Directorate of Fisheries
Institute of Marine Research
P.O. Box 1870
N-5011 Bergen-Nordnes

Alternate

Prof. Ulf Lie
University of Bergen
Institute of Marine Biology
N-5065 Blomsterdalen

Representatives

Dr. Reidar S. Leinebo
Director
Norsk Oseanografisk Datasenter
P.O. Box 4285
N-5013 Nygaardstangen

Mr. Nils Petter Wedege
Director
State Pollution Control Authority
P.O. Box 8100
N-0030 Oslo Dept.

Oman/Omán/ Оман/ عمان / 阿 曼

Not represented

Pakistan-Pakistán/ Пакистан/ باكستان / 巴基斯坦

Head of Delegation

Mr. Mustafa Kamal Kazi
Deputy Permanent Delegate to Unesco
Embassy of Pakistan
18, rue Lord Byron
75008 Paris

Alternate

Mr. M. Anwav Goraya
Embassy of Pakistan
18, rue Lord Byron
75008 Paris

Panama/Panamá/Панама/بناما/巴拿马

Head of Delegation

Sr. Jorge Patino
Delegacion Permanente de Panama ante la Unesco
1, rue Miollis
75015 Paris

Peru/Pérou/Perú/Перу/بيرو/秘 鲁

Head of Delegation

Embajador Juan Miguel Bakula
Director
Instituto Peruano de Relaciones Internacionales
Ministerio de Relaciones Exteriores
Lima 100

Alternate

Dr. Pablo Lagos
Director
Instituto Geofisico del Peru
Apartado 3747
Lima

Representative

Srta. Martha Toledo-Ocampo Urena
Delegado Adjunto
Delegacion Permanente del Peru ante la Unesco
1, rue Miollis
75015 Paris

Philippines/Filipinas/Филиппины/الفلبين/菲律宾

Head of Delegation

Prof. Inocencio Ronquillo
Chief, Division of Research
Bureau of Fisheries and Aquatic Resources
P.O. Box 623
Manila

Representative

Mrs. Dolores M. Macalintal
Permanent Delegation of the Philippines to Unesco
1, rue Miollis
75015 Paris

Poland/Pologne/Polonia/Польша/بولندا/波 兰

Head of Delegation

Dr. Henryk Kurowski
Ministry of Science and High Education
Miodowa str. 8,
Warsaw

Alternate

Prof. Dr. Czeslaw Druet
Director
Institute of Oceanology
Polish Academy of Sciences
ul. Powstancow Warszawy 55,
Sopot 81-967

Representatives

Mr. Leon Wascinski
Permanent Delegate
Permanent Delegation of Poland to Unesco
1, rue Miollis
75015 Paris

Dr. Wojciech Slaczka
Director
Institute of Meteorology and Water Management
Maritime Branch
ul. Waszyngtona 42
81-342 Gdynia

Portugal/Португалия/البرتغال/葡萄牙

Head of Delegation

S. Exc. Victor Crespo
Delegue Permanent
Delegation Permanente du Portugal aupres de l'Unesco
1, rue Miollis
75015 Paris

Alternate

Vice-Amiral Jose A. Barahona Fernandes
President
Comissao Permanente de Oceanologia
Junta Nacional de Investigacao Cientifica e Tecnologica
Av. D. Carlos 126
1200 Lisboa

Representatives

Mr. Jose Hipolito Monteiro
Directeur
Servicos Geologicos de Portugal
R. Academia das Ciencias 19-2o
1200 Lisboa

Mme. Ilda Pinheiro de Moura
Chef de la Divisao Meteorologica Maritima et Representante de l'Instituto Nacional de Meteorologia e Geofisica
Rua C do Aeroporto de Lisboa
1700 Lisboa

Mr. Jose Luis Bessa Pacheco
Instituto Hidrografico
Rua das Trinas 49
Lisboa

Mr. Armando Fiuza
Groupo de Oceanografia
Departamento de Fisica
Universidade de Lisboa
Rua da Escola Politecnica 58
1200 Lisboa

Mrs. Carmen Lima
Instituto Nacional de Investigacao das Pescas
Av. do Brasilia
1400 Lisboa

Mr. Joao Ubach Chaves
Delegation Permanente du Portugal aupres de l'Unesco
1, rue Miollis
75015 Paris

Qatar/Катар/قطر/ 卡塔尔

Head of Delegation

Dr. Elsayed Mohamed Hassan
Department of Marine Sciences
Qatar University
P.O. Box 2713
Doha

Republic of Korea/République de Corée/República de Corea/Корейская Республика/جمهورية كوريا/大韩民国

Head of Delegation

Mr. In Hyuk Kwon
Minister
Embassy of the Republic of Korea
125, rue de Grenelle
75007 Paris

Alternate

Mr. Syng-Ho Kim
Deputy Permanent Delegate
Permanent Delegation of the Republic of Korea to Unesco
125, rue de Grenelle
75007 Paris

Representatives

Mr. Sang-Sik Oh
Permanent Delegation of the Republic of Korea to Unesco
125, rue de Grenelle
75007 Paris

Prof. Yong Ahn Park
President
Korean Oceanographic Society
Dept. of Oceanography
Seoul National University
Seoul 15100

Dr. Hyung Taek Huh
Director
Korean Ocean Research and Development Institute
P.O. Box 17
Yeong Song
Seoul 13500

Romania/Roumanie/Rumania/Румыния/رومانيا / 罗马尼亚

Head of Delegation

Mr. Ion Isar
Delegue Permanent Adjoint
Delegation Permanente de Roumanie aupres de l'Unesco
1, rue Miollis
75015 Paris

Samoa/Самоа/ساموا / 萨摩亚

Not represented

Saudi Arabia/Arabie saoudite/Arabia Saudita/ Саудовская Аравия/المملكة العربية السعودية / 沙特阿拉伯

Not represented

Senegal/Sénégal/ Сенегал/السنغال / 塞内加尔

Head of Delegation

Dr. Demba Yeum Kane
Directeur Adjoint
Direction des Peches (DOPM)
B.P. 289
Dakar

Alternate

Mr. Lamine Diakhate
Delegation Permanente du Senegal aupres de l'Unesco
1, rue Miollis
75015 Paris

Adviser

Mr. Henri Mendy
Delegation Permanente du Senegal aupres de l'Unesco
1, rue Miollis
75015 Paris

Seychelles/ Сейшельские острова/ سيشل / 塞舌尔

Not represented

Sierra Leone/Sierra Leona/ Сьерра-Леоне/ سيراليون/ 塞拉利昂

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Singapore/Singapour/Singapur/ Сингапур/ سنغافورة/新加坡

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Somalia/Somalie/Сомали/الصومال / 索马里

Not represented

Spain/Espagne/España/Испания/ اسبانيا/西班牙

Head of Delegation

Dr. Julian Gomez Gallego
Jefe del Departmento de Oceanografia Fisica
Instituto Espanol de Oceanografia
28014 Madrid

Alternate

Dr. Jose Maria Garcia Moron
Instituto Espanol de Oceanografia
28014 Madrid

Sri Lanka/ Шри Ланка/سرى لانكا / 斯里兰卡

Head of Delegation

Dr. Hiran W. Jayewardene
National Aquatic Resources Agency (NARA)
Republic Square
Colombo 1

Alternate

Mrs. Ramya Eheliyagoda
Permanent Delegation of Sri Lanka to Unesco
15, rue d'Astorg
75008 Paris

Representative

Mr. Nimal Wijesinghe
Director
National Hydrographic Office (NARA)
Crow Island
Colombo 15

Sudan/Soudan/Sudán/Судан/ السودان /苏 丹

Head of Delegation

Mr. Mohamed El Rafie
Permanent Delegate
Permanent Delegation of Sudan to Unesco
1, rue Miollis
75015 Paris

Suriname/ Суринам/ سورينام /苏里南

Not represented

Sweden/Suède/Suecia/ Швеция/ السويد / 瑞 典

Head of Delegation

Prof. Ivar Hessland
Department of Geology
University of Stockholm
S-10691 Stockholm

Alternates

Prof. J.O. Stromberg
Kristineberg Marine Biological Station
Kristineberg 2130
S-45034 Fiskebackskil

Mr. Andreas Adahl
Deputy Permanent Delegate
Permanent Delegation of Sweden to Unesco
1, rue Miollis
75015 Paris

Representatives

Dr. Artur Svansson
Board of Fisheries
Institute of Hydrographic Research
P.O. Box 2566
S-403 17 Goteborg

Mr. Christian Danielsson
Permanent Delegation of Sweden to Unesco
1, rue Miollis
75015 Paris

Switzerland/Suisse/Suiza/Швейцария/سويسرا/瑞　士

Head of Delegation

M. l'Ambassadeur Charles Hummel
Delegue Permanent
Delegation Permanente de la Suisse aupres de l'Unesco
1, rue Miollis
75015 Paris

Alternate

Mme. Anne Bauty
Delegation Permanente de la Suisse aupres de l'Unesco
1, rue Miollis
75015 Paris

Syrian Arab Republic
République arabe syrienne
República Arabe Siria
Сирийская Арабская Республика/
الجمهورية العربية السورية/
阿拉伯叙利亚共和国

Head of Delegation

Mr. Hachem Mahmoud
Ambassade de la Republique Arabe Syrienne
20, rue Vaneau
75007 Paris

Thailand/Thaïlande/Tailandia/Таиланд/تايلاند/泰　国

Head of Delegation

Rear Admiral Tavorn Pongsapipatt
Deputy Director
Hydrographic Department
Royal Thai Navy
10600 Bangkok

Representative

Mrs. Srinoi Povatong
Deputy Permanent Delegate
Permarent Delegation of Thailand to Unesco
1, rue Miollis
75015 Paris

Togo/Toro/توجو/多　哥

Not represented

Tonga/Тонга/تونجا/汤加

Not represented

Trinidad and Tobago/Trinité-et-Tobago/Trinidad y Tabago/Тринидад и Тобаго/ترينيداد و توباجو/特立尼达和多巴哥

Not represented

Tunisia/Tunisie/Túnez/Тунис/تونس/突尼斯

Heads of Delegation

Mr. Azzedine Guellouz
Delegue Permanent
Delegation Permanente de Tunisie aupres de l'Unesco
1, rue Miollis
75015 Paris

Mr. Mongi Goucha
Commissaire General a la Peche
Ministere de l'Agriculture
Rue Alain Savary
Tunis

Alternate

Mr. Mondher Mami
Delegue Permanent Adjoint
Delegation Permanente de Tunisie aupres de l'Unesco
1, rue Miollis
75015 Paris

Representatives

Mr. Sadak Ben Othman
Sous-Directeur
Commissariat General a la Peche
32, rue Alain Savary
Tunis

Mr. Mohammed Hadj Ali Salem
Directeur,
Institut Oceanographique (INSTOP)
28, rue du 2 mars 1934
Salammbo

Turkey/Turquie/Turquía/Турция/تركيا/土耳其

Head of Delegation

Admiral Sevket Gucluer
Head, Office of Navigation, Hydrography and Oceanography
Cubuklu-Istanbul

Alternate

Prof. Dr. Turgut Balkas
Head of the Research Division
Marmara Research Institute
P.K. 21

Representatives

Mr. Bilge Cankorel
Chief of Section
Ministry of Foreign Affairs
CTRD-II
Disicleri Bakanligi
Ankara

Dr. Umit Unluata
Director
Marine Science Institute
Middle East Technical University
P.K. 28
Eqdemli-ICEL

Capt. Huseyin Yuce
Chief of Oceanography Group
Office of Navigation, Hydrology and Oceanography
Cubuklu-Istanbul

Ukrainian Soviet Socialist Republic
République socialiste soviétique d'Ukraine
República Socialista Soviética de Ucrania
Украинская Советская Социалистическая Республика/
جمهورية اوكرانيا الاشتراكية السوفييتية /
乌克兰苏维埃社会主义共和国

Head of Delegation

Mr. E.F. Shnlukov
Director of the Geological Institute
Ukrainian Academy of Sciences
Tchkalova str. 55-5
Kiev

Alternate

Mr. A.M. Zlenko
Permanent Delegate
Ukrainian S.S.R. Delegation to Unesco
1, rue Miollis
75015 Paris

Representative

Mr. S.N. Borovik
Ukrainian Commission for Unesco
Ministry of Foreign Affairs
15, Karl Liebknecht Str.
Kiev

Union of Soviet Socialist Republics
Union des républiques socialistes soviétiques
Unión de Repúblicas Socialistas Soviéticas
Союз Советских Социалистических Республик/
اتحاد الجمهوريات الاشتراكية السوفييتية /
苏维埃社会主义共和国联盟

Head of Delegation

Prof. Dr. E.I. Tolstikov
U.S.S.R. State Committee for Hydrometeorology and Natural Environment Control
12, P. Morozov Str.
Moscow 123376

Alternate

Admiral A.G. Evlanov
Head, Department of Navigation and Oceanography
8, 11 linia, Vasilievsky estrov
Leningrad B - 34

Representatives

Dr. P.D. Agafonov
Secretary, Oceanographic Committee of the Soviet Union
11, Gorky Street
Moscow 103009

Dr. V.A. Serkov
Hydrographic Service of the Navy
6, B. Kozlovski per.
K-175 Moscow

Dr. A.A. Elizarov
Vice-Director
All Union Research Institute of Marine Fisheries and Oceanography (VNIRO)
17, Krasnoselskaya
Moscow B-140

Dr. Y.S. Dolotov
Secretary
Department of Oceanology, Atmospheric Physics and Geology
U.S.S.R. Academy of Sciences
Lenninsky Prospect 14
Moscow 1179001

Adviser

Prof. Dr. Konstantin Fedorov
Institute of Oceanology
U.S.S.R. Academy of Sciences
21, Krasikova St.
Moscow 117218

United Arab Emirates/Emirats arabes unis
Emiratos Arabes Unidos
Объединенные Арабские Эмираты/
الامارات العربية المتحدة / 阿拉伯联合酋长国

Not represented

United Kingdom of Great Britain and Northern Ireland
Royaume-Uni de Grande-Bretagne et d'Irlande du Nord
Reino Unido de Gran Bretaña e Irlanda del Norte
Соединенное Королевство Великобритании и Северной Ирландии/
المملكة المتحدة لبريطانيا العظمى و ايرلندا الشمالية/
大不列颠及北爱尔兰联合王国

Head of Delegation

Mr. Desmond P.D. Scott
St. Faith's House
The Close
Chichester, West Sussex PO19 1QB

Alternate

Dr. Roger C. Padgham
Natural Environment Research Council
Polaris House, North Star Avenue
Swindon, Wilts. SN2 1EU

Representatives

Dr. David T. Pugh
Natural Environment Research Council
Polaris House, North Star Avenue
Swindon, Wilts. SN2 1EU

Prof. Raymond J.H. Beverton
Department of Applied Biology
University of Wales Institute of Science and Technology
P.O. Box 13,
Cardiff CF1 3XF

Dr. Anthony S. Laughton
Director
Institute of Oceanographic Sciences
Brook Road, Wormley
Godalming, Surrey GU8 5UB

Lt. Cdr. Thomas McAndrew
Hydrographic Department (MOD)
Old War Office Building, Whitehall
London SWIA 2EU

Adviser

Mr. Robin Russell
Deputy Permanent Delegate
Permanent Delegation of the United Kingdom to Unesco
1, rue Miollis
75015 Paris

United Republic of Tanzania
République-Unie de Tanzanie
República Unida de Tanzania
Объединенная Республика Танзания/
جمهورية تانزانيا المتحدة /
坦桑尼亚联合共和国

Head of Delegation

Mr. Joseph A.T. Munowo
Deputy Permanent Delegate
Permanent Delegation of Tanzania to Unesco
70, boulevard Pereire
75017 Paris

United States of America
Etats-Unis d'Amérique
Estados Unidos de América
Соединенные Штаты Америки/
الولايات المتحدة الامريكية/美利坚合众国

Head of Delegation

Dr. Paul Wolff
Assistant Administrator
Ocean Services and Coastal Zone Management
National Oceanic and Atmospheric Administration
Department of Commerce
15th and Constitution Av., N.W.
Washington D.C.

Alternates

Mr. William Erb
Director
Office of Marine Science and Technology Affairs
Department of State
Washington D.C. 20520

Mr. Robert C. Junghans
Chief, International Activities Staff
National Oceanic and Atmospheric Administration
Office of Oceanic and Atmospheric Research
6010 Executive Blvd.
Rockville, Maryland 20852

Representatives

Mr. Anthony F. Rock
International Co-ordinator
Office of Oceanic and Atmospheric Research
National Oceanic and Atmospheric Administration (NOAA)
Department of Commerce
6010 Executive Blvd.
Rockville, Maryland 20852

Dr. Robert Rowland
Office of Marine Geology - MS 915
United States Geological Survey
Department of Interior
Reston, VA. 22092

Advisers

Mrs. Dorothy Bergamaschi
Executive Secretary
Office of Marine Science and Technology Affairs
Bureau of Oceans and International Environmental and Scientific Affairs
Department of State
Washington D.C. 20520

Mr. Lou Brown
National Science Foundation
Division of Ocean Sciences
1800, G. street, N.W.
Washington, D.C. 20550

Dr. Manfred Cziesla
Science Adviser
U.S. Observer Mission to Unesco
U.S. Embassy
2, avenue Gabriel
75008 Paris

Dr. Nancy Maynard
Director
Board of Ocean Science and Policy
National Academy of Sciences
Washington, D.C. 20418

Observer

Mrs. Alice Hogan
Chief, NOS International Affairs
National Oceanic and Atmospheric Administration
Washington D.C. 20230

Uruguay/Уругвай/اوروجواى / 乌拉圭

Head of Delegation

Capitan de Navio Juan Antonio Robatto Calcagno
Director General
Industria Lobera y Pesquera del Estado
Rbla. Baltarsar Brum y Fco. Tajes
Montevideo

Alternate

Sra. Susana Rivero
Delegado Permanente Adjunto
Delegacion Permanente de Uruguay ante la Unesco
1, rue Miollis
75015 Paris

Venezuela/Венесуэла/ فنزويلا / 委内瑞拉

Head of Delegation

Dr. Luis M. Carbonell
Ministro de Estado para la Ciencia y la Tecnologia
Palacio de Miraflores
Caracas

Alternates

Dr. Marcel Roche
Embajador Delegado Permanente
Delegacion Permanente de Venezuela ante la Unesco
1, Rue Miollis
75015 Paris

Dr. Jose Antonio Galavis-Seidel
Ministerio de Energia y Minas
Direccion de Geologia
Torre Oeste, Piso 4
Parque Central
Caracas

Representatives

Capitan de Navio Eddy Mendez Perez
Director
Hidrografia y Navegacion de la Armada
Comandancia General de la Armada
Avenida Volmer
San Bernadino
Caracas

Dra. Maria Y. Madrigal
Direccion General Sectorial de Fronteras
Ministerio de Relaciones Exteriores
Dr. Paul a Salvador de Leon
Edf. Banco del Caribe, Piso 13
Caracas

Lic. Teresa Flores Petit
Delegacion Permanente de Venezuela ante la Unesco
1, rue Miollis
75015 Paris

Socialist Republic of Viet-Nam / République socialiste du Viêt-nam / República Socialista de Viet-Nam / Социалистическая Республика Вьетнам/ جمهورية فيتنام الاشتراكية / 越南社会主义共和国

Head of Delegation

Prof. Dang Ngoc Thanh
Vice-President
Centre National de Recherche Scientifique du Viet Nam
Nghia, Do-Tu Liem
Hanoi

Representatives

Mr. Le Phuong
Ambassadeur, Delegue Permanent
Delegation Permanente de la Republique Socialiste du Viet Nam aupres de l'Unesco
2, rue le Verrier
75006 Paris

Mr. Vu Duc Tam
Delegation Permanente de la Republique Socialiste du Viet Nam aupres de l'Unesco
2, rue le Verrier
75006 Paris

Yemen/Yémen/Йемен/ اليمن/ 也 门

Head of Delegation

Mr. Ahmed Sayyad
Delegue Permanent Adjoint
Delegation Permanente du Yemen aupres de l'Unesco
1, rue Miollis
75015 Paris

Yugoslavia/Yougoslavie/Югославия/ يوغسلافيا/ 南斯拉夫

Head of Delegation

Mr. Rade Stijelja
Institute for Oceanography and Fisheries
M. Pijade 67
5800 Split

Alternate

Dr. Miroslav Gacic
Institute of Oceanography and Fisheries
P.O. Box 114
58001 Split

IV. OBSERVERS FROM NON-MEMBER STATES OF THE IOC/ OBSERVATEURS DES ETATS NON MEMBRES DU CONSEIL DE LA COI/ OBSERVADORES DE LOS PAISES NO MIEMBROS DE LA COI/ НАБЛЮДАТЕЛИ ОТ ГОСУДАРСТВ, НЕ ЯВЛЯЮЩИХСЯ ЧЛЕНАМИ МОК/ المراقبون من دول غير أعضاء في كوى/ 政府间海洋学委员 会非会员国观察员

Benin/Bénin/Бенин/ بنين /贝 宁

Head of Delegation

Mr. Georges Guedou
Delegue Permanent Adjoint
Delegation Permanente du Benin aupres de l'Unesco
1, rue Miollis
75015 Paris

Alternate

Mrs. Paulette Agboton
Delegation Permanente du Benin aupres de l'Unesco
1, rue Miollis
75015 Paris

Democratic Kampuchea/ Kampuchea démocratique Kampuchea Democrática Демократическая Кампучия/ كمبوتشيا الديمقراطية/民主柬埔寨

Head of Delegation

Mr. Pin Ngo
Delegue Permanent Adjoint
Delegation Permanente du Kampuchea Democratique aupres de l'Unesco
2, place de Barcelone
75016 Paris

Alternate

Mr. Teary Chau
Delegation Permanente du Kampuchea Democratique aupres de l'Unesco
2, place de Barcelone
75016 Paris

São Tomé and Principe/Sao Tomé et Principe Santo Tomé y Príncipe/ Острова Сан-Томе и Принсипи/ ساو تومى وبرنسيبى/ 圣多美和普林西比

Head of Delegation

Mr. Carlos Rodriguez Trigueiros
Delegation Permanente du Sao Tome et Principe aupres de l'Unesco
1, rue Miollis
75015 Paris

V. REPRESENTATIVES OF ORGANIZATIONS REPRESENTANTS D'ORGANISATIONS REPRESENTANTES DE ORGANIZACIONES ПРЕДСТАВИТЕЛИ ОРГАНИЗАЦИЙ/ ممثلو المنظمات الدولية/各组织代表

A. IOC ADVISORY BODIES/ ORGANISMES CONSULTATIFS DE LA COI/ ORGANOS CONSULTIVOS DE LA COI/ КОНСУЛЬТАТИВНЫЕ ОРГАНЫ МОК/ الهيئات الاستشارية التابعة لكوى/ 政府间海洋学委员会的咨询机构

Advisory Committee on Marine Resources Research (ACMRR)

Prof. Dr. G. Hempel
Director, Institute for Polar Research
Columbus Center
D-2850 Bremerhaven
Federal Republic of Germany
(Also representing FRG and SCAR)

Dr. Armin Lindquist
Secretary, ACMRR
Director, Fishery Resources and Environment Division
Department of Fisheries
Food and Agriculture Organization
Via delle Terme di Caracalla
00100 Rome
Italy
(Also representing FAO)

Engineering Committee on Oceanic Resources (ECOR)

Mr. Ascensio C. Lara
President ECOR
Viamonte 1634 (CIO)
(1055) Buenos Aires
Argentina

Scientific Committee on Oceanic Research (SCOR)

Mr. Gerold Siedler
President of SCOR
Institut fur Meereskunde
Dusternbrooker Weg 20
D-2300 Kiel,
Federal Republic of Germany
(Also representing ICSU)

Mr. Roger Chesselet
Directeur du Programme Interdisciplinaire de Recherches Oceanographiques (PIROCEAN)
15, Quai Anatole France
75700 Paris
(Also representing France and ICSU)

Ms. Elizabeth Tidmarsh
Executive Secretary
SCOR Department of Oceanography
Dalhousie University
Halifax, NS B3H 4J1
Canada

B. ICSPRO AGENCIES
ORGANISATIONS FAISANT PARTIE DU CIPSRO
ORGANIZACIONES QUE FORMAN PARTE DEL ICSPRO
УЧРЕЖДЕНИЯ ИКСПРО/
المنظمات المنضمة الى ايكسبرو
秘书处间海洋学科学计划委员会成员组织

United Nations Educational, Scientific and Cultural Organization (Unesco)

Dr. D.C. Krause
Director, Division of Marine Sciences
Unesco
7, place de Fontenoy
75700 Paris
France

Dr. M. Steyaert
Dr. S. Morcos
Dr. S. Troost
Mr. G. Wright
Dr. A. Suzyumov
Dr. B. Mwaiseje

(same address as above)

Mr. Daniel de San
Chef, Division des Normes Internationales Unesco
7, place de Fontenoy
75700 Paris

Mr. John Donaldson
Division des Normes Internationales
Unesco
7, place de Fontenoy
75700 Paris

United Nations (UN)

Ms. Annick de Marffy
UN Office of the Special Representive of the Secretary-General for the Law of the Sea
2, United Nations Plaza
New York, N.Y. 10017
U.S.A.

Food and Agriculture Organization of the United Nations (FAO)

Dr. Jean Carroz
Deputy Director General
Fisheries Department
Food and Agriculture Organization
Via delle Terme di Caracalla
00100 Rome
Italy

Dr. Armin Lindquist
Director, Fishery Resources and Environment Division
Fisheries Department
Food and Agriculture Organization
Via delle Terme di Caracalla
00100 Rome
Italy
(Also representing ACMRR)

Mr. Erdugan Fikri Akyuz
Chief, Fishery Information, Data and Statistics Service
Food and Agriculture Organization
Via delle terme di Caracalla
00100 Rome
Italy

World Meteorological Organization (WMO)

Prof. P. Morel
Director, WCRP Department
Case postale No. 5
CH-1211 Geneve 20
Switzerland

Mr. S. Mizuno
Chief, Ocean Affairs Division
World Weather Watch Department
World Meteorological Organization
Case postale No. 5
CH-1211 Geneva 20
Switzerland

Dr. P.E. Dexter
Scientific Officer,
Ocean Affairs Division
World Weather Watch Department
Case postale No. 5
CH-1211 Geneva 20
Switzerland

International Maritime Organization (IMO)

Mr. Jerzy Vonau
Environment Section
International Maritime Organization
4, Albert Embankment
London SE1
U.K.

C. OTHER ORGANIZATIONS
AUTRES ORGANISATIONS
OTRAS ORGANIZACIONES
ДРУГИЕ ОРГАНИЗАЦИИ/منظمات أخرى
其它组织

Arab Educational, Cultural and Scientific Organization (ALECSO)

Mr. Ahmed Derradji
Permanent Representative ALECSO
Unesco
1, rue Miollis
75015 Paris

Dr. Abdulelah A. Banajah
Director
ALECSO Red Sea Programme
PERSGA
P.O. Box 1358
Jeddah
Saudi Arabia

Comision Permanente del Pacifico Sur (CPPS)

Mr. Luis Arriaga
Secretario General CPPS
Paez 370, 6o Piso, y Robles
Quito,
Ecuador

Commission des Communautes Europeennes (CGE)

Mr. Adolfo Comba
61, rue des Belles Feuilles
75016 Paris

Commission on Marine Geology (CMG)

Prof. Dr. Kenneth Hsu
Geological Institute
Sonneggstr. 5,
8006 Zurich
Switzerland

Commission for the Geological Map of the World (CGMW)

Mr. Olivier Dottin
Secretaire General
Commission de la Carte Geologique du Monde
Maison de la Geologie
77, rue Claude-Bernard
75005 Paris
France

Mr. Jacques Segoufin
Secretaire General
Maison de la Geologie
77, rue Claude-Bernard
75005 Paris

Committee for Co-ordination of Joint Prospecting for Mineral Resources in the South Pacific Offshore Areas (CCOP/SOPAC)

Mr. Cruz Matos
Acting Director
Private Mail Bag
Suva
Fiji Islands

International Association for Biological Oceanography (IABO)

Prof. Pierre Lasserre
President IABO
Station Marine de Roscoff
CNRS & Universite Paris VI
29211 Roscoff,
France
(Also representing France and ICSU)

International Council for the Exploration of the Sea (ICES)

Prof. Warren Wooster
President ICES
Institute of Marine Studies
University of Washington
Seattle, WA 98195
U.S.A

Mr. O.J. Ostvedt
First Vice-President ICES
Institute of Marine Research
P.O. Box 1870
5011 - Nordnes - Bergen
Norway
(Also representing Norway)

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

Son Exc. M. Cesar-Charles Solamito
Vice-President
Villa "Girasole"
16, boulevard de Suisse
MC - 98030 Monaco Cedex
Principaute de Monaco
(Also representing Monaco)

Mr. Patrick Van Klaveren
Adjoint au Secretaire General
Villa "Girasole"
16, boulevard de Suisse
MC - 98030 Monaco Cedex
Principaute de Monaco

International Council of Scientific Unions (ICSU)

Mr. F.W.G. Baker
Executive Secretary ICSU
51, boulevard de Montmorency
75016 Paris

Mr. G. Siedler
President, SCOR
Institut fur Meereskunde
Dusternbrooker Weg 20
D-2300 Kiel,
Federal Republic of Germany
(Also representing SCOR)

Prof. P. Lasserre
Station Marine de Roscoff
CNRS & Universite Paris VI
29211 Roscoff,
France
(Also representing IABO and France)

Ms. Elizabeth Tidmarsh
Executive Secretary, SCOR
Department of Oceanography
Dalhousie University
Halifax NS B3H 4J1
Canada

Prof. G. Hempel
Scientific Committee for Antarctic Research (SCAR)
Alfred-Wegener-Institut fur Polarforschung
Columbus Center
D-2850 Bremerhaven
(Also representing FRG and ACMRR)

Mr. Roger Chesselet
PIROCEAN
CNRS
15, Quai Anatole France
75007 Paris
(Also representing France and SCOR)

Mr. Arthur Alexiou
ICSU Scientific Officer
IOC-Unesco
7, place de Fontenoy
75007 Paris

International Hydrographic Organization (IHO)

Vice-Admiral Orlando A.A. Affonso
Director, International Hydrographic Bureau
7, Avenue President J.F. Kennedy
MC - 98000 Monaco
Principality of Monaco

Palestine Liberation Organization (PLO)

Mr. Omar Massalha
Permanent Observer
1, rue Miollis
75015 Paris

Permanent Service for Mean Sea Level (PSMSL)

Dr. David T. Pugh
Director, PSMSL
Institute of Oceanographic Sciences
Bidston Observatory
Birkenhead
Merseyside L43 7RA
U.K.

United Nations Environment Programme (UNEP)

Mr. Genady Golubev
Assistant Executive Director
United Nations Environment Programme
P.O. Box 30552
Nairobi
Kenya

Mr. S. Keckes
Director, Regional Seas Programme Activity Centre
United Nations Environment Programme
Palais des Nations
CH-1211 Geneva 10
Switzerland

VI. SECRETARIAT/SECRETARIA/ СЕКРЕТАРИАТ/ السكرتارية / 秘书处

Secretary

Dr. Mario Ruivo

Assistant Secretaries

Mr. Ray C. Griffiths
Dr. S. Mazhar Haq
Dr. Yuri Oliounine
Dr. Fernando Robles
Dr. Albert Tolkachev
Dr. Leif Andren
Mr. George Kitaka
Dr. Kazuhiro Kitazawa
Mrs. Natalie Philippon-Tulloch
Mr. Yves Treglos
Mr. Jimmy Lyons
Dr. Rodger Dawson
Mr. Trevor Sankey
Mr. Rolf Schneider (temporarily seconded to the Commission)

Assistant Secretary
(and Unesco Marine Science Officer, ROSTA)
Dr. Amin Hamed Meshal
Regional Office of Science and Technology for Arab States (ROSTA)
Doha
Qatar

Consultants

Dr. Makram Gerges
Mr. Roger Aertgeerts

Documentalist

Mme. Jeannie Dombret

IOC/ICSEM Operational Unit for the Mediterranean

Mr. Alain Vatrican
Secretaire General du Centre Scientifique
16, boulevard de Suisse
MC-98030 Monaco Cedex
Principaute de Monaco

Dr. Y.G. Ionov
Operational Unit for the Mediterranean
16, boulevard de Suisse
MC-98030 Monaco Cedex
Principality of Monaco

VII. IOC SUBSIDIARY BODIES ORGANES SUBSIDIAIRES A LA COI ORGANOS SUBSIDIARIOS DE LA COI ВСПОМОГАТЕЛЬНЫЕ ОРГАНЫ МОК/ الهيئات الفرعية لكوى 政府间海洋学委员会附属机构

Joint SCOR-IOC Committee on Climatic Changes and the Ocean (CCCO)

Dr. Robert W. Stewart
Terrace Plaza
4445 Calgary Trail
Edmonton - T6H 5R7
Canada

Mr. Robert Molcard
CCCO Scientific Officer
IOC-Unesco
7, place de Fontenoy
75700 Paris

Joint IOC-IHO Guiding Committee for the General Bathymetric Chart of the Oceans (GEBCO)

Dr. Anthony S. Laughton
Director, Institute of Oceanographic Sciences
Wormley
Godalming
Surrey GU8 5UB
United Kingdom
(Also representing U.K.)

Mr. D.P.D. Scott
Permanent Secretary GEBCO
St. Faith's House
The Close
Chichester,
West Sussex PO19 1QB
United Kingdom
(Also representing U.K.)

IOC Working Committee for the Global Investigation of Pollution in the Marine Environment (GIPME)

Dr. Neil Andersen
Programme Director
Marine Chemistry Programme
Room 609
National Science Foundation
1800 G Street, N.W.
Washington D.C. 20772
U.S.A.

Mr. Roger Chesselet
PIROCEAN
CNRS
15, quai Anatole France
75007 Paris
(Also representing France and ICSU)

Joint IOC/WMO Working Committee for the Integrated Global Ocean Services System (IGOSS)

Dr. G.L. Holland
Director
Ocean and Aquatic Sciences
240, Sparks Street
Ottawa K1A 0E6
Canada
(Also representing Canada)

IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE)

Capitan de Fragata Rafael Steer Ruiz
Presidente IOCARIBE
Centro de Investigaciones Oceanograficas e Hidrograficas (CIOH)
Apartado Aereo 982
Cartagena
Colombia
(Also representing Colombia)

IOC Working Committee on International Oceanographic Data Exchange (IODE)

Mr. D. Kohnke
Deutsches Hydrographisches Institut
D-2000 Hamburg 4
Federal Republic of Germany
(Also representing the Federal Republic of Germany)

IOC Working Committee for Training, Education and Mutual Assistance in the Marine Sciences (TEMA)

Dr. Ulf Lie
Institute of Marine Biology
N-5065 Blomsterdalen
Norway
(Also representing Norway)

IOC-FAO Guiding Group of Experts on Ocean Science in Relation to Living Resources (OSLR)

Mr. Andrew Bakun
Pacific Environmental Group
P.O. Box 831
Monterey, CA 93940
U.S.A.

Programme Group for the Western Pacific (WESTPAC)

Dr. John S. Bunt
Australian Institute of Marine Science
P.M.B. 3, M.S.O.
Townsville, Q. 4810
Australia
(Also representing Australia)

International Tsunami Information Center (ITIC)

Dr. George Pararas-Carayannis
Director
ITIC
P.O. Box 50027
Honolulu, Hawaii 96850
U.S.A.

VIII. BRUNN MEMORIAL LECTURERS/ PERSONNES AYANT PRONONCE DES CONFERENCES A LA MEMOIRE DE BRUNN/ PERSONAS QUE HAN PARTICIPADO EN LAS CONFERENCIAS CONMEMORATIVAS/ ЛИЦА, ВЫСТУПАВШИЕ С ЛЕКЦИЯМИ ПАМЯТИ БРУУНА/ الاشخاص الذين القوا محاضرات «بروون» التذكارية/ 纪念布伦大会的发言人

Mr. W.S. Wooster
University of Washington
Institute for Marine Studies HF-05
Seattle,
Washington 98195
U.S.A.

Mr. S.Z. Qasim
Secretary
Department of Ocean Development
Government of India
Mahasagar-Bhavan
Block No. 12 - CGO Complex
Lodi Road
New Delhi 110003
India

Prof. A. Yankov
Professor of International Law
Faculty of Law
Sofia State University
Complex Lenin, Block 73
Sofia
Bulgaria

IX. Past Chairmen and Secretaries IOC invited to the Celebration of the 25th Anniversary of the Commission/Anciens présidents et secrétaires de la Commission invités à la célébration du 25e anniversaire de la COI/Ex presidentes y ex secretarios de la COI invitados a la celebración del 25° anniversario de la Comisión. Бывшие председатели и секретари МОК, приглашенные на празднование 25-й годовщины Комиссии

تاسعا : الرؤساء والسكرتير السابقون لكوي الذين دُعو للمشاركة في الاحتفال بمرور خمسة وعشرين عاما على انشاء اللجنة.

应邀参加政府间海洋学委员会二十五周年庆祝议式的历届委员会主席和秘书

Past Chairmen

Dr. William M. Cameron
Camarine Consulting Ltd.
4448 Ross Crescent
West Vancouver, B.C.
V7W 1B2
Canada

Prof. Henri Lacombe
Laboratoire d'Oceanographie Physique
du Museum d'Histoire Naturelle
44, rue Cuvier
75005 Paris

Admiral Wijnand Langeraar
"Le Gorlay"
Ile de Houat 56170
France

Dr. George F. Humphrey
CSIRO
Marine Biochemistry Unit
Building A12
Sidney University, N.S.W. 2006
Sidney,
Australia

Dr. Agustin Ayala-Castanares
Director
Instituto de Ciencias del Mar y Limnologia
Universidad Nacional Autonoma de Mexico
Apartado Postal 70-157
Mexico 20 DF
Mexico

Past Secretaries

Prof. Warren Wooster
Institute for Marine Studies HA-35
University of Washington
3731 University Way N.E.
Seattle, WA 98105
U.S.A.

Dr. N. Konstantin Fedorov
Institute of Oceanology
Academy of Sciences of the U.S.S.R.
23, Krasikova Street
Moscow 117218
U.S.S.R.

Dr. Sidney J. Holt
2 Meryon Court
Rye
East Sussex.
TN31 7 LY
United Kingdom

Mr. Desmond P.D. Scott
St. Faith's House
The Close
Chichester, West Sussex PO 19 1QB
United Kingdom

ANNEX VIII

LIST OF ACRONYMS AND ABBREVIATIONS

ACMRR	Advisory Committee on Marine Resources Research
ALECSO	Arab League Educational, Cultural and Scientific Organizations
ASFIS	Aquatic Sciences and Fisheries Information System
BATHY/TESAC of (IGOSS)	Bathythermograph Report/Temperature, Salinity, Currents
CARICOM	Caribbean Community
CARIPOL	IOCARIBE Pollution Monitoring Programme
CCAMLR	Commission (of the Convention) on the Conservation of Antarctic Marine Living Resources
CCCO	Joint SCOR-IOC Committee on Climatic Changes and the Ocean
CCOP	Committee for the Co-ordination of Joint Prospecting for Mineral Resources in Asian Offshore Areas
CCOP (SOPAC)	Committee for Co-ordination of Joint Prospecting for Mineral Resources in South Pacific Offshore Areas
CGOM (of IOC)	Consultative Group on Ocean Mapping
COBSEA	Co-ordinating Body for the Seas of East Asia
COMAR	Unesco Major Interregional Project on Research and Training Leading to the Integrated Management of Coastal Systems
CONCYTEC (of Peru)	Consejo Nacional de Ciencias y Tecnología
CPPS	Comisión Permanente del Pacífico Sur
DNA	Declared National Agency
ECOR	Engineering Committee on Oceanic Resources
ERFEN (of CPPS)	Estudio Regional del Fenómeno 'El Niño'
FAO	Food and Agricultural Organization of the United Nations
GAPA	Geological/Geophysical Atlases of the Atlantic and Pacific Oceans

GEBCO	General Bathymetric Chart of the Oceans
GEEP	GIPME Group of Experts on Effects of Pollutants
GEMSI	GIPME Group of Experts on Methods, Standards and Intercalibration
GESAMP (of IMO-FAO Unesco-WMO-WHO-IAEA-UN-UNEP)	Group of Experts on the Scientific Aspects of Marine Pollution
GF-3	IOC General Format No. 3 (International Oceanographic Data Exchange)
GIPME	Global Investigation of Pollution in the Marine Environment
GOPPS	Group on Policy, Planning and Strategy
GTS (of WMO)	Global Telecommunications System
IABO	International Association for Biological Oceanography
IAEA	International Atomic Energy Agency
IBCCA (of IOC)	International Bathymetric Chart of the Caribbean and Part of the Pacific off Central America
IBCM	International Bathymetric Chart of the Mediterranean
IBCWIO	International Bathymetric Chart of the Western Indian Ocean
ICES	International Council for the Exploration of the Sea
ICSPRO	Inter-secretariat Committee on Scientific Programme Relating to Oceanography
ICSU	International Council of Scientific Unions
IDOE	International Decade of Ocean Exploration
IFREMER	Institut Français de Recherche pour l'Exploitation de la Mer
IGOSS	Integrated Global Ocean Station System
IMO	International Maritime Organization
INSU	Institut National des Sciences de l'Univers
IOCARIBE	IOC Sub-commission for the Caribbean and Adjacent Regions
IOCEA	IOC Programme Group for the Central Eastern Atlantic
IOCINCWIO	Co-operative Investigations in the North and Central Western Indian Ocean

IOCINDIO	IOC Programme Group for the Central Indian Ocean
IOCSOC	IOC Programme Group for the Southern Oceans
IODE	International Oceanographic Data Exchange
IOS (of the U.K.)	Institute of Oceanographic Sciences
IREP	International Recruitment Programme
ISLPP	IGOSS Sea Level Pilot Project
ITIC	International Tsunami Information Centre
KMFRI	Kenya Marine Fisheries Research Institute
LEPOR	Long-term and Expanded Programme of Oceanic Exploration and Research
MAB (of Unesco)	Man and the Biosphere
MARPOLMON	Marine Pollution Monitoring
MASTIR	Marine Scientific and Technical Information Resources
MEDALPEX (of IOC)	Mediterranean Alpine Experiment
NARA	National Aquatic Resources Agency
NOAA (of U.S.A.)	National Oceanic and Atmospheric Administration
NODC	National Oceanographic Data Centre
NORAD	Norwegian Agency for International Development
OOSDP	Ocean Observing System Development Programme
OSLR	Ocean Science in Relation to Living Resources
OSNLR	Ocean Science in Relation to Non-living Resources
PERSGA (of ALECSO)	Programme on the Environment of the Red Sea and Gulf of Aden
PSMSL	Permanent Service for Mean Sea Level
RNODC	Responsible National Oceanographic Data Centre
ROPME	Regional Organization for the Protection of the Marine Environment
ROSTA	Regional Office of Science and Technology for Africa
RSPAC	Regional Seas Programme Activity Centre

SARP	Sardine-Anchovy Recruitment Programme
SCAR	Scientific Committee on Antarctic Research
SCOR	Scientific Committee on Oceanic Research
SEATAR	Joint CCOP-IOC Working Group on post IDOE Studies on East Asia Tectonics and Resources
SOC	Specialized Oceanographic Centre
STAR	Joint CCOP (SOPAC)-IOC Working Group on South Pacific Tectonics and Resources
TCDC	Technical Co-operation among Developing Countries
TEMA	Training, Education and Mutual Assistance in the Marine Sciences
TOGA	Tropical Oceans and Global Atmosphere
UN	United Nations
UN(OETB)	UN Ocean Economics and Technology Branch
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
VCP (of IOC)	Voluntary Co-operation Programme
WCRP	World Climate Research Programme
WESTPAC	Programme Group for the Western Pacific Region
WHO	World Health Organization
WMO	World Meteorological Organization
WOCE	World Oceans Circulation Experiment