MARINE POLICY & OCEAN MANAGEMENT

REPORT
of the
UNITED STATES DELEGATION
to the
NINTH MEETING
of the
BUREAU AND CONSULTATIVE COUNCIL
INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
Woods Hole, Massachusetts
United States of America
February 3-7, 1969

Submitted to the SECRETARY OF STATE

Donald L. McKernan

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Chairman of the Delegation
March 5, 1969

Prepared by:
A. Denis Clift

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Bureau and Consultative Council
Intergovernmental Oceanographic Commission

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I. Background of the Meeting

The Ninth Meeting of the Bureau and Consultative Council of the Intergovernmental Oceanographic Commission was held at Woods Hole Oceanographic Institution, Woods Hole, Massachusetts, U. S. A., from February 3-7, 1969.

At its First Session, the Intergovernmental Oceanographic Commission established a Consultative Committee to serve as a steering committee and to assist the IOC Bureau and Secretariat in the development of the program of the Commission prior to the Second Session. The Committee was continued by the Second Session.

The Third Session of the Intergovernmental Oceanographic Commission adopted a resolution requesting the UNESCO General Conference to amend the statutes to provide for the designation at each Session of a Consultative Council which would serve with the Bureau as a steering committee at Sessions. Prior meetings of the Bureau and Consultative Council were held as follows: April 10-12, 1962, Paris; May 6-8, 1963, Moscow; October 29-November 1, 1963, Paris; December 7-11, 1964, Paris; June 14-18, 1965, Rome; May 16-18, 1966, Paris; January 30-February 2, 1967, Monaco; and June 10-14, 1968, London.

II. Agenda as Finally Adopted

1. Adoption of the agenda.
2. Information by the Secretary on current activities.
3. Recommendations of consultants concerning future development of the IOC.
4. Recent decisions of the UNESCO General Conference, ECOSOC, in UN General Assembly and of other bodies, and their implications for the future development of the IOC.
5. Matters pertaining to the formulation of the expanded program.
 - a. Formulation of specific questions to SCOR and ACMRR in connection with their consideration of the scientific content of the expanded program.

- b. Recommendations to the Secretary-General of the United Nations in connection with his presenting the 47th Session of ECOSOC with a comprehensive outline of the scope of this program.
6. Information on the IGOSSE development and policy questions involved.
7. Regional marine science activities - Africa.
8. Consideration of co-operative programs and of the work of subsidiary bodies of the Commission.
- (i) Legal questions
 - (ii) Legal aspects of ocean data stations
 - (iii) Training and education in oceanography
 - (iv) Oceanographic data exchange
 - (v) General problems pertaining to the functioning of the IOC subsidiary bodies
 - (vi) Upper mantle research program and geotraverses
9. Planning of meetings in 1969-1970.
10. Consideration of support (budget and secretariat) for the Commission in 1969-70 and of the Commission's needs for 1971-72.

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* The Bureau received applications from members of the delegations of Argentina, Belgium and Peru to the United Nations, expressing their interest in attending the meeting of the Bureau and Consultative Council in connection with the UN General Assembly's consideration of seabed issues. The Bureau, acting in accordance with Rule 31 (2) of the Commission's Rules of Procedure, welcomed the attendance of Mr. R. Gowland, Mr. R. Denorme and Mr. J. Caceres as observers without the right to vote.

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IV. Work of the Meeting

During the Ninth Meeting of the Bureau and Consultative Council all agenda items except Item 7 were considered, and 19 Recommendations were adopted. Each of the Recommendations adopted during the Ninth Meeting is included under the appropriate agenda item, and the items which follow are numbered in accordance with the agenda as adopted.

Dr. Roger Revelle, Director of the Center of Population Studies, Harvard University, delivered the welcoming address at the opening of the Ninth Meeting of the Bureau and Consultative Council. In a broad-ranging talk, Dr. Revelle sketched the histories of the Woods Hole Oceanographic Institution and the Intergovernmental Oceanographic Commission and commented on man's growing uses of the seas and on the corresponding need for increased intergovernmental cooperation in marine matters. He suggested that the IOC has made a good start and that its future role can be whatever its member states desire. However, he said that if the IOC is to be effective in the years to come, it will have to have its own

budget and it will have to give special attention to the needs of the Lesser Developed Countries.

1. Adoption of the Agenda.

Professor A. M. Muromtsev (USSR) noted that the provisional agenda did not include any discussion of the Commission's program for 1969. It was agreed to amend Item 8, "Consideration of the Work of Subsidiary Bodies," to read "Consideration of Co-operative Programs and the Work of Subsidiary Bodies." It was further agreed to add Item 8 (vi), "Upper Mantle Research Programs and Geotraverses." Finally, because of their interrelated nature, it was agreed that Items 3, 4 & 5 would be considered together. The provisional agenda as amended was approved and adopted. Under this agenda item Mr. De Jammet (France) lamented the fact that not all of the meeting's documents were available in French. The Chairman reminded him of Recommendations adopted at the 6th B&CC meeting, and said that he would welcome written suggestions for modification of these procedures.

2. Information by the Secretary on Current Activities

Dr. K. N. Fedorov, IOC Secretary, made reference to the Background Information to the Provisional Agenda (IOC/B-51) and commented on document IOC/B-52, the report of the Chairman and the Secretary of the Commission on IOC's participation in interagency cooperation as regards the ocean between the 8th and 9th meetings of the Bureau and Consultative Council. He reported that there had been nine meetings of IOC subsidiary bodies between June 1968 and February 1969 and stressed that the evident intensification of the Commission's activities should be taken into account when considering Item 8 (v) of the agenda. He also briefly reviewed the progress of work in connection with the IOC's co-operative expeditions.

Dr. Fedorov reported the following IOC personnel actions. Mr. R. C. Junghans (USA) was appointed by the Director-General of UNESCO to the new post (grade P-5) established in 1968 specifically for organizing IGOS activities. France, Canada, and the United States had each seconded an individual for six weeks to assist on IGOS matters. Another new post (P-4 grade) will be filled during the Spring of 1969. The incumbent of this post will devote full time to problems of education and training in oceanography. The establishment of these two new posts, he said, represents the beginning of the new structure of the IOC Secretariat which, in addition to comprising specialists in principal disciplines of marine science, will

now include professional staff members whose duties will be defined on a functional rather than on a disciplinary basis.

The Bureau and the Consultative Council, having examined the above reports and the background information supplied by the Secretariat, put on record their appreciation of the work accomplished through the joint efforts of the IOC Secretariat and the Commission's Chairman.

3, 4, & 5. Recommendations of Consultants Concerning Future Development of the IOC.

Recent Decisions of the UNESCO General Conference, ECOSOC, the U. N. General Assembly and other Bodies, and their Implications for the Future Development of the IOC.

Matters Pertaining to the Formulation of the Expanded Program

- a) Formulation of Specific Questions to SCOR and ACMRR in Connection with their Consideration of the Scientific Content of the Expanded Program.
- b) Recommendations to the Secretary-General of the United Nations in Connection with his Presenting the 47th Session of ECOSOC with a Comprehensive Outline of the Scope of this Program.

Dr. Fedorov introduced these Agenda Items reviewing the new resolutions adopted by ECOSOC, Resolutions 1380, 1381, 1382; the 15th General Conference of UNESCO Resolutions 2.341, 2.342, 2.343, 2.344; and the 23rd General Assembly of the United Nations Resolutions 2413, 2414, and 2467 A-D (See Annex I). He outlined further the recent developments which took place as regards joint action by several international organizations of the UN System in the field of marine science and fisheries. He called on the delegates to the Consultative Council and the members of the Bureau to consider all the new resolutions in the light of the three major developments taking place simultaneously within the UN System:

- (a) The concern of the IOC with its further development and with the necessity to adjust its ways of operation, its means and facilities, to the continuously growing intensity and scope of its work,
- (b) The particular interest of the UN General Assembly in further strengthening of international cooperation in marine science and technology, and

- (c) The interest of the United Nations with various aspects of peaceful uses of the ocean floor and sea-bed beyond the limits of present national jurisdiction.

The Secretary outlined the timetable involved in the implementation of the new resolutions with all its implications for the IOC and informed the meeting of the action contemplated by the Director-General of UNESCO in this connection. In particular he referred to the intention of the Director-General of UNESCO to proceed with the establishment of an Interagency Committee for the IOC after the May 1969 session of the Executive Board of UNESCO.

The representative of the United Nations, Dr. J. P. Levy, presented the new resolutions of the UN General Assembly in their historical context. Dr. W. M. Chapman (ACMRR) stressed the important role of scientific advisory bodies to the IOC in all the stages of the development outlined above.

Captain A. Troncoso (Chile) requested the Bureau and Consultative Council of the IOC to support the statement in Resolution 2413 of the General Assembly that the intergovernmental organizations, and among these the IOC, support the idea of promoting and giving technical assistance to the developing countries when they so request for the exploitation and conservation of the living resources of the sea. He was supported by Ambassador D. L. McKernan (USA) and Professor Muromtsev (USSR) who urged that the program of mutual assistance of the IOC be revitalized and strengthened (see Recommendation 9.1).

Ambassador McKernan spoke of the significance of UN Resolution 2414 (XXIII) which endorsed the concept of the long-term coordinated programme of international cooperation of which the International Decade of Ocean Exploration (IDOE) will be the initial acceleration phase, and he noted the Resolution was confirmation of the IOC's long-established plans. The discussion which followed involved the United Kingdom, USSR, USA and representatives of SCOR and UN and touched largely on the proposed timetable and modalities of work in connection with the operative paragraph of UN Resolution 2414 (XXIII) (see page 56, Annex I).

Ambassador McKernan proposed that an IOC working group be established in compliance with IOC Bureau recommendation 8.18 to consider national proposals as regards the scope and content of the expanded program. He suggested that prior to the meeting of this Working Group, all the Members of the UN

System should be approached by the IOC Secretariat through a circular letter requesting further suggestions as to the coordinated long-term program in the light of the new Resolutions adopted by the 23rd General Assembly of the United Nations.

During further discussion the following steps were suggested for IOC compliance with the timetable suggested by operative paragraph 4 of Resolution 2414 (XXIII).

- (1) Development of a statement of principles on the scope of the coordinated long-term program, to be formulated now.
- (2) Development of an interim report, after the Ponza meeting and after the June meeting of the IOC Working Group on the Expanded Program.
- (3) Development of a full report, after the Sixth IOC Session in September 1969.

Following this discussion the Chairman proposed the establishment of a small drafting group to prepare a statement of principles pertaining to the proposed first stage. Ambassador McKernan supported this proposal but suggested that the drafting group be given two additional tasks:

- to formulate specific questions for the advisory bodies of the IOC (SCOR and ACMRR) in connection with the planned meeting of the joint group of experts in Ponza in May 1969, and
- to consider specific tasks for an IOC working group to be established in compliance with Bureau Recommendation 8.18.

The drafting group was then established consisting of delegates of Chile, France, Spain, United States, USSR, SCOR, and FAO.

With respect to UN Resolution 2467 (XXIII), the Secretary asked what kind of studies could be transmitted by the IOC to the UN Committee on the Peaceful Uses of the Ocean Floor in the framework of the close cooperation between the IOC and this Committee requested by this Resolution. It was agreed the studies would be the results of work of such working groups of the IOC as, for example, the Working Group on Legal Questions Related to the Scientific Investigations of the Ocean (see Recommendation 9.2).

Having considered UN Resolution 2467-B (XXIII), the Bureau and Consultative Council decided to note with appreciation the particular attention paid by the UN General Assembly to the important and urgent problem of marine pollution and to offer the IOC's co-operation in the UN's proposed study (see Recommendation 9.3).

During discussion of UN Resolution 2467-C (XXIII), Ambassador McKernan and Mr. De Jammet (France) expressed the view that the request to the Secretary-General to undertake a study on the question of establishing appropriate international machinery for the promotion of the exploration and exploitation of the resources of the sea was premature. Professor Muromtsev (USSR) and Dr. H. U. Roll (Federal Republic of Germany), while agreeing that this particular development was premature, nevertheless called upon the Bureau to take note of this part of the resolution and to try to influence further development in this regard. Mr. A. J. Lee (United Kingdom) remarked that his interpretation of Parts C and D of UN Resolution 2467, as taken together, would be that the necessary machinery already existed in the form of the IOC to which the UN General Assembly entrusted the development of the program for the International Decade of Ocean Exploration.

With regard to UN Resolution 2467-D (XXIII), the Bureau and Consultative Council discussed the concept of the Decade. Reference was made to the proposal of the United States contained in document IOC/B-50 (2) (See Annex II) and to the fact that all countries members of the IOC were invited to submit their proposals on the content of the program prior to January 1, 1969. (The USSR proposal is still expected.) It was agreed that the United Nations should be advised of the IOC's readiness to undertake coordination of the International Decade of Ocean Exploration, and of related on-going activities (see Recommendation 9.4B).

The Bureau and Consultative Council next considered the program resolutions in oceanography adopted by the 15th General Conference of UNESCO and presented to the meeting in document IOC/B-53 (Annex I). Following an exchange of views as to the actual status of a number of documents related to the same subject, viz., General Conference Resolution 2.343, the Recommendations of Consultants (IOC/B-48) (Annex III) and the Note of the Director-General on the possibility of "broadening" the Intergovernmental Oceanographic Commission, it was decided to proceed first with examination of the UNESCO resolutions, which would provide the necessary framework for further study of the Recommendations of Consultants which take into account the Note of the Director-General. Professor Muromtsev (USSR) requested clarification as to whether UNESCO Resolution 2.343 constituted a certain measure of endorsement of the Recommendations of Consultants. The Secretary, speaking on behalf of the Director-General, said that the Resolution authorized the Director-General to act in the light of the

discussions in the Intergovernmental Oceanographic Commission, the UN General Assembly, and in consultation with the Executive Board of UNESCO and that the Director-General would look to the Bureau and Consultative Council for guidance in this connection.

Mr. De Jammet (France) stated that France was in favor of creating an Interagency Committee for the IOC, on the clear understanding that the program decisions would still belong to the plenary sessions of the Intergovernmental Oceanographic Commission, and also expressed his Government's agreement with the possibility of contributions from agencies in addition to UNESCO for the support of the IOC's work. He expressed, however, his Government's reservations as regards contributions from IOC Member States in terms of both money and personnel, stating that if the practice of seconding personnel from IOC Members to the Secretariat on a permanent basis were to be adopted it might create problems in defining the status of the seconded personnel and that such a practice would tend to favor rich countries rather than countries with modest means. Professor Muromtsev (USSR) concurred. Ambassador McKernan, however, did not concur with this point of view and subsequently requested that the report of the meeting include the United States view that no member nation should be limited in the number of individuals it could second to the Commission.

Following this general exchange of views, discussion of document IOC/B-48 proceeded paragraph by paragraph. During this discussion it became evident that the way the Recommendations of Consultants were worded often led to conflicting interpretations, in particular as regards the proposed functions for an Interagency Committee for the IOC and problems related to the IOC Secretariat.

The Secretary, speaking in his capacity as the representative of the Director-General of UNESCO suggested that the Bureau and Consultative Council consider the desirability of establishing in 1969 an Interagency Committee for the IOC and setting down the proposed functions for such a Committee. In so doing the Bureau and Consultative Council would provide valuable guidance to the Director-General of UNESCO who, after having consulted the Executive Board of UNESCO at its April-May 1969 session, would be prepared to go ahead expeditiously with implementation of Resolution 2.3⁴³.

Mr. Lee (U. K.) expressed the concern of his Government with the slow progress being made toward a thorough analysis and assessment of the Commission's program and consequent requirements in secretariat staff and funding from now until at least 1973. He stressed his Government's point of view that no further steps towards implementation of the Recommendations of Consultants, including the establishment of an Interagency

Committee for the IOC, should be taken without the above analysis and assessment having been accomplished and without a decision having been taken by the IOC as a whole. This view was shared by the delegates of France and the USSR. Ambassador McKernan stated that his Government supported strongly the idea of establishing an Interagency Committee (or Board) for the IOC in order to provide for closer links between the organizations of the United Nations System interested in supporting the Commission's work. At the request of Ambassador McKernan, the Secretary distributed a Secretariat paper projecting IOC Secretariat needs (see Annex IV).

On the basis of this discussion the Chairman established a small drafting group (United Kingdom, USA, USSR, France, Federal Republic of Germany) to draft a letter to the Director-General of UNESCO for the signature of the Commission's Chairman, covering the following items:

1. A statement of the principles contained in the report of the group of consultants that the Bureau and Consultative Council agrees upon.

2. A statement of the differences of opinion that still exist within the Bureau and Consultative Council regarding questions and problems touched upon in the report, with reference to the following items:

- a. The seconding of personnel to the Secretariat of IOC from other agencies or from States Members of the Commission, taking into account geographical distribution and possible differences in salaries;
- b. The problems related to a separation of the Secretariat of the IOC from the Office of Oceanography of UNESCO;
- c. The proposed Interagency Committee for IOC, its functions and its terms of reference;
- d. Any further items coming up during the discussions.

3. A request directed to the Director-General of UNESCO to present to the Sixth Session of IOC a preliminary outline of the measures and timetable as regards the broadening of the Secretariat of IOC and the machinery for Interagency co-operation related thereto, drawn up by the Executive Board of UNESCO and forwarded to the Secretariat of the Commission

as soon as possible so as to allow Member-States to study that document before the opening date of the Sixth Session of the Commission.

It was subsequently agreed that the drafting group's work would take the form of a Bureau recommendation. During discussion of the draft recommendation prepared by the small drafting group, it became evident that the members of the Bureau and Consultative Council fully recognized the utility of having an Interagency Committee established in order to facilitate the activities of the IOC and to coordinate joint support of these activities by the interested agencies of the UN System. It was clarified in the course of discussion that this Committee should be a Committee for the IOC and not a Committee of the IOC; in other words, that it should be a Committee established by the agencies themselves and not an organ of the Intergovernmental Oceanographic Commission. Vice Admiral Rassokho (USSR) stated that he would like the name of this Interagency Committee somewhat toned down and broadened in such a way as to include an indication of the Committee's main purpose. It was agreed to recommend that the interagency body be called the Interagency Panel for the Support of the IOC. It was further agreed that the Interagency Panel should be composed of senior representatives of the agencies concerned and the IOC Chairman.

The Chairman then presented the draft of an indicative statement on the outline of the scope of the long-term and expanded program of research and exploration of the oceans and their resources, as prepared by the small drafting group established during the earlier discussion of UN Resolution 2414 (XXIII). A long discussion followed during which the delegates of France, Federal Republic of Germany, United States, Canada, USSR, Japan and United Kingdom, as well as Representatives of SCOR and ACMRR, the Chairman of the IOC and Representatives of UNESCO and FAO exchanged their views on various desirable additions and amendments to the indicative statement prepared. A revised draft was prepared, and the drafting group presented the results of its revised work in the form of a draft letter to the Secretary-General of the United Nations and a set of questions directed to the joint SCOR/ACMRR/WMO Group of Experts which will meet at Ponza (Italy) in April - May 1969. The Bureau approved the text of the draft letter to be sent by the Chairman of the Commission to the Secretary-General of the United Nations concerning the outline of the scope of the long-term and expanded program of oceanographic research and the set of questions directed to the advisory bodies of the Commission in connection with the content of this program (see Recommendation 9.6). The text of the letter, as agreed to by the Bureau and Consultative Council, is as follows:

Draft letter from IOC Chairman to U. N. Secretary General with copies to Executive Heads of all organizations mentioned in the letter.

General Assembly Resolution 2467 D (XXIII) requests the IOC, in collaboration with other interested international organizations and in accordance with General Assembly Resolution 2414 (XXIII) to cooperate with the Secretary General in the preparation of a comprehensive outline of the scope of a coordinated, long-term program of oceanographic research, of which the International Decade of Ocean Exploration will be an important element, designed to assist in a better understanding of the marine environment through science and to increase, in the interests of world economic development, the resources available to all the people of the world.

The Bureau and Consultative Council of the IOC welcomes the opportunity to assist in this step to advance international cooperation in oceanic research which for many years has benefitted nations throughout the world. For almost ten years the IOC has devoted efforts to promoting international cooperation in scientific investigations of the ocean and its resources. Many other international organizations have also been concerned with these and related international collaborative efforts. The growing international interest in expanding these activities and in strengthening coordination among programs and projects of international interest has been highlighted in a number of Resolutions of the General Assembly during the past several years.

However, the development of an outline of a long-term and expanded program requires considerable effort, internationally and by individual nations, to develop a sound scientific basis for carrying out specific research projects in a very large, complex, and variable environment. Also, the diverse interests of many nations must be ascertained and taken into account, and careful consideration must be given to the mutual interests and responsibilities of many international organizations.

A number of steps taken in recent years with IOC participation can contribute to the development of a long-term and expanded program. In 1965 a Draft General Scientific Framework for World Ocean Study was prepared for the IOC by SCOR and ACMRR and published.* In 1967 a Joint Working Party of SCOR, ACMRR, and WMO (AC) described some of the most important oceanic research problems, and a number of observations of the Joint Working Party are set forth in UN document E/4487 of April 24, 1968. Already, 22 nations have submitted proposals to the IOC concerning a) broadening the base of the IOC, within its terms of reference, b) developing a long-term and expanded program. The IOC has strengthened its relationships with other international organizations, and in particular with the FAO and WMO in addition to UNESCO. Consideration is currently being given to establishing an interagency committee, initially including officials of UNESCO, FAO, WMO, and IOC, to bring the programs of these and other interested organizations into closer harmony.

While elaboration of the outline of a long-term and expanded program is only now receiving intensive attention by scientists, individual nations, and international organizations, some general aspects of such a program are clear. The purpose of the program should be 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.

The program should include

- scientific investigations, including the scientific aspects of exploration, of the ocean and its resources
- related services in areas such as mapping and charting, observation and prediction of ocean and atmosphere conditions, data and information processing and dissemination, intercalibration of oceanographic instruments, and navigation

* A revised and up-to-date edition of this document has now been prepared by UNESCO and will go to press under the new title "Perspectives in Oceanography, 1968."

- training and education of specialists
- development of ocean engineering and other means to conduct research and to support related services.
- provision of adequate laboratories, ships, and other research facilities and equipment.

The long-term and expanded program will include national and regional projects as well as broader international projects. Special attention will be given to the particular interests of the developing nations.

To further advance the development of the long-term and expanded program the following steps are being taken:

- The IOC is requesting all member states of the UN system to formulate further proposals for national and international programs and submit them to the IOC by April 1, 1969.
- A Joint Working Party nominated by SCOR, ACMRR, and WMO will meet at the end of April 1969 to develop recommendations for the IOC, FAO, UNESCO and WMO, and other interested international organizations on the scientific content of the program. The IOC has asked the Joint Working Party to identify the oceanic research problems that should receive particular attention in the near future and the types of programs that can best contribute to solving these problems.
- An IOC Working Group will convene in June 1969 to prepare in cooperation with FAO, WMO, and other interested organizations whose representatives will participate in its work, further recommendations on the scope of the long-term and expanded program and on the relationship between this program, IOC programs, the International Decade of Ocean Exploration, and other proposals.

- The Sixth Session of the IOC in September 1969 will take action on the recommendations of the Working Group.
- The IOC Chairman will transmit progress reports to the Secretary General of the United Nations and Executive Heads of UNESCO, FAO, and WMO for presentation to the appropriate organs of these organizations.
- All interested organizations are being informed of the foregoing activities and steps are being taken by the IOC to work even more closely with these organizations in developing the long-term and expanded program.

Lastly, consideration is being given to the financial implications for the IOC of the activities associated with the long-term and expanded program, and negotiations are in progress between interested organizations of the UN System concerning their joint support of the IOC.

The text of the questions for the Ponza Meeting, as agreed to be the Bureau and Consultative Council, is as follows:

1. What are the most important oceanic research problems that should receive particular attention in the near future?
2. What types of research programs can best contribute to solving these problems?
3. In what geographical areas of the world's ocean will increased research efforts make the best contributions in solving these problems?
4. What kinds of supporting facilities, services, and manpower will be needed to carry out these programs?
5. How can ocean exploration and research best contribute to the particular needs of the developing nations?
6. How can the results of the above exploration and research programs best contribute to various peaceful uses of the ocean, its floor, and its resources?
7. How can increased ocean research activities by the developing countries contribute to their social and economic development?

Recommendations 9.1 - 9.8 were adopted under Agenda Items 3, 4, and 5.

Recommendation 9.1

The Bureau, having considered with the Consultative Council the provisions on technical assistance in operative paragraphs 2 of United Nations General Assembly Resolution 2413 (XXIII) and 9 of United Nations General Assembly Resolution 2414 (XXIII), express their agreement that, to the extent possible, technical assistance be provided by appropriate agencies, when requested by developing countries in relation to the fisheries development and conservation, and development of marine mineral resources, and request the Chairman of IOC to advise the Secretary-General of the United Nations that the Commission is prepared to provide when necessary scientific information under its terms of reference.

Recommendation 9.2

The Bureau, having examined Resolution 2467A (XXIII) and having heard the advice of the Consultative Council, resolved to ensure that all possible assistance be given by the Commission to the UN Committee on the Peaceful Uses of the Sea-Bed and the Ocean Floor beyond the Limits of National Jurisdiction, in particular in view of operative paragraph 2(c) of this resolution. This assistance will include, inter alia, furnishing the UN Committee with all pertinent documentation resulting from the Commission's work on the subjects which have relevance to the UN Committee's responsibilities.

The Bureau requested the Chairman of the IOC to represent the Commission at the March and August meetings of the UN Committee on the Peaceful Uses of the Sea-Bed and the Ocean Floor beyond the Limits of National Jurisdiction and at the 47th Session of ECOSOC in order to present progress reports on the steps undertaken by the Commission as regards the long-term and expanded programme.

Recommendation 9.3

The Bureau, recognizing the threat to the marine environment through pollution of the oceans that might arise from the exploration and exploitation of the

resources of the sea-bed and the ocean floor and the sub-soil thereof, expresses its satisfaction that the United Nations General Assembly adopted Resolution 2467 B (XXIII) on this problem and asks its Chairman to advise the Secretary-General of the United Nations that the Commission is prepared to cooperate in the study proposed under operative paragraph 4 of this Resolution.

Recommendation 9.4 A

The Bureau, having studied with the Consultative Council United Nations General Assembly Resolution 2414 (XXIII),

- (i) Notes with satisfaction the endorsement by the General Assembly of the concept of a coordinated long-term programme of oceanographic research;
- (ii) Decides to give increased attention to strengthening the existing marine educational and training programme and initiating new programmes in connection with the implementation of the long-term programme of oceanographic research;
- (iii) Requests its Chairman to bring the above recommendations of the Bureau to the attention of the Secretary-General of the United Nations.

Recommendation 9.4 B

The Bureau, having studied with the Consultative Council Resolution 2467 D (XXIII) expresses satisfaction with the decisions incorporated in this resolution and requests its Chairman to take the following action:

- (i) to call to the attention of Member States in the United Nations System the invitation set forth in operative paragraph 2 that they formulate proposals for national and international scientific programmes and agreed activities to be undertaken during the long-term and expanded programme of which the International Decade of Ocean Exploration will be an important element, with due regard to the interests of developing countries, and to urge the Member States to

transmit such proposals to the Chairman of the IOC before April 1, 1969, so that these proposals may be considered at the meeting of the Joint Working Party on Scientific Aspects of International Ocean Research sponsored by ACMRR, SCOR and WMO, and convening in Italy April 26 - May 6, 1969.

- (ii) to convene the Intergovernmental Working Group decided upon in paragraph (iii) of Recommendation 8.18 of the Bureau and Consultative Council and consisting of the Bureau and Consultative Council and other interested members of the Commission to prepare a report setting forth proposals for the long-term and expanded programme of world-wide exploration of the oceans and their resources of which the IDOE is an important element, basing these proposals on those of Member States and the Joint Working Party meeting referred to above and to circulate the report of the Working Group to Member States for comment in time for consideration of the report and these comments by the Sixth Session of IOC.
- (iii) to inform the Economic and Social Council of the United Nations that the IOC is prepared to carry out the requests set forth in operative paragraph 4 of the UN General Assembly Resolution 2467 D (XXIII) under sub-paragraphs (a), (b) and (c) and to report as requested under sub-paragraph (d) through appropriate channels to the General Assembly at its 24th Session on progress made in the implementation of this resolution.
- (iv) in order to meet the request contained in sub-paragraph (b) of operative paragraph 4 of UN General Assembly Resolution 2467 D (XXIII) in which reference is made to paragraph 4 of UN General Assembly Resolution 2414 (XXIII) requesting the Secretary-General of the United Nations to present to ECOSOC at its 47th Session a comprehensive outline of the scope of the long-term programme
 - a. to provide the Secretary-General of the United Nations with a progress report for consideration by ECOSOC at its 47th Session which initially convenes on July 14, 1969,

- b. to provide the Secretary-General of the United Nations with a further, more detailed report following the Sixth Session of IOC for consideration by the resumed 47th Session of ECOSOC in November 1969.

Recommendation 9.5

The Bureau, noting that in Resolution 2.342 (b) of the 15th UNESCO General Conference a reference is made to the liaison between IOC activities and those of SCOR and IAPSO, recalling that SCOR and ACMRR have been designated by the IOC as its official scientific advisory bodies, reaffirms that SCOR and ACMRR continue to be official scientific advisory bodies to the Commission.

Recommendation 9.6

The Bureau approved the text of the draft letter to be sent by the Chairman of the Commission to the Secretary-General of the United Nations concerning the outline of the scope of the long-term and expanded programme of oceanographic research and the set of questions directed to the advisory bodies of the Commission in connection with the content of this programme.

Recommendation 9.7

The Bureau instructed the Secretary to circulate copies of the above letter for information to all the Members of the IOC with the shortest possible delay.

Recommendation 9.8

The Bureau, having considered with the Consultative Council (a) the Report of the Secretary-General on Marine Science and Technology (Doc. E/4487), (b) Resolutions 1380, 1381 and 1382 (XLV) adopted by the UN Economic and Social Council on August 2, 1968; (c) the report of the group of consultants appointed under Recommendation 8.4 of the Bureau and Consultative Council, which met in Paris October 10-12, 1968; (d) Resolutions 2.341, 2.342, 2.343 and 2.344 adopted by the 15th General Conference of UNESCO in November 1968; and (e) Resolutions 2413 and 2414 (XXIII)

adopted by the UN General Assembly on December 17, 1968, and Resolution 2467 (XXIII) adopted by the UN General Assembly on December 21, 1968; recognized the need to strengthen the IOC and broaden its base in order to discharge additional responsibilities as the focal point for the formulation and coordination of the long-term and expanded programme of investigation of the ocean and its resources, as well as to more adequately carry out its own growing program; and decided to refer the following items to the Sixth Session, the Director-General of UNESCO and the Executive Heads of other UN agencies interested in the support of these activities, for appropriate action:

- (i) Steps should be taken to further and encourage increased support by other agencies of the United Nations System to the programme and activities of the IOC. At the same time the Commission should give increased attention to programmes in support of the missions of these agencies.
- (ii) Guidance from scientific advisory bodies on a scientific framework for the long-term and expanded programme should be promptly disseminated to Member States and to the appropriate bodies of interested agencies.
- (iii) It is considered desirable and necessary that all of the interested agencies, particularly UNESCO, FAO and WMO, participate with the IOC in the formulation and coordination of the long-term and expanded programme.
- (iv) The constitutional and administrative base of the IOC should be maintained in UNESCO.
- (v) It is considered desirable that UNESCO, FAO, WMO, IMCO and other agencies provide more personnel to be on the staff of the IOC Secretariat so as to enable the IOC to carry out its role relating to the above activities. An immediate increase of several professionals plus supporting staff is required; needs for further augmentation will be clarified as the programme develops.

- (vi) Interested agencies should consider the allocation of adequate funds for the IOC through agreements with UNESCO to meet the above needs.
- (vii) Interested agencies should be encouraged to provide services needed by the IOC to meet the above needs. For example, meetings of mutual concern to the IOC and other agencies might be convened at the headquarters of these other agencies. Appropriate studies might be made, experts provided, and publishing facilities made available.
- (viii) Member States of interested agencies who are not Members of the IOC should be encouraged by those agencies to become Members of the IOC and to participate in its work, particularly in the formulation and coordination of the long-range and expanded programme.
- (ix) Member States should be encouraged to provide at their own expense experts to the IOC for a specified period to carry out specific responsibilities for which staff is unavailable in the IOC Secretariat.
- (x) Consideration should be given to broadening the field from which scientific advice is drawn beyond that covered now by SCOR and ACMRR. For example, the IOC and WMO should consider the manner in which scientific advice on the meteorological aspects of IOC programmes might be provided in much the same way as IOC and FAO have arranged for provision of advice on the fisheries aspects of oceanography through ACMRR. There are other areas, such as scientific aspects of ocean engineering, where it may become necessary to establish appropriate advisory channels. In order to improve the mechanism for providing scientific advice, there should also be a careful study of the possibility of strengthening and consolidation of the scientific bodies concerned with various aspects of marine science.

- (xi) It is considered advisable that the IOC Bureau be enlarged from its present three members to a total of five. Vice-Chairmen would be increased from two to four. The Bureau and Consultative Council with its membership of 17 should become an Executive Council of 17 Members, consisting of a Chairman, four Vice-Chairmen and 12 Member countries. This arrangement would eliminate the present distinction in the responsibilities of the Bureau and the Consultative Council.
- (xii) Further consideration should be given to the relationship between the IOC programme and the UNESCO oceanography programme. The purpose of this consideration would be to determine whether to keep IOC and UNESCO programmes apart or to integrate them fully under the IOC. On the basis of this consideration a decision should be taken whether to separate functionally the IOC Secretariat from the UNESCO Office of Oceanography or to continue having them integrated, bearing in mind the object of reducing administrative overheads and of eliminating duplication of effort, and also problems that might arise in connection with the contributions of other agencies to the IOC Secretariat.
- (xiii) Taking into account the proposal for an Interagency Panel for the Support of the IOC, the utility of which was fully recognized, the following suggestions are presented:
- a. Such a mechanism could consist of senior representatives of the Executive Heads of UNESCO, FAO and WMO, and other organizations of the UN System prepared to contribute to the Commission's Secretariat, to carry out their own programmes to sustain the work of the Commission, and to use the Commission for advice and review in the area of marine science affairs, and of the Chairman of the Commission.

- b. The members of the Panel would exchange views on the most effective ways to further common aspects of the work of the IOC and the agencies represented and their interaction.
 - c. The Panel would recommend personnel, administrative and financial support by the agencies to the IOC for consideration by the agencies through their usual administrative and constitutional processes.
 - d. The Panel would assist in coordinating and relating the support provided by the agencies to the work of the IOC. The Panel would not, however, be concerned with the substance of the IOC programme.
 - e. The IOC Secretary should be appointed by the Director-General of UNESCO following consultation with the IOC Executive Council and as necessary the Interagency Panel. Other members of the IOC Secretariat should be placed administratively under the Director-General of UNESCO following consultation with the IOC Secretary and as necessary the Interagency Panel.
- (xiv) Consideration should be given to the establishment of two arrangements, both to be administered by UNESCO for IOC. One would be a fund in trust to which voluntary contributions from Member States could be made to augment the operating funds of the IOC to meet specific requirements which are being developed. The magnitude of funds required depends on the programme being developed. The other arrangement would provide for contributions in kind such as equipment and facilities which could be contributed by Member States.
- (xv) Consideration should be given to arrangements whereby the Executive Council would invite Member States to provide at their own expense personnel to the IOC to augment the available personnel of the IOC. Consideration should be given to geographical distribution and problems relating to salary and status differences likely to arise.

(xvi) The Chairman was requested to transmit the above recommendation to all concerned. The Secretary was instructed to include appropriate agenda items for the consideration of these matters by the Sixth Session.

(xvii) It was decided that a Working Group of Governmental Experts from Member States of the Bureau and Consultative Council wishing to participate would be convened in April 1969 to consider whether the above matters may require amendment of the IOC Statutes and the Rules of Procedure and to draft texts where necessary for the consideration of the Sixth Session.

6. Information on the IGOSS Development and Policy Questions Involved

Dr. Fedorov introduced this item, called attention to background documents IOC/B-51, AVS/9/89R, and AVS/9/89E-ODS (JP), and he pointed out that in view of the extremely rapid development of the IGOSS program the IOC Secretariat had had to make a number of policy decisions concerning IGOSS, being guided by the pertinent resolutions of the Fifth IOC Session and by the recommendations of the IGOSS Working Committee. He said policy guidance was desired from the Bureau on a number of points, in particular, confirmation of the position taken by the Secretariat as regards the establishment of an advisory mechanism in the field of ocean-atmosphere interaction studies, whereby the joint IAMAP/IAPSO/SCOR group would provide the necessary advice to IOC through SCOR. He pointed out that such confirmation by the Bureau would necessarily imply modifying IOC Resolution V-20C and some of the recommendations of the previous meeting of the IOC Bureau.

The representative of the WMO stated that he would prefer to have further discussion postponed until the results of the Princeton meeting of the IAMAP/IAPSO/SCOR group of experts were known and until the WMO paper on ocean-atmosphere interaction problems was distributed to the Bureau and Consultative Council (see Annex V). Professor Muromtsev (USSR) expressed the strong concern of his delegation over the creation of new IGOSS subsidiary bodies. He expressed the belief that IGOSS would soon become one of the major programs of the Intergovernmental Oceanographic Commission. He informed the meeting of the plans developed

in his country as regards IGOSS and proposed to create a permanent coordinating organ for the joint IGOSS-WWW program, which organ was to be composed of both the IGOSS Working Committee of the IOC and the WMO/EC Panel on Meteorological Aspects of Ocean Affairs.

Ambassador McKernan expressed the satisfaction of the United States with the progress of the preparatory work for IGOSS. He suggested that further consideration of the matter should be deferred until after the joint meeting of the IGOSS Working Committee with the WMO/EC Panel during the last week of February. Dr. Roll (FGR) stated that while he was satisfied with the advisory arrangements as regards purely scientific matters he still considered the arrangements for intergovernmental action in the field of ocean-atmosphere studies inadequate.

Following further discussion involving the delegates of the Federal Republic of Germany, USA, USSR and United Kingdom, a consensus was reached that the Bureau should approve SCOR's representing IOC's interests on the joint group of IAMAP/IAPSO/SCOR as far as purely scientific aspects are concerned. The operational aspects, however, would be referred to the IGOSS Working Committee. Professor Roll (FGR) prepared a draft recommendation. The representative of WMO indicated that if in the recommendation of the Bureau it were clearly indicated that the Joint IOC/WMO Intergovernmental Group, as envisaged by Resolution V-20C, would report back to the IOC Session on the one hand and to the Executive Committee of WMO on the other, the efforts of the two Secretariats might lead toward the establishment of such a group. It was suggested therefore that the original draft recommendation be amended accordingly. Recommendation 9.9 was adopted under this Agenda Item.

Recommendation 9.9

The Bureau endorsed the agreement reached by the Secretariat that the Joint IAMAP/IAPSO/SCOR Committee on Air-Sea Interaction would advise IOC through SCOR on scientific aspects of ocean-atmosphere interaction studies and instructed the Secretariat to inform the Bureau and Consultative Council of this Committee's terms of reference when they become known.

The Bureau instructed the Secretary to resume negotiations with the WMO Secretariat as regards the establishment of a Joint IOC/WMO (intergovernmental) Working Group on Ocean-Atmosphere Interaction with terms of reference along the lines specified in Resolution V-20C, keeping in mind that the Group so established will report back to both the IOC and WMO for decision, using the IAMAP/IAPSO/SCOR Committee on Air/Sea Interaction for scientific advice.

The Bureau resolved that, pending the creation of the above intergovernmental IOC/WMO group on which the final decision should be reached at the time of the Sixth IOC Session, operational and planning problems related to ocean-atmosphere interaction studies, if any, will be dealt with by the Working Committee for IGOS which should meet for this purpose together with the WMO/EC Panel on Meteorological Aspects of Ocean Affairs.

7. Regional Marine Science Activities - Africa

With the conclusion of discussion on Agenda Item 6, the Chairman suggested that the meeting move on to Item 8. Ambassador McKernan inquired about Item 7, and the Chairman informed him that because of its low priority he was rescheduling it as the meeting's last item of business. Ambassador McKernan said that the United States placed importance on this subject, and that the U. S. felt that the IOC should be giving greater attention to the developing nations in its over-all program. Professor Muromtsev (USSR) said that the USSR agreed with the U. S. point of view. (Item 7, however, was never considered during the 9th Meeting of the Bureau and Consultative Council.)

8. Consideration of Co-operative Programs and of the Work of Subsidiary Bodies of the Commission.

The Chairman invited reports on cooperative programs, both planned and in progress. As International Coordinator for CICAR, he said he was planning to suggest that the second meeting of the CICAR Coordination Group be scheduled for May 1969 (this suggestion was subsequently considered under Agenda Item 9). Dr. Giermann, Assistant Secretary of the IOC, reported that the Group for Technical Coordination of the Cooperative Investigations of the Mediterranean had met twice since the Fifth IOC Session and that the Group for Scientific Coordination would meet in April 1969. At this point, Professor Wooster observed that SCOR was expected to advise the Scientific Coordination Group, but that it had not yet been invited to any meetings on the subject.

The representative of ACMRR drew the attention of the Bureau and Consultative Council to the ACMRR/ICES/ECECA proposal for an International Cooperative Study of the Northern Part of the Eastern Central Atlantic (Gibraltar to Dakar). Specific gaps in knowledge of both the resources and the environment of that area had been identified during the ICES Symposium

on the Living Resources of the African Atlantic Continental Shelf between the Straits of Gibraltar and Cape Verde and the session of the ACMRR/ICES Working Party on the Fishery Resources of the East Central and Southeast Atlantic (Tenerife, March 1968). The need had been stressed for a synoptic study of the oceanographic conditions on the Northwest African Shelf with particular emphasis on upwelling, and plankton investigations; in conjunction with these a program of fisheries investigations (including a large-scale fishery echo-survey as elaborated by the Working Party) should be carried out.

It had been suggested that any such international cooperative study might be organized jointly by IOC, ICES and the ECECA. The ACMRR agreed at its 5th Session in principle, on the desirability of the proposed studies, but had been unable to reach a conclusion as to the priority to be given to, and organizational arrangements to be made for the proposed program, in the context of the overall international marine research and resources exploration program. Recommendation 9.17 was adopted under this part of Agenda Item 8.

Recommendation 9.17

The Bureau instructed the Secretary to ensure that the proposal for an International Cooperative Study of the Northern Part of the Eastern Central Atlantic (Gibraltar to Dakar) would be placed on the Agenda of the Sixth Session of the Commission for discussion in the light of further details and background information which the interested scientific groups (ACMRR, SCOR, ICES) would be invited to supply.

8.i. Legal Questions

Dr. Fedorov introduced this Agenda Item, calling attention to document AVS/9/89M (8), the Summary Report of the first meeting of the IOC Working Group on Legal Questions Related to Scientific Investigations of the Ocean. He drew the particular attention of delegates to annexes I, II and III to the report.

Mr. A. Sciard (France) informed the meeting that the Working Group's draft resolution contained inaccuracies in the French translation, that the correct translation of this draft resolution had been prepared, and he suggested, that one more meeting of the IOC Working Group on Legal Questions be arranged before the Sixth Session of the IOC in order to permit proper consideration of the comments given by IOC Members on this draft.

The delegates of the USSR, USA and the Federal Republic of Germany expressed their satisfaction with the progress achieved by the Working Group; the delegates of Japan and Canada, however, expressed certain reservations as regards the effectiveness of the measures proposed by the IOC Working Group with a view to facilitating scientific research in the areas under national jurisdiction.

Professor Wooster (SCOR) informed the meeting that he had received from the U. S. National Academy of Sciences Committee on Oceanography a proposal concerning the eventual role of the IOC in the measures proposed in the above draft resolution (Annex VI). Mr. F. E. Popper (FAO) informed the meeting of the action taken by the FAO Secretariat in connection with the draft resolution and stated that the comments of the COFI Sub-Committee on Cooperation with other International Organizations pertinent to the draft resolution in question would be made available to the Commission in due time. The proposal for a second meeting of the Working Group prior to the Sixth Session of the IOC was unanimously supported. Recommendation 9.10 was adopted under this agenda item.

Recommendation 9.10

The Bureau instructed the Secretary to transmit as expeditiously as possible to IOC Members the Summary Report of the 1st Meeting of the Working Group on Legal Questions Related to Scientific Investigation of the Ocean with all the annexes, together with the English original of Annex III and with the comments of Member States be made available to the IOC Secretariat in time for the 2nd Meeting of the Working Group to be convened in June 1969. The Bureau also instructed the Secretary to transmit the same documentation, when approved by the Commission, to the UN Secretary-General for use in connection with the work of the UN Committee on the Peaceful Uses of the Sea-Bed and the Ocean Floor beyond the Limits of National Jurisdiction.

8.ii. Legal Aspects of Ocean Data Systems

Dr. Fedorov introduced this item reporting on the work accomplished by the group of experts at their meetings of September 1968 and January 1969. He said the group of experts had recommended that the Bureau and Consultative Council approve for publication in the IOC Technical Series the revised document "Legal Problems Associated with Ocean Data Acquisition Systems," (IOC/INF-108) summarizing the existing national and international legislation as regards ocean data acquisition systems (ODAS).

He informed the meeting that, on the basis of the previous recommendation of the Bureau, the General Conference of UNESCO approved the convening in 1970 of a preparatory meeting of governmental experts for which the above document would serve as one of the major working papers. It was agreed that this document should be published and should have the status of having been prepared jointly by the Secretariats of UNESCO and IMCO with the assistance of the group of experts and that it would not in any sense represent the agreed opinion of the Intergovernmental Oceanographic Commission.

The Secretary further informed the Bureau and Consultative Council that the group of experts was preparing another document on the problems to be resolved in clarifying the legal status of ODAS, including proposals for legal principles to be included in an international convention on the subject. Recommendation 9.11 was adopted under this Agenda Item.

Recommendation 9.11

The Bureau and Consultative Council recommended that the revised document IOC/INF-108 "Legal Problems Associated with Ocean Data Systems" be published in the IOC Technical Series in time for distribution at the Sixth Session of the Commission.

The Bureau and Consultative Council further recommended that the same document be given wider distribution among all the Members of the United Nations System as a part of the preparations for the Preparatory Conference of Governmental Experts on the Legal Status of Ocean Data Acquisition Systems.

The Bureau and Consultative Council authorized the Chairman of the Commission to transmit the document in question, when ready in all four languages of the Commission, to the UN Committee on the Peaceful Uses of the Sea-Bed and the Ocean Floor beyond the Limits of National Jurisdiction for its information.

The Bureau and Consultative Council decided that in preparation for the Preparatory Conference of Governmental Experts, the Group of Experts on Legal Status of ODAS should convene in September to prepare an annotated draft Convention for this Conference. This annotated draft Convention should be circulated to Member States of the UN System for comment. The revised annotated draft Convention and the comments of Member States on this revised text should be submitted to the Preparatory Conference of Governmental Experts which would be convened by UNESCO in cooperation with IMCO, FAO and WMO in late

1970 or early 1971. The Plenipotentiary Conference on the Legal Status of Ocean Data Acquisition Systems would be convened in late 1971 or early 1972.

The Bureau and Consultative Council approved the Recommendation of the 2nd Meeting of the Group of Experts to circulate for comment the document on "Problems to be resolved in clarifying the legal status of ODAS" in Annex I of the report of the 2nd Meeting of the Group of Experts. It was also decided that this document should be circulated to all Member States in the UN System for comment.

The Bureau and Consultative Council decided that the membership of the Group of Experts should be expanded to include representation of additional legal systems. The Bureau was asked to consult appropriate Member States informally for this purpose and to add three or four experts to the Group.

8.iii. Training and Education in Oceanography

Dr. Fedorov introduced this item by referring to the Recommendations of the IOC Working Group on Training and Education, (Document AVS/9/89U (10)/See Annex VII/. He drew particular attention to Recommendation 7 proposing the establishment of a new program of Intergovernmental Oceanographic Commission research and training fellowships. Dr. W. M. Cameron (Canada) asked in what sense the proposed program would differ from the existing UNESCO program. The Secretary said the new program would be financed directly by Member States with rules more flexible than those applicable to the UNESCO program and with the award of fellowships being made by the IOC Bureau or a special body established by the IOC for this purpose.

Ambassador McKernan pointed out that the recommendations of the IOC Working Group on Education and Training had overlooked coordination of training programs in marine science of different specialized agencies of the UN family; he referred in particular to the recommendations of the ACMRR 5th Session (FAO Fisheries Report Number 56). Professor Muromtsev (USSR) stressed the necessity of including IGOS-related training in IOC training programs.

Dr. J. Carranza (IOC Vice Chairman), commented on the recommendations of the Working Group and requested that new training programs be organized on a regional rather than a national basis. Dr. Carranza was asked to formulate the comments of the Bureau on the recommendations of the Working Group. It was agreed that any recommendation emanating from the Bureau

should facilitate consideration of the recommendations and the summary report of the Working Group by the forthcoming plenary session of the Commission. With this in mind, Ambassador McKernan suggested drawing the Commission's attention to a number of specific points which came up in earlier discussion and were later summarized by Dr. Carranza. He also pointed out, in connection with Recommendation 8 of the Working Group, that if the World Data Centres (WDC's) were to prepare and maintain a catalogue of information on training programs, this task should be performed by the WDC's on a temporary basis pending full assumption of this task by the IOC.

Recommendation 9.12 was adopted under this agenda item.

Recommendation 9.12

The Bureau, having examined together with the Consultative Council the Recommendations of the 1st Meeting of the IOC Working Group on Training and Education in Oceanography, resolved to transmit these Recommendations and the Summary Report of the Group to the Sixth Session of the IOC for consideration and acceptance drawing, however, the Commission's attention to the lack of agreement between the Members of the Consultative Council on Recommendation 7 concerning a new Program of Intergovernmental Oceanographic Commission Research and Training Fellowships, this presenting a problem still to be resolved by the Commission.

The Bureau also draws the Commission's attention to the desirability of changing the title of the group into: "IOC Working Group on Training and Education in Marine Sciences" and to the necessity of amplifying the Recommendations of the Working Group concerning:

- a) regional aspects of training programmes
- b) training of specialists for the IGOS program
- c) IOC's serving as a focal point for information on training and education in marine science.

The Bureau instructs the Secretary to transmit the Recommendations and Summary Report of the Group to COFI/FAO Sub-Committee on Education and Training in Fisheries for information and comments prior to their consideration by the Sixth IOC Session.

8.iv. Oceanographic Data Exchange

The Chairman introduced this item and briefly reviewed the Recommendations of the Working Group contained in the Summary Report of its last meeting (Doc. AVS/9/89F (4)) and requested the Consultative Council's comments on these Recommendations and the Summary Report. Mr. W. Molo (WDC-A) indicated that the international exchange of oceanographic data was proceeding very successfully and that during the year 1968 more oceanographic station data were transmitted to the World Data Centre System than during the first seven years of its existence. This situation was in no small part due, he said, to the generosity of the government of Japan, which through its data center made available a large volume of data hitherto unavailable in the WDC system. The Bureau decided to record that it had noted with appreciation the efforts of the government of Japan. The Bureau also decided to transmit the Report of the Working Group and Recommendations to the Sixth IOC Session, commending them for acceptance.

8.v. General Problems Pertaining to the Functioning of IOC Subsidiary Bodies

The Chairman introduced this item referring to the background document prepared by the Secretariat (Doc. IOC/B-51), and he reviewed the specific suggestions made by the Secretary for the improvement of the functioning of the subsidiary bodies of the Commission. He suggested that under the same item the Bureau and Consultative Council examine a Draft Guide for Cooperative Investigations (IOC Technical Series, third draft) prepared by him in cooperation with the Secretary and national institutions, and he said that it was his intention to have the document considered by the Vith Session of the IOC.

On the suggestion of the Secretary the problem of rapporteurs was also included for discussion. The Secretary informed the Bureau and Consultative Council that on several occasions delegates of IOC Members considered as inappropriate the current practice of electing a rapporteur from among the appointed national delegates to assist the Secretariat in the preparation of summary records of meetings. Prior to the convening of the Ninth Meeting of the Bureau and Consultative Council, the U. S. Government had informed the IOC Secretariat that it was not prepared to make a member of the U. S. Delegation available to serve as Rapporteur at the meeting but that it was prepared to loan Mr. A. D. Clift, Secretary of the U. S. Delegation, to the IOC Secretariat to serve in this capacity. This offer was accepted by the IOC Secretary.

Recommendations 9.13-9.16 were adopted under this agenda item.

Recommendation 9.13

In order to facilitate the preparation by the Secretariat and examination by the Commission the documentation pertaining to the work of the Commission's subsidiary bodies, the Bureau advises all Chairmen of the IOC subsidiary bodies to adopt the following practice: Subsidiary bodies (working, coordination and expert groups) would adopt during their meetings as short and as concise recommendations as possible on the matters under consideration. No summary records of discussions should be included in the reports and presented to the Commission's sessions unless there would be specific requests from participants to go on record with certain statements or a group would itself decide to record a certain part of its discussion. A typical summary report of a group would then consist of the following parts:

- (i) Record of election of officers, adoption of the agenda, and procedures taken;
- (ii) Recommendations of the meeting;
- (iii) List of participants;
- (iv) Annexes as may be needed.

Recommendation 9.14

In order to keep a system of subsidiary bodies of the Commission as efficient as possible and to avoid further increase in their number and the number of their meetings, the Bureau recommends that, each time there appears to be a matter for the examination of which a subsidiary body should be created, the Commission consider whether this matter may best be treated by an intergovernmental working group or by a small group of experts. The Commission may also review on a regular basis the situation with the existing intergovernmental working groups and decide whether those tasks which still remain to be solved by them and, in particular, technical tasks, may best be passed on to small ad hoc groups

of experts or to the Commission's scientific advisory bodies.

Recommendation 9.15

The Bureau, having examined together with the Consultative Council the situation with preparation of summary records of meetings of the Commission itself and of its subsidiary bodies, records its opinion that, while the direct responsibility for preparing these summary records rests with the IOC Secretariat in accordance with the Commission's Rules of Procedure, Members of the Commission and individual experts may assist the Secretariat in this task through the election by each working, coordination or expert group of a rapporteur whose precise functions should be defined in each specific case through informal consultations between the Chairman of the Group and the Secretary or his representative. The decision whether or not to elect a rapporteur to assist the Secretariat should be made in each specific case by the group in question.

Recommendation 9.16

The Bureau and Consultative Council, taking note of the experience that in most cases the work of a working group or other subsidiary body had been hampered by the fact that its chairman was only elected by this body at its first meeting, expresses the view that the Chairman should be appointed as early as possible in order to enable him to prepare the meeting adequately. According to Rule 23 (2) of the Rules of Procedure the chairman shall be designated by the Bureau or elected by the working group. The latter can be done through correspondence well before the first meeting.

8.vi. Upper Mantle Research Program and Geotraverses

Dr. Fedorov introduced this item informing the meeting of the steps taken by the Secretariat to implement Resolution V-12 of the last IOC Session. He stated that a number of countries expressed their interest in the proposed United States geo-traverse program and that the USSR had offered to detach a

research ship to participate in this program if an international meeting could be convened by the IOC to develop an international program of such investigations.

Dr. Fedorov said he had consulted the SCOR Executive Committee during its meeting in Mexico on this subject.

Dr. Wooster (SCOR) and Dr. A. Maxwell (IAPSO) reported to the meeting that it would not be wise, in view of the recent scientific developments, to fix now an international program which would be based on outdated concepts. Therefore it was considered advisable to wait until the results of the discussions planned for 1969 in the Upper Mantle Committee are known. It was agreed by the Bureau that this subject should be put on the agenda of the Sixth Session of the IOC.

9. Planning of Meetings in 1969-1970

Dr. Fedorov introduced this item referring to the list of meetings in Document IOC/B-51. As the result of actions taken during the meeting, he said it was possible to amend the schedule as follows:

- (a) Two Meetings of the CICAR International Coordinators: the first in May, 1969, and the second meeting in September, 1969, at the time of the IOC VIth Session.
- (b) Meeting of Intergovernmental Experts to consider Revisions to the IOC Statutes, Paris, April, 1969.
- (c) Working Group on Mutual Assistance, to be rescheduled from April 1969 to late 1969, following the IOC VIth Session.
- (d) Working Group on the Expanded Program, Paris, June 1969.

The need for careful coordination of timing for the Ponza Meeting, Working Group on the Expanded Program meeting and the IOC VIth Session was recognized, as was the timing between the IOC VIth Session and the 24th Session of the U. N. General Assembly.

It was agreed that the IOC Secretary would look into the possibility of having the IOC VIth Session rescheduled to begin in the third week of September, and based on his findings, would establish the precise meeting dates in June for the Working Group on the Expanded Program.

10. Consideration of Support (Budget and Secretariat) for the Commission in 1969-1970 and of the Commission's Needs for 1971-1972.

Dr. Fedorov introduced this item calling attention to the IOC budget statement for 1969-1970 set forth in document IOC/B-51, Annex I. He suggested that the Bureau and Consultative Council should try to project the IOC's budgetary needs and the support to be anticipated from participating specialized agencies. He

noted that UNESCO had increased its budgetary support by 50% following the IOC Vth Session. The Chairman suggested that the ability of the other specialized agencies to come to the financial assistance of the IOC would depend on the degree to which the agencies could depend on the IOC to help them fulfill their tasks. Mr. Popper (FAO) and Mr. N. L. Veranneman (WMO) concurred with the Chairman's statement. They then reviewed the rather limited extent of their agencies' financial support for the IOC at present.

In response to a question from Professor Muromtsev (USSR), Mr. Popper suggested that if the Group of Consultant's recommendations were acted upon, FAO might be able to make additional funds available for IOC staff support. Mr. Verraneman said that the Executive Committee of WMO will consider a WMO budget line item for WMO activities resulting from the recent U. N. Resolutions (see Annex I).

Dr. H. Kasahara (U. N./UNDP) personally recognized the IOC's need for increased financial support. He suggested that UNDP might possibly be able to provide assistance at some point in the future, but he did not encourage the IOC in this regard. If such funding were to become available, he suggested, it might take the form of: general support to the IOC Secretariat, on behalf of developing nations participating in the IOC's program; support for a specific IOC program; or UNDP assumption of responsibility for a specific sector of the program.

Recommendation 9.18 was adopted under this agenda item.

Recommendation 9.18

The Bureau, noting the increased needs of the IOC Secretariat to meet expanded IOC responsibilities, requested the Chairman of the IOC to inform the Director-General of UNESCO that high priority should be given to the IOC program and budget needs in the overall UNESCO program and budget for 1971-72, recognizing at the same time the desirability of seeking increased efficiency through a rationalization of the dual activities undertaken by the Office of Oceanography in view of the inevitable limitations on the total UNESCO budget.

The Bureau stressed the need for substantial increases in the UNESCO budget for IOC during 1971-72 for personnel as set forth below, as well as to meet the anticipated substantial increased costs for the servicing of meetings, travel of experts to meetings, studies, consultants and publications.

In particular the Bureau endorsed the estimates of the group of consultants which met in Paris October 10-12, 1968 under Recommendation 8.4 of the Bureau. It was noted that these estimates were that the present 3 - 4 professionals allocated to IOC Secretariat responsibilities should increase by 1972 to 12 - 15 professionals to meet anticipated IOC needs by that date.

The Bureau expressed appreciation for the support being provided by the FAO and the WMO to the work of the IOC and urged these agencies, as well as other agencies in the UN System, to provide to the IOC Secretariat substantial support through personnel, administrative and financial allocations.

V. Conclusions and Recommendations.

As is evident from the body of this report, Agenda Items 3, 4 and 5 - the future development of the Intergovernmental Oceanographic Commission, the formulation of its expanded program, and the IOC's role in the development of the United Nations' long-term and expanded program, of which the International Decade of Ocean Exploration will be an important element - were the most important items dealt with by the Ninth Meeting of the IOC Bureau and Consultative Council.

After one false start, a satisfactory letter was drafted for transmission to the U. N. Secretary-General outlining the IOC's on-going activities and its proposals for coordinating the development of the U. N. long-term program. And, as stated in that letter, the IOC has decided on six, logical steps to advance the development of the program.

The IOC will, however, have to exercise considerable skill and exert considerable energy if it is to follow through on the course of action it has proposed, and it faces certain difficulties in this regard:

First, the IOC is not its own master. During discussion of U. N. Resolution 2467-D (XXIII), for example, Dr. Fedorov, speaking in his capacity as the representative of the Director-General of UNESCO, pointed out that since the Resolution 2467 D (XXIII) was addressed to the Director-General of UNESCO and not to the IOC directly he felt it was necessary to pass on the requests contained in the letter of the Secretary-General of the United Nations of 7 January 1969 to the Chairman of the Intergovernmental Oceanographic Commission. He felt

that no formal letter of transmission would be required on this occasion and that it was the Director-General's intention to await the results of the deliberations of the Commission's Bureau and Consultative Council in this connection before giving a substantial reply to the Secretary-General. The Secretary felt that this small reference to a procedural matter was necessary before the IOC Bureau could take any formal action with regard to the requests contained in Resolution 2467.

This example helps to illustrate the fact that the IOC is still too much the creature of UNESCO and not enough the creature of the other specialized agencies also interested in oceanic matters. The other specialized agencies will have to participate in the work of the IOC if it is to be successful in its undertakings as reported under agenda items 3, 4, and 5, and U. S. recommendations for remedying the present situation should be vigorously advanced at the forthcoming subsidiary-body meetings on revision of the IOC Statutes and formulation of the expanded program, and at the VIth Session of the Commission.

Secondly, the over-all IOC program must be redeveloped and expanded to accomodate properly the marine science needs of the world's developing nations. This point was made more than once by the Chairman of the U. S. Delegation during the Ninth Meeting, and it is a point which requires continuing attention. Were the Intergovernmental Oceanographic Commission to remain a 'rich man's club' giving little useful attention to the needs of the LDC's, it is highly unlikely that it would continue to be regarded as the appropriate co-ordinating body for the development of the long-term and expanded program of the United Nations.

The Economic and Social Council,

Having considered the report on "Resources of the sea beyond the continental shelf"³⁷ prepared by the Secretary-General under Council resolution 1112 (XL) of 7 March 1966,

Realizing fully the importance of the development of the mineral and biological resources of the high seas beyond the continental shelf for the benefit of all mankind and especially of the developing countries,

Being aware of the growing interest of the world community in the problems related to the oceans and their resources as recently illustrated by the adoption of General Assembly resolutions 2172 (XXI) of 6 December 1966 and 2340 (XXII) of 18 December 1967;

Recognizing that further progress in the development and utilization of the marine resources will depend greatly on more specific knowledge being gained on the various characteristics of marine environmental conditions,

Taking into account the view expressed by the Advisory Committee on the Application of Science and Technology to Development,³⁸

1. *Takes note* with satisfaction of the report of the Secretary-General, which gives a preliminary picture of the present available knowledge of marine resources beyond the continental shelf, of the techniques used for their development and of related problems;

2. *Recommends* that the report be supplemented by information from other Members of the United Nations and members of the specialized agencies which have a valuable experience in this field, and that thereafter the desirability should be envisaged of issuing it as a United Nations publication;

3. *Invites* the Secretary-General, in co-operation with the various organizations of the United Nations family concerned and in particular with the United Nations Educational, Scientific and Cultural Organization and its Intergovernmental Oceanographic Commission, the Food and Agriculture Organization of the United Nations and its Committee on Fisheries, and the World Meteorological Organization and its Panel on Meteorological Aspects of Ocean Affairs, to continue to promote further systematic investigation aiming at improving the present knowledge of marine environmental conditions;

4. *Requests* the Secretary-General to follow closely new developments which may occur in fields of marine mineral resources exploration, evaluation and exploitation beyond the continental shelf and the possible implications thereof, and to report when appropriate to the Council;

5. *Invites* the Food and Agriculture Organization of the United Nations to keep under review developments which may occur in the field of food resources of the sea beyond the continental shelf.

*1561st plenary meeting,
2 August 1968.*

³⁷ E/4449 and Add.1 and 2.

³⁸ E/4492.

1381 (XLV). Long-range programme for the exploration of the sea

The Economic and Social Council,

Recognizing that the ocean holds promise of becoming a more important source of food and minerals for a rapidly developing world, and that man's knowledge of the ocean and its resources is exceedingly limited,

Having considered the report entitled "Resources of the sea beyond the continental shelf"³⁹ prepared by the Secretary-General under Council resolution 1112 (XL) and the report entitled "Marine Science and Technology"⁴⁰ prepared by him under General Assembly resolution 2172 (XXI) of 6 December 1966,

Taking into account the activities in the fields of research, exploration and description of the oceans at present being undertaken by the United Nations, the United Nations Educational, Scientific and Cultural Organization and its Intergovernmental Oceanographic Commission, the Food and Agriculture Organization of the United Nations and its Committee on Fisheries, the World Meteorological Organization and its Panel on Meteorological Aspects of Ocean Affairs, other specialized agencies and inter-governmental organizations concerned, various governments, universities, scientific and technological institutions, and other non-governmental organizations,

Being aware of the complexity and variability of the marine environment and that scientific investigations of vast scope will be necessary if knowledge of this environment is to increase substantially within a reasonably short period,

Convinced that the nations of the world should join together, with due respect for existing national jurisdictions, in a common long-term programme of exploration of the ocean as a potential source of resources, which could eventually be used for meeting the needs of all mankind, with due recognition of those developing countries,

Noting the endorsement by the Bureau and Consultative Council of the Intergovernmental Oceanographic Commission at its eighth meeting, held in London from 10 to 13 June 1968, of the concept of an expanded, accelerated, long-term and sustained programme of exploration of the oceans and their resources, including international programmes, planned and co-ordinated on a world-wide basis, expanded international exchange of data from national programmes, and international efforts to strengthen the research capabilities of all interested nations,

1. Takes note with appreciation of the Secretary-General's report entitled "Marine Science and Technology", and of annex V, relating to marine science and its application, to the thirty-fourth report of the Administrative Committee on Co-ordination;⁴¹

2. Takes note further of the steps which are being taken under the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization to give consideration to the future

administrative and financial structure of the Commission, as well as to the content of an expanded programme of exploration of the oceans and their resources;

3. Transmits the Secretary-General's report entitled "Marine Science and Technology" to the General Assembly for further consideration at its twenty-third session;

4. Invites the General Assembly to endorse the concept of a co-ordinated long-term programme of oceanographic research designed to increase, in the interests of world economic development, the resources available to all people of the world, taking also into account such initiatives as the proposal for an international decade of Ocean Exploration and several international programmes already considered, approved and adopted by the International Oceanographic Commission for implementation, in certain cases in co-operation with other specialized agencies.

*1561st plenary meeting,
2 August 1968.*

³⁹ E/4449 and Add.1 and 2.

⁴⁰ E/4487 and Corr.1 and 2.

⁴¹ Official Records of the Economic and Social Council, Forty-fifth Session, Annexes, agenda item 23, document E/4486/Add.1.

1382 (XLV). Marine science and technology

The Economic and Social Council,

Considering the importance of marine science and technology for optimum utilization of the world's natural resources,

Bearing in mind that one of the main obstacles to the development of marine science and technology is the shortage of experts and qualified personnel, particularly in the developing countries,

Being convinced that, in order to bring about a better understanding of this subject, knowledge of it must be promoted among the public in general and particularly among young people, who will constitute the technicians and research workers of the future,

Believing that for this purpose it is necessary for the fundamentals of marine science to be inculcated at a pre-university level of education,

Noting with satisfaction the proposals concerning education and training in marine science and technology contained in the report of the Secretary-General,⁴²

Requests the United Nations Educational, Scientific and Cultural Organization to study appropriate means of imparting a wider knowledge of the sea and its resources as part of secondary education programmes.

*1561st plenary meeting,
2 August 1968.*

⁴² E/4487 and Corr.1 and 2.

UNITED NATIONS EDUCATIONAL
SCIENTIFIC AND CULTURAL ORGANIZATION

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION

9th Meeting of the IOC Bureau and Consultative Council
(Woods Hole, U.S.A., 3-7 February 1969)

PROGRAMME RESOLUTIONS IN OCEANOGRAPHY

adopted by the XVth General Conference
of Unesco

November 1968

910

Resolution 2.341 : Member States are invited:

- (a) to intensify their cooperation in the scientific investigation of the oceans, by participating in the activities of the Intergovernmental Oceanographic Commission established by the General Conference at its eleventh session (1960);
 - (b) to cooperate in making internationally available the knowledge so obtained, by further improving through the Commission, the international exchange of data and thus establishing a solid foundation for various international cooperative undertakings for the practical application for the benefit of mankind of the scientific knowledge about the nature and resources of the oceans; and
 - (c) to develop further voluntary efforts in support of the Commission's work.
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911

Resolution 2.342 : The Director-General is authorized, acting in cooperation with the United Nations, the Food and Agriculture Organization and its Committee on Fisheries, the World Meteorological Organization, the Intergovernmental Maritime Consultative Organization, the International Atomic Energy Agency and other interested international, regional and national, governmental and non-governmental, organizations, with the assistance of appropriate advisory bodies and taking into account resolutions of the United Nations General Assembly 2172 (XXI) on the resources of the sea and 2340 (XXII) on the question of the reservation exclusively for peaceful purposes of the sea-bed and the ocean floor, and the sub-soil thereof, underlying the high seas beyond the limits of present national jurisdiction, and the use of their resources in the interests of mankind:

- (a) to continue to support and assist the organization of the meetings of the Intergovernmental Oceanographic Commission and of its subsidiary bodies and to strengthen the Secretariat services provided to the Commission;
- (b) to facilitate the short- and long-term planning and coordinating by the Commission of international expeditions and other research activities in liaison with the Scientific Committee on Oceanic Research (SCOR) and the International Association for the Physical Sciences of the Ocean (IAPSO) and to continue to ensure the publication of data, atlases and reports resulting from such activities;

- (c) to assist joint action undertaken by the Intergovernmental Oceanographic Commission and other interested international organizations such as the United Nations, the Food and Agriculture Organization and its Committee on Fisheries, and the World Meteorological Organization on specific multidisciplinary problems requiring such action; and
 - (d) to assist the Intergovernmental Oceanographic Commission in solving the problem of safeguarding the freedom of scientific research outside territorial seas.
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912

Resolution 2.343 : The General Conference,

- 1. Recognizing the rapid expansion of national and international efforts in scientific research and exploration of the oceans and the growing importance of these efforts for peaceful uses of the high seas and of the ocean floor beyond the limits of national jurisdiction,
 - 2. Recognizing, in particular, the key role of the Intergovernmental Oceanographic Commission (IOC) of Unesco in intensifying the above efforts in line with the recent United Nations resolutions 2172 (XXI) and 2340 (XXII),
 - 3. Taking note with satisfaction of the report of the Director-General on the results of recent inter-organization consultations (15 C/PRG/SUB.II/INF.1),
 - 4. Approves the steps taken so far by the Director-General,
 - 5. Authorizes the Director-General in the light of discussions in the Intergovernmental Oceanographic Commission, the UN General Assembly and in consultation with the Executive Board, to take further measures in order to ensure the adequate participation of the interested organizations of the United Nations System in supporting the Commission's work, including, inter alia, the establishment of an Inter-Agency Committee for IOC, as well as the formulation, if necessary, of appropriate draft amendments to the Statutes of the Intergovernmental Oceanographic Commission for submission to the General Conference of Unesco.
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929

Resolution 2.344 : The Director-General is authorized acting in cooperation with the United Nations, the Food and Agriculture Organization, the World Meteorological Organization, the Inter-Governmental Maritime Consultative Organization, the other interested Specialized Agencies, the International Atomic Energy Agency and the competent international, regional and national scientific organizations, with the assistance of the appropriate advisory bodies, and taking into account in particular Resolutions of the United Nations General Assembly 2172 (XXI) and 2340 (XXII), to continue to stimulate and assist study, research and training of personnel in marine science, as a contribution to the promotion of the general advancement of oceanography, and in particular:

- (a) to promote exchange of scientific information about the oceans and provide assistance to the development of modern oceanographic methodology and instrumentation by disseminating information through appropriate documents and publications, by organizing or supporting meetings of experts and symposia and by encouraging and supporting national and international tests and other activities for the standardization and intercalibration of oceanographic methods and techniques;
 - (b) to develop and improve the training of oceanographers by means of courses and fellowships; and to this end, to participate in the activities of Member States, upon request; and
 - (c) to assist Member States, upon request, in strengthening national and regional laboratories and in coordinating their research activities throughout the world and in particular in Latin America, Asia, Africa and the Mediterranean and Red Sea area, through such cooperative activities as oceanographic expeditions and other regional undertakings.
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UNITED NATIONS
GENERAL
ASSEMBLY

Distr.
GENERAL

A/RES/2413 (XXIII)
24 December 1968

Twenty-third session
Agenda item 41

RESOLUTION ADOPTED BY THE GENERAL ASSEMBLY

[On the report of the Second Committee (A/7394)]

2413 (XXIII). Exploitation and conservation of living
marine resources

The General Assembly,

Recalling its resolution 2172 (XXI) of 6 December 1966 requesting the Secretary-General to prepare proposals for ensuring the most effective arrangements for an expanded programme of international co-operation to assist in a better understanding of the marine environment through science, and for the development of marine resources, with due regard for the conservation of fish stocks,

Having considered the report entitled "Resources of the sea beyond the continental shelf"^{1/} prepared by the Secretary-General under Economic and Social Council resolution 1112 (XL) of 7 March 1966 and the report entitled "Marine science and technology: survey and proposals"^{2/} prepared by the Secretary-General under General Assembly resolution 2172 (XXI),

Recalling Economic and Social Council resolution 1581 (XLV) of 2 August 1968,

Taking into account the valuable and extensive work accomplished and being carried out in this field by the Food and Agriculture Organization of the United Nations and its Committee on Fisheries, and by other specialized agencies and intergovernmental organizations concerned, striving towards an increase in the world's food production,

1/ E/4449 and Add.1 and 2.

2/ E/4487 and Corr.1-6 and Add.1.

Deeply concerned that a large proportion of the world's population continues to suffer from malnutrition and notably from lack of protein,

Mindful of the importance of the living resources of the sea as one of mankind's most important food resources,

Realizing the increasing importance of maximizing the sustainable yield of living marine resources through conservation and rational development,

Aware of the grave danger of the over-exploitation and depletion of these resources, to which the rapid progress in fisheries technology is contributing,

1. Invites Governments of Member States to increase international co-operation in the field of development and exploitation of living marine resources outside the limits of national jurisdiction, having regard to the special needs and interests of the developing countries and with particular emphasis on the need for rational exploitation and conservation of fish stocks, taking into account the valuable work of the Food and Agriculture Organization of the United Nations and its Committee on Fisheries and also of regional and other specialized fishery bodies;

2. Urges the United Nations specialized agencies and other intergovernmental organizations concerned to take measures for the further improvement of international collaboration, in relation to fisheries development and conservation, and of technical assistance, where requested by developing countries;

3. Requests the Secretary-General, in collaboration with the Director-General of the Food and Agriculture Organization of the United Nations and in consultation with Governments of States Members of the United Nations and with other international organizations concerned, to report to the Economic and Social Council at its forty-ninth session on the specific measures which have been taken by Governments of Member States and by the international organizations concerned in implementation of the present resolution, and requests the Economic and Social Council to report thereon to the General Assembly at its twenty-fifth session.

1745th plenary meeting,
17 December 1968.

UNITED NATIONS GENERAL ASSEMBLY

Distr.
GENERAL

A/RES/2414 (XXIII)
27 December 1968

Twenty-third session
Agenda item 41

RESOLUTION ADOPTED BY THE GENERAL ASSEMBLY

[On the report of the Second Committee (A/7394)]

2414 (XXIII). International co-operation in problems
related to the oceans

The General Assembly,

Reaffirming the considerations set forth in its resolution 2172 (XXI) of 6 December 1966,

Considering the growing interest of the world community in problems related to the oceans, as they hold promise of providing a rapidly developing world with increasingly needed resources,

Being aware that the present knowledge of the ocean and its resources and of the marine environment is limited and incomplete,

Recognizing the need for extensive exploration and research in order to develop the wealth of the sea for the benefit of all mankind, irrespective of the geographical location of States, taking into account the special needs and interests of developing countries,

Having given preliminary consideration to the report entitled "Marine science and technology: survey and proposals"^{1/} prepared by the Secretary-General under General Assembly resolution 2172 (XXI),

Taking into account the comments of the Advisory Committee on the Application of Science and Technology to Development,^{2/}

Recalling Economic and Social Council resolutions 1380 (XLV), 1381 (XLV) and 1382 (XLV) of 2 August 1968,

^{1/} E/4487 and Corr.1-6 and Add.1.

^{2/} See A/7264.

Recalling the report of the Ad Hoc Committee to Study the Peaceful Uses of the Sea-Bed and the Ocean Floor beyond the Limits of National Jurisdiction,^{3/}

Taking into account the activities in this field at present being carried out by the United Nations, the United Nations Educational, Scientific and Cultural Organization and its Intergovernmental Oceanographic Commission, the Food and Agriculture Organization of the United Nations and its Committee on Fisheries, the World Meteorological Organization and its Panel on Meteorological Aspects of Ocean Affairs, the Inter-Governmental Maritime Consultative Organization, the International Atomic Energy Agency and other specialized agencies, and also intergovernmental organizations, various Governments, universities, scientific and technical institutes and other non-governmental organizations,

1. Takes note with appreciation of the report of the Secretary-General entitled "Marine science and technology: survey and proposals";

2. Requests the Economic and Social Council to review further this report at its forty-seventh session taking into account such views as may be expressed by Governments of Member States, by the Advisory Committee on the Application of Science and Technology to Development and by the proposed competent organ of the United Nations;

3. Endorses the concept of a co-ordinated long-term programme of oceanographic research designed to assist in a better understanding of the marine environment through science and to increase, in the interests of world economic development, the resources available to all the people of the world;

4. Requests the Secretary-General to present to the Economic and Social Council at its forty-seventh session a comprehensive outline of the scope of this long-term programme taking into account such scientific recommendations as may be formulated by the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization within its terms of reference and in co-operation with other interested international organizations;

5. Recommends that the United Nations Educational, Scientific and Cultural Organization and its Intergovernmental Oceanographic Commission should consider strengthening the existing marine educational and training programmes and initiating new programmes in connexion with the implementation of the long-term programme of oceanographic research;

^{3/} Official Records of the General Assembly, Twenty-third Session, document A/7230.

6. Recommends further improvement of international co-operation in relation to fisheries development and conservation, taking into account the important role played by the Food and Agriculture Organization of the United Nations and its Committee on Fisheries as well as the work of regional and other specialized fishery bodies;

7. Invites Member States and organizations dealing with marine pollution, especially the Inter-Governmental Maritime Consultative Organization and the International Atomic Energy Agency, to promote the adoption of effective international agreements on the prevention and control of marine pollution as may be necessary;

8. Recognizes the importance of the meteorological aspects of ocean science and calls upon the World Meteorological Organization to continue its activities in this field in close co-operation with other interested organizations

9. Invites the Secretary-General, in consultation with the United Nations Development Programme, to consider the possibility of extending technical assistance services to the Governments of Member States which may request them in relation to the development of mineral resources of their continental shelf areas;

10. Calls upon the Secretary-General to pursue the task of collecting and disseminating available information regarding the mineral and other resources of the sea-bed and ocean floor beyond the limits of national jurisdiction and techniques appropriate for their development and of providing the assistance which the proposed competent organ of the United Nations may request for the solution of related issues;

11. Requests the Secretary-General, in co-operation with the United Nations Educational, Scientific and Cultural Organization and its Intergovernmental Oceanographic Commission, the Food and Agriculture Organization of the United Nations and its Committee on Fisheries, the World Meteorological Organization, the Inter-Governmental Maritime Consultative Organization, the International Atomic Energy Agency and other organizations concerned, to report, through appropriate channels, to the Economic and Social Council and to the General Assembly, at its twenty-fifth session, on the progress achieved in the implementation of the present resolution.

UNITED NATIONS
GENERAL
ASSEMBLY

Distr.
GENERAL

A/RES/2467 (XXIII)
14 January 1969

Twenty-third session
Agenda item 26

RESOLUTIONS ADOPTED BY THE GENERAL ASSEMBLY

[On the report of the First Committee (A/7477)]

2467 (XXIII). Examination of the question of the reservation exclusively for peaceful purposes of the sea-bed and the ocean floor, and the subsoil thereof, underlying the high seas beyond the limits of present national jurisdiction, and the use of their resources in the interests of mankind

A

The General Assembly,

Recalling the item entitled "Examination of the question of the reservation exclusively for peaceful purposes of the sea-bed and the ocean floor, and the subsoil thereof, underlying the high seas beyond the limits of present national jurisdiction, and the use of their resources in the interests of mankind",

Having in mind its resolution 2340 (XXII) of 18 December 1967 concerned with the problems arising in the area to which the title of the item refers,

Reaffirming the objectives set forth in that resolution,

Taking note with appreciation of the report prepared by the Ad Hoc Committee to Study the Peaceful Uses of the Sea-Bed and the Ocean Floor beyond the Limits of National Jurisdiction,^{1/} keeping in mind the views expressed in the course of its work and drawing upon its experience,

Recognizing that it is in the interest of mankind as a whole to favour the exploration and use of the sea-bed and the ocean floor and the subsoil thereof, beyond the limits of national jurisdiction, for peaceful purposes,

^{1/} Official Records of the General Assembly, Twenty-third Session, agenda item 26, document A/7230.

Considering that it is important to promote international co-operation for the exploration and exploitation of the resources of this area,

Convinced that such exploitation should be carried out for the benefit of mankind as a whole, irrespective of the geographical location of States, taking into account the special interests and needs of the developing countries,

Considering that it is essential to provide, within the United Nations system, a focal point for the elaboration of desirable measures of international co-operation, taking into account alternative actual and potential uses of this area, and for the co-ordination of the activities of international organizations in this regard,

1. Establishes a Committee on the Peaceful Uses of the Sea-Bed and the Ocean Floor beyond the Limits of National Jurisdiction, composed of forty-two States;

2. Instructs the Committee:

(a) To study the elaboration of the legal principles and norms which would promote international co-operation in the exploration and use of the sea-bed and the ocean floor, and the subsoil thereof, beyond the limits of national jurisdiction and to ensure the exploitation of their resources for the benefit of mankind, and the economic and other requirements which such a régime should satisfy in order to meet the interests of humanity as a whole;

(b) To study the ways and means of promoting the exploitation and use of the resources of this area, and of international co-operation to that end, taking into account the foreseeable development of technology and the economic implications of such exploitation and bearing in mind the fact that such exploitation should benefit mankind as a whole;

(c) To review the studies carried out in the field of exploration and research in this area and aimed at intensifying international co-operation and stimulating the exchange and the widest possible dissemination of scientific knowledge on the subject;

(d) To examine proposed measures of co-operation to be adopted by the international community in order to prevent the marine pollution which may result from the exploration and exploitation of the resources of this area;

3. Also calls upon the Committee to study further, within the context of the title of the item, and taking into account the studies and international negotiations being undertaken in the field of disarmament, the reservation exclusively for peaceful purposes of the sea-bed and the ocean floor without prejudice to the limits which may be agreed upon in this respect;

4. Requests the Committee:

(a) To work in close co-operation with the specialized agencies, the International Atomic Energy Agency and the intergovernmental bodies dealing with the problems referred to in the present resolution, so as to avoid any duplication or overlapping of activities;

(b) To make recommendations to the General Assembly on the questions mentioned in paragraphs 2 and 3 above;

(c) In co-operation with the Secretary-General, to submit to the General Assembly reports on its activities at each subsequent session;

5. Invites the specialized agencies, the International Atomic Energy Agency and other intergovernmental bodies including the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization to co-operate fully with the Committee in the implementation of the present resolution.

17252nd plenary meeting,
21 December 1968.

B

The General Assembly,

Recognizing that it is in the common interest of all nations that the exploration and exploitation of the resources of the sea-bed and the ocean floor, and the subsoil thereof, should be conducted in such a manner as to avoid infringement of the other interests and established rights of nations with respect to the uses of the sea,

Mindful of the threat to the marine environment presented by pollution and other hazardous and harmful effects which might result from exploration and exploitation of the areas under consideration,

Desiring to promote effective measures of prevention and control of such pollution and to allay the serious damage which might be caused to the marine environment and, in particular, to the living marine resources which constitute one of mankind's most valuable food resources,

Recognizing the complex problem of ensuring effective co-ordination in the wide field of environmental pollution and in the more specific area of prevention and control of marine pollution,

Noting with satisfaction the measures being undertaken by the Inter-Governmental Maritime Consultative Organization to prevent and control pollution of the sea by preparing new draft conventions and other instruments for that purpose,

Recalling, in this regard, the progress achieved towards such concerted action by intergovernmental bodies and the establishment, by the Food and Agriculture Organization of the United Nations, the United Nations Educational, Scientific and Cultural Organization and its Intergovernmental Oceanographic Commission, the Inter-Governmental Maritime Consultative Organization and the World Meteorological Organization, of a joint group of experts on the scientific aspects of marine pollution,

Recalling further the competence and continuing valuable contributions of the other intergovernmental organizations concerned,

1. Welcomes the adoption by States of appropriate safeguards against the dangers of pollution and other hazardous and harmful effects that might arise from the exploration and exploitation of the resources of the sea-bed and the ocean floor, and the subsoil thereof, beyond the limits of national jurisdiction, notably in the form of concrete measures of international co-operation for the purpose of realizing this aim;

2. Considers that, in connexion with the elaboration of principles underlying possible future international agreements for the area concerned, a study should be made with a view to clarifying all aspects of protection of the living and other resources of the sea-bed and ocean floor, the superjacent waters and the adjacent coasts against the consequences of pollution and other hazardous and harmful effects arising from various modalities of such exploration and exploitation;

3. Considers further that such a study should take into consideration the importance of minimizing interference between the many means by which the wealth of the ocean space may be harvested, and that it should extend to the examination of the circumstances in which measures may be undertaken by States for the protection of the living and other resources of those areas in which pollution detrimental to those resources has occurred or is imminent;

4. Requests the Secretary-General, in co-operation with the appropriate and competent body or bodies presently undertaking co-ordinated work in the field of marine pollution control, to undertake the study referred to in paragraphs 2 and 3 above and to submit a report thereon to the General Assembly and the Committee on the Peaceful Uses of the Sea-Bed and the Ocean Floor beyond the Limits of National Jurisdiction.

1752nd plenary meeting,
21 December 1968.

C

The General Assembly,

Having considered the item entitled "Examination of the question of the reservation exclusively for peaceful purposes of the sea-bed and the ocean floor, and the subsoil thereof, underlying the high seas beyond the limits of present national jurisdiction, and the use of their resources in the interests of mankind",

Reaffirming that exploration and exploitation of the resources of the sea-bed and the ocean floor, and the subsoil thereof, should be carried out for the benefit of mankind as a whole, taking into special consideration the interests and needs of the developing countries,

Recalling that international co-operation in this field is of paramount importance,

Bearing in mind its resolution A above establishing the Committee on the Peaceful Uses of the Sea-Bed and the Ocean Floor beyond the Limits of National Jurisdiction, and the mandate entrusted to it,

1. Requests the Secretary-General to undertake a study on the question of establishing in due time appropriate international machinery for the promotion of

/...

the exploration and exploitation of the resources of this area, and the use of these resources in the interests of mankind, irrespective of the geographical location of States, and taking into special consideration the interests and needs of the developing countries, and to submit a report thereon to the Committee on the Peaceful Uses of the Sea-Bed and the Ocean Floor beyond the Limits of National Jurisdiction for consideration during one of its sessions in 1969;

2. Calls upon the Committee to submit a report on this question to the General Assembly at its twenty-fourth session.

1752nd plenary meeting,
21 December 1968.

D

The General Assembly,

Convinced that the nations of the world should join together, with due respect for national jurisdiction, in a common long-term programme of exploration of the ocean as a potential source of resources, which should eventually be used for meeting the needs of all mankind with due recognition of those of developing countries and irrespective of the geographical location of States,

Recalling also that in its resolution 2172 (XXI) of 6 December 1966 the General Assembly requested the Secretary-General to prepare proposals for ensuring the most effective arrangements for an expanded programme of international co-operation to assist in a better understanding of the marine environment through science, and for initiating and strengthening marine education and training programmes,

Recalling further the proposals made by the Secretary-General in his report,^{2/} pursuant to resolution 2172 (XXI), as well as the various views expressed during the consideration of this subject by the General Assembly at its twenty-third session,

Noting that the Bureau and Consultative Council of the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization considered the proposed International Decade of Ocean

^{2/} E/4487 and Corr.1-6, and Add.1.

Exploration a useful initiative for broadening and accelerating investigations of the oceans and for strengthening international co-operation,

Endorsing the objectives expressed in Economic and Social Council resolutions 1380 (XLV), 1381 (XLV) and 1382 (XLV) of 2 August 1968 and recalling particularly the invitation to the General Assembly to endorse the concept of a co-ordinated long-term programme of oceanographic research, taking into account such initiatives as the proposal for an International Decade of Ocean Exploration and international programmes already considered, approved and adopted by the Intergovernmental Oceanographic Commission for implementation in co-operation with other specialized agencies,

Aware of the consideration given to the proposal in the Ad Hoc Committee to Study the Peaceful Uses of the Sea-Bed and the Ocean Floor beyond the Limits of National Jurisdiction, arising from the contribution which the International Decade of Ocean Exploration would make to scientific research and exploration of the sea-bed and ocean floor, as an important part of a co-ordinated long-term international programme of oceanographic research,

Seeking to enrich the knowledge of all mankind by encouraging a free flow of scientific information on the oceans to all States,

1. Welcomes the concept of an International Decade of Ocean Exploration to be undertaken within the framework of a long-term programme of research and exploration, including scientific research and exploration of the sea-bed and the ocean floor, under the aegis of the United Nations on the understanding that all such activities falling under the national jurisdiction of a State shall be subject to the previous consent of such State, in accordance with international law;

2. Invites Member States to formulate proposals for national and international scientific programmes and agreed activities to be undertaken during the International Decade of Ocean Exploration with due regard to the interests of developing countries, to transmit these proposals to the United Nations Educational, Scientific and Cultural Organization for the Intergovernmental Oceanographic Commission in time to begin the Decade in 1970, and to embark on such activities as soon as practicable;

3. Urges Member States to publish as soon as practicable the results of all activities which they will have undertaken within the framework of the International Decade of Ocean Exploration as part of a long-term co-ordinated programme of scientific research and exploration, and at the same time to communicate these results to the Intergovernmental Oceanographic Commission;

4. Requests the United Nations Educational, Scientific and Cultural Organization that its Intergovernmental Oceanographic Commission:

(a) Intensify its activities in the scientific field, within its terms of reference and in co-operation with other interested agencies, in particular with regard to co-ordinating the scientific aspects of a long-term and expanded programme of world-wide exploration of the oceans and their resources of which the International Decade of Ocean Exploration will be an important element, including international agency programmes, an expanded international exchange of data from national programmes, and international efforts to strengthen the research capabilities of all interested nations with particular regard to the needs of the developing countries;

(b) Co-operate with the Secretary-General, in accordance with paragraph 4 of General Assembly resolution 2414 (XXIII) of 17 December 1968 on the resources of the sea in the preparation of the comprehensive outline of the scope of the long-term programme of oceanographic research of which the International Decade of Ocean Exploration will be an important element, making available its views as to the appropriate relationship between the several international programmes already considered, approved and adopted by the Intergovernmental Oceanographic Commission for implementation, the Decade, and the long-term programme;

(c) Keep the Secretary-General informed of all proposals, programmes and activities of which it is informed in accordance with paragraphs 2 and 3 above together with any comments it may consider appropriate;

(d) Report through appropriate channels to the General Assembly at its twenty-fourth session on progress made in the implementation of the present resolution.

1752nd plenary meeting,
21 December 1968.

In accordance with the decision taken by the First Committee at its 1648th meeting, on 19 December 1968, the Committee on the Peaceful Uses of the Sea-Bed and the Ocean Floor beyond the Limits of National Jurisdiction, established under paragraph 1 of resolution A above, will consist of the following Member States: Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Cameroon, Canada, Ceylon, Chile, Czechoslovakia, El Salvador, France, Iceland, India, Italy, Japan, Kenya, Kuwait, Liberia, Libya, Madagascar, Malaysia, Malta, Mauritania, Mexico, Nigeria, Norway, Pakistan, Peru, Poland, Romania, Sierra Leone, Sudan, Thailand, Trinidad and Tobago, Union of Soviet Socialist Republics, United Arab Republic, United Kingdom of Great Britain and Northern Ireland, United Republic of Tanzania, United States of America and Yugoslavia.

Distribution: limited

IOC/B - 50 (1)

PARIS, 10 January 1969

Original: English-French-Spanish

UNITED NATIONS EDUCATIONAL,
SCIENTIFIC AND CULTURAL ORGANIZATION

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION

9th Meeting of the Bureau with the Consultative
Council

(Woods Hole, U.S.A. 3-7 February 1969)

EXPANDED PROGRAMME OF INTERNATIONAL CO-OPERATION IN OCEANIC RESEARCH
AND FURTHER DEVELOPMENT OF THE INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION

Replies of IOC Members to Circular Letter No. 212 of 26 July 1968

INTRODUCTION BY THE SECRETARIAT

Replies of 21 countries are assembled in this first issue of the document IOC/B-50. Most of the replies deal either in principle or in detail with the proposed broadening of the base of the Intergovernmental Oceanographic Commission. Only a few replies contain proposals with respect to the proposed Expanded Programme of International Co-operation in oceanic research. More replies are expected to arrive as the deadline for submitting proposals concerning the Expanded Programme was established on 1 January 1969.

The Secretariat did not attempt either to summarize or to analyse the national views received. The letters received are quoted practically in full with the exception of introductory references and salutations.

I. CIRCULAR LETTER No.212

The following is the text of the Circular Letter (No.212) sent to all the Members of the Intergovernmental Oceanographic Commission on 26 July 1968 in accordance with the Correspondence Manual of the IOC:

Subject: Expanded programme of international co-operation
in oceanic research and further development of
the Intergovernmental Oceanographic Commission

Sir,

I have pleasure in transmitting to your government several Recommendations (8.1, 8.2, 8.3, 8.4, 8.5 and 8.18) of the recent 8th Meeting of the IOC Bureau with the Consultative Council. These Recommendations refer to the proposals formulated by the Secretary-General of the United Nations in accordance with resolution 2172 (XXI) "Resources of the Sea", for consideration and approval by the 23rd General Assembly of the United Nations in late 1968. The Report of the Secretary-General containing these proposals (document E/4487) has already been made available to your government by the United Nations Secretariat.

One of the Secretary-General's most important proposals is of direct concern to our Commission:

"The Secretary-General proposes that the General Assembly recommend to member governments, Unesco, FAO, WMO and such other organizations of the United Nations family as may be concerned that they agree as a matter of urgency to broaden the base of IOC so as to enable it to formulate and co-ordinate the expanded programme. This agreement should provide, through appropriate modification of the IOC statutes among other things, for adequate joint financial support by the agencies concerned for such a broadened IOC, for a secretariat organized jointly and for an equitable participation of the agencies concerned in organizing the Commission's work. Another necessary step will be that member governments concerned provide appropriate direct financial support to the Commission. The modified statutes should permit the use of directly contributed funds for all aspects of the Commission's work."

It would be appreciated if the Secretariat of the IOC might receive, if possible by 1 September 1968 and, in any event, not later than 1 October 1968, the views of your government and all practical, administrative and financial aspects of the proposed broadening of the Commission's base, as well as on the scope and character of the expanded programme to be formulated and co-ordinated by the "broadened" IOC. Governments are also invited to prepare and send to the IOC Secretariat their detailed proposals for the expanded programme prior to 1 January 1969.

Yours very truly,

Signed:

K.N. Fedorov
Secretary, IOC.

II. REPLIES TO THE CIRCULAR LETTER (in chronological order)

1. UNITED STATES OF AMERICA

Extract from the letter of 29 August 1968 from Mr. Paul W. Erikson, Secretary of the United States Permanent Delegation to Unesco:

"These comments and suggestions were drafted on the assumption that the group of consultants to be convened pursuant to IOC Bureau and Consultative Council Recommendation 8.4 would be knowledgeable in the nature and functions of the IOC rôle and programme and the interrelationships between IOC and other organizations. Therefore, no attempt was to include qualifications or explanations in a number of instances which might well have been included if the comments and suggestions were addressed to a less knowledgeable group or intended for general circulation. It is believed that the implementation of the comments and suggestions will contribute substantially to the evolutionary development of the IOC and international marine science during the next few years and will encourage broader participation by many countries in the activities of IOC."

19 August 1968

U.S. Comments and Suggestions to the IOC in Response to IOC
B&CC Recommendation 8.5 in Connexion with the Report and
Proposals Prepared by the United Nations Secretary-General
under UNGA Resolution 2172 (E/4487) Relating to Broadening and
Strengthening of IOC

The United States welcomes the Secretary-General's proposals for an expanded programme of international co-operation in marine science and the broadening and strengthening of the IOC as a focal point for such a programme. This will require adequate scientific and governmental development of an expanded programme, in which the International Decade of Ocean Exploration proposed by the United States could be a key element, modification in the structure and operations of the IOC, and strengthening and development of the support of the IOC by various international organizations and the relationships between them and the IOC. The IOC expansion should also provide for the planning and execution of the Integrated Global Ocean Station System (IGOSS), plus activities in data management and in the problem of marine pollution. Specific comments and suggestions are listed below.

Rôle and terms of reference of IOC

1. The responsibilities of IOC should include co-ordination of basic scientific research and basic resources research and investigations. Development of living resources, however, should continue at this time to be the responsibility of FAO. Development of mineral resources is being considered in the United Nations Ad Hoc Committee on Peaceful Uses of the Sea-Bed; it is not clear what international arrangements will be required in this regard.

IOC should be broadly responsible for co-ordination and planning of international co-operative scientific research in the oceans, recognizing the specific scientific research responsibilities of various international organizations. Among the basic marine science topics that might be considered by IOC in collaboration with other marine science organizations are:

- (a) Shape, structure and composition of the sea floor and the coast, and their changes.
- (b) Chemical constituents of the ocean and their budget.
- (c) Scales of motion in the ocean, the dynamics of ocean current systems and surface boundary processes.
- (d) Ocean life and its dynamics.

2. The activities suggested herein, and the organizational structure and relationships suggested, are not intended to duplicate or replace responsibilities or activities of the various organizations concerned with the oceans, but to complement them. The broadened IOC would work with existing United Nations and other international agencies as appropriate, drawing on their experiences and resources, as well as in turn assisting them. The strengthened IOC programme together with these co-operative activities should produce a net result greater than the sum of the parts for the benefit of both the member governments and the agencies concerned.

3. IOC should be responsible for planning and co-ordinating certain services, including such activities as an enlarged data exchange function and IGOS.

4. To simplify data management procedures, IOC should arrange with ICSU to assume responsibility for establishing the guidelines for the world data centres (Oceanography), with the understanding that close IOC/ICSU co-ordination and consultation will be maintained via SCOR. The IOC Working Group on Data Exchange should examine the problems associated with accelerating and broadening the exchange of marine science information - including listings, indices, retrieval services - at the international level and improving its availability and usefulness to all interested nations. The Working Group should explore the possible rôle that IOC, world data centres, and national centres to serve regional data needs, might play in this area. Toward these ends personnel with expertise in marine data management and information retrieval should be added to the staff of the IOC Secretariat.

5. The IOC should develop a programme of action leading to recommended standard international methodology for collection and analysis of ocean data which lend themselves to such methodology. The IOC might consider the feasibility of (a) arranging for various national facilities to develop such methodology and (b) publishing an IOC series of manuals on recommended standard methods.

6. IOC responsibility for mutual assistance should be strengthened by according it responsibility for the programme now situated in the Unesco Office of Oceanography and the UNDP-funded programmes on oceanography currently being administered by Unesco Office of Oceanography. To assist the IOC in performing this strengthened rôle it is recommended that personnel be added to the IOC Secretariat to deal with this programme.

7. IOC should assume responsibility for Unesco's education and training programme in the marine sciences and provide for its further development and expansion. Consideration should be given to developing programmes in both technical assistance and education and training which contribute to the marine resource development aspirations of the developing countries and at the same time

enhance their capabilities to participate in and contribute to more fundamental marine science activities.

8. IOC activities would be carried out through global co-operative programmes - such as the proposed International Decade of Ocean Exploration, and regional programmes underway - such as CSK and CICAR, and the work of various subsidiary bodies which deal with specific scientific and technical problems - such as data exchange and marine pollution. Regional programmes would be carried out in areas where no suitable regional organization exists; where one exists IOC would co-operate with it, especially on matters of wider scope than encompassed by such organization. IOC would continue and increase its co-operation with all organizations having responsibilities in the oceanic field.

9. IOC should uphold the tradition of freedom of scientific research on the high seas and also should encourage its member governments to facilitate scientific research in waters of their jurisdiction by research vessels of other nations.

10. Illustrative of the types of activities IOC might co-ordinate or collaborate on with other international organizations are:

- (a) Assessment of living resources useful to man in uncharted regions of the world ocean.
- (b) Assessment of current utilization of known fishery stocks.
- (c) Acquisition of knowledge relating living resources to their environment in order that greater efficiency in their capture and conservation can be achieved.
- (d) Determination of the geological structure and mineral and energy resources potential of the world's continental margins.
- (e) Preparation of topographic, geological, and geophysical maps of selected areas of the deep ocean floor.
- (f) Coring and drilling on the continental margins and deep ocean floor in selected areas.
- (g) Study of scales of motion in the sea and the dynamics of ocean current systems.
- (h) Investigations of surface boundary processes, such as the growth and propagation of ocean waves.
- (i) Investigations and evolutionary processes of ocean basins.

Organizational relationships

11. IOC should be recognized and supported as the focal point within the United Nations system for ocean science and related IOC activities mentioned herein, and should be substantively independent in carrying out its programmes, consonant with appropriate arrangements with supporting organizations. IOC should seek additional support from Unesco, FAO, WMO, and other United Nations agencies; such

support to include appropriate personnel and services to IOC. Unesco should continue to provide administrative support for IOC.

12. Consideration should be given by Unesco to transferring the entire Office of Oceanography to IOC, with IOC charged with carrying out the Unesco oceanographic programme on behalf of Unesco.

13. IOC should seek to collaborate with non-United Nations as well as United Nations intergovernmental organizations, as appropriate, in an effort to achieve the highest possible degree of co-ordination in programmes of mutual concern or interest. Reciprocal provisions should include joint participation in each other's work.

14. IOC should continue to maintain its direct relationship with the ocean scientists of the world through their participation in their government's delegations, their appointment as IOC experts, the advisory rôles of SCOR and ACMRR, and individual consultations. It should be understood that through SCOR a relationship exists to the whole ICSU apparatus. If the proposed International Union of Marine Sciences is established a direct relationship should be instituted. A scientific link could also be considered with WMO, similar to that with IAO/ACMRR.

15. IOC will require some restructuring to accommodate an expanded programme for international co-operation in the marine sciences, and expanded staff and adequate funding. The biennial sessions should be continued, since IOC as well as many other organizations have found that more frequent meetings of such large bodies are not practical.

16. It is suggested that the IOC Bureau and Consultative Council be replaced by an Executive Council consisting of a President, four Vice-Presidents, and ten member countries. The Executive Council would exercise substantive responsibility for the IOC between sessions, would oversee implementation of decisions reached at the sessions, and would co-ordinate major programmes of the Commission such as the International Decade. For this purpose it would generally hold two major meetings between regular sessions. It would also meet immediately prior to a session for a few days to provide direction for the session, and immediately after each session for a few days to implement any decision requiring immediate action.

17. It is suggested that four permanent committees be established to meet during IOC sessions and at least at one of the major off-year meetings of the Executive Council for the purpose of giving comprehensive consideration to IOC programmes and activities. Each committee would be chaired by an IOC Vice-President. Each IOC subsidiary body would report to one of the committees. One committee would deal with research and exploration; one with services, including IGOSS; one with technical co-operation and training and education matters generally; and one with budget, administrative, and legal questions generally. No more than two committees would meet at any one time. Each committee would be open to all IOC members at sessions, and to all Executive Council members during Executive Council meetings.

18. Voluntary contribution of funds, personnel, and services by members could significantly strengthen IOC. Thus, provision might be made for voluntary contribution of funds by IOC members to supplement the support accorded by the

various agencies. Since many governments, including the United States, would require a suitable treaty or legislative base for assessment of funds, which might require considerable time to establish, this should be avoided at present.

19. Regardless of whether personnel is provided by agencies, members, or through utilization of voluntary contributions, consideration should be given to making the IOC staff substantively responsible only to IOC.

20. Arrangements should be made for participation by other international organizations in all appropriate meetings and activities of IOC.

Statutory amendment

21. It is obvious that Statutory amendment will be necessary or desirable to implement some of these suggestions. No suggestions for specific changes in the Statutes are made at this time in the belief that first consideration should be given to the substance of an expanded programme in international co-operation in the marine sciences and the broadening and strengthening of the IOC.

2. UNITED KINGDOM

Extract from the letter of 9 September 1968 from Dr. R.J.H. Beverton of the Natural Environment Research Council:

"The Future Rôle of the IOC

The accompanying paper is submitted on behalf of Her Majesty's Government in accordance with recommendations 8.5 and 8.18 of the Eighth Meeting of the Bureau and Consultative Council of the IOC.

The submission contains the considered views not only of my Council on scientific aspects but of all the interested government departments, including the Foreign Office and Treasury. It is sub-divided into

Section A; proposals for the future activities of the IOC.

Section B; proposals for the administration and organization of the IOC.

These are, of course, closely interdependent topics and we hope that the Working Party in its discussion may find it profitable to consider them in the above sequence, that is, to decide first on what the IOC should do and then consider the means of doing it."

THE FUTURE PROGRAMME AND ADMINISTRATION OF THE INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION

Note by the United Kingdom

INTRODUCTION

1. The views of the United Kingdom contained herein are based on a firm belief in the importance of a better understanding, through international co-operation,

of the oceans and their resources. The United Kingdom believes furthermore that a strengthened and broadened IOC, acting in close liaison and partnership with other intergovernmental agencies, is the proper and most effective instrument for planning and implementing this expanded programme of international co-operation in marine science.

2. At the same time we believe it is essential to recognize that such a programme will make heavy demands on skilled scientific manpower, finance and facilities. This applies not only to the conduct of programmes of research at sea but to their planning and co-ordination and to the efficient synthesis and dissemination of their results. It is essential that at all these stages the active participation must be encouraged of those scientists and others on whom will fall the prime responsibility for the implementation of the programmes. We believe that programming at the international level, no less than at the national, must therefore be selective and critical. It must identify those projects which are not only the most rewarding but are within the scope of the manpower and resources likely to be available. We do not believe that the IOC should seek to take undue responsibility in fields which are already within the remit of other agencies. In short, we believe that the IOC, in its future rôle, must not only plan wisely and economically, but must be seen to do so. In that way it will continue to receive the confidence and support of scientists, governments and agencies alike, without which success cannot be achieved.

3. The United Kingdom therefore welcomes the proposal of the Secretary-General of the United Nations set out in E/4487, that the IOC should be broadened so as to enable it to formulate and co-ordinate an expanded international programme of Oceanographic Research. We have noted that recommendations 8.1 and 8.2 of the IOC Bureau and Consultative Council express satisfaction with this new rôle, and that paragraphs 50-55 of the resolution of the Unesco Executive Board (resolution 5.1 of the 78th session) take the same attitude.

4. With these considerations in mind we first put forward our views, in Section A. of this paper, on the future work of the IOC and of the kind of projects which we in the United Kingdom would like to see the Commission undertake. We then consider, in Section B, the administrative and organizational arrangements for implementing this expanded programme of work.

SECTION A. FUTURE ACTIVITIES OF THE IOC

5. These are reviewed in what follows under two heads:

- (i) Activities in which the IOC has the sole or the main responsibility.
- (ii) Activities in which the IOC should act in liaison or partnership with other agencies.

Several of the following proposals have already been put forward in the Report of the Joint ACMRR/SCOR/WMO Advisory Committee. This Report, entitled International Ocean Affairs, is in the view of the United Kingdom a valuable document, and we hope that the IOC will give it close attention in the course of its deliberations on its future rôle.

6. Activities falling wholly or primarily to the IOC

(a) Promotion of co-operative oceanographic surveys has been one of the main functions of the IOC. The United Kingdom has participated in one of these (the International Indian Ocean Survey) and hopes to play a minor rôle in the forthcoming surveys of the Mediterranean and the Caribbean Seas. The capacity of the United Kingdom to participate beyond this in the next few years is however strictly limited and will have to be considered in the light of the needs of its domestic programme which is concentrated in the North Atlantic. We believe that most other countries will find themselves in a similar position.

We therefore believe that the planning of co-operative surveys, which inevitably make heavy demands on natural resources, must be undertaken critically and with due regard to the logistic implications. The United Kingdom considers that the IOC has in the past tended to promote co-operative surveys with insufficient attention to the scientific problems to be solved and the means of attacking them. It is noted that in the second draft of the Guide for Co-operative Investigations more emphasis is given to these questions than in the first draft. This is welcomed, and the United Kingdom hopes that future proposals for co-operative work coming before the IOC will be shown to originate from a sound scientific base and to identify specific and significant problems in need of solution. We hope also that proper consideration will be given to the scale of resources needed to implement such surveys and to the steps to be taken to ensure that the results are worked up and disseminated promptly and effectively.

It is further noted in this connexion that in two of the most recent surveys, namely those of the Tropical Atlantic and the Kuroshio, the necessary co-ordination has been carried out successfully by the participating nations themselves with the minimum of Secretariat assistance. In the interests both of economizing on the workload of the Secretariat and in promoting responsible participation by the nations concerned, we believe that this pattern should be the aim for all future co-operative surveys. Similarly, with regard to the Co-ordination Groups set up by IOC for the Southern Ocean and the North Atlantic, the United Kingdom hopes that these can function mainly through correspondence between members; and that any meetings that are required should be held in conjunction with the regular IOC sessions.

(b) One of the main problems identified in the Joint ACMRR/SCOR/WMO Report is concerned with data, documentation and the exchange of information. The United Kingdom supports the proposal that an officer could usefully be employed full-time in the Secretariat over a two-year assignment in the analysis of these problems and in drawing up proposals for an international oceanographic data and information service. We would wish to see such a service complement and co-ordinate, rather than duplicate, existing or planned data services at the national level.

(c) Standardization and intercalibration of instruments and methods is another important task appropriate to IOC. There seems to be an increasing need for national oceanographic laboratories to assume international responsibilities for (a) keeping international standards (b) work on the development of certain methods. The Secretariat should contain an officer who takes up this question as part of his duties, and IOC should consider how to provide financial support for national laboratories which undertake these international responsibilities. The United Kingdom is aware that the United Nations Educational, Scientific

and Cultural Organization (Unesco) has already provided this to some extent in the past, but considers that there will be a need for support of a wider range of responsibilities over the next 10 years.

(d) The development of research into the mineral resources of the sea floor and the extraction of dissolved chemicals from sea water has hitherto received little attention by IOC. It is appreciated that co-operative investigations of these mineral resources is rendered difficult by various legal problems. However, IOC might consider whether it can help countries in surveying the continental shelves off their coasts by assisting in the training of marine geophysicists and geologists from those countries and by arranging for the secondment of suitable experts to developing nations under technical assistance and development projects. These activities should be integrated with similar activities already undertaken by Unesco, and financed from UNDP sources. The Secretariat should contain sufficient expertise in the marine geological and geophysical fields for IOC to play a worth while advisory rôle in the development of these sciences.

(e) the United Kingdom welcomes the increasing concern of the IOC with the legal aspects of scientific research at sea and it hopes that the Commission will find ways of alleviating those problems which are at present hindering marine research. The United Kingdom would like to see priority given to the question of the legal status of ocean data stations as it feels that the development of moored instrument arrays, which is vital to the immediate progress of physical oceanographic research, cannot proceed at a satisfactory speed unless the present rate of loss due to interference is reduced. The officer in the Secretariat responsible for IGOSS (see paragraph 7(b) below) might look after this question in collaboration with Unesco's legal advisers. However, the United Kingdom does not consider that IOC is the proper body to draw up conventions concerning the law of the sea: this is held to be the responsibility of the United Nations.

7. Activities in which the IOC should act in liaison or partnership with other agencies.

(a) There is an urgent need for international action with regard to the development and proper management of the living resources of the Ocean. In the view of the United Kingdom such action is the responsibility of the various international fishery commissions and of the Food and Agriculture Organization of the United Nations (FAO). It must be borne in mind that in the development of a fishery from scratch there is no substitute for exploratory fishing all the year round by vessels equipped with up-to-date fishing detecting devices. The continuous assessment of the state of the stocks as the fishery develops subsequently requires adequate catch and age statistics from as an early a time as is possible and a knowledge of the life history of the stocks. The United Kingdom considers that it is the responsibility of FAO to see that developing nations are equipped to work along these lines.

But there is no doubt that the development and management of the fish stocks can be improved if certain oceanographic information is available: IOC should take steps to see that oceanography develops in the various parts of the world so that this information can be provided when required. Likewise co-operative oceanographic surveys can provide useful information from the fisheries point of view if properly planned and executed. There is also much to be gained by ensuring that there is adequate consultation between technical assistance missions in the marine science field sent by FAO, on the one hand, and Unesco, on the other.

The United Kingdom is pleased to learn of the agreement between the Directors-General of Unesco and FAO whereby a member of the FAO is to be based in Unesco. It considers that this officer has a vital rôle to play in seeing that the correct balance between fisheries research and oceanography is achieved in all nations with a fishing industry so that the stocks can be developed and managed to the maximal benefit to mankind.

(b) The United Kingdom approves in principle the Integrated Global Ocean Station System (IGOSS), the development of which was started by the resolutions passed at the fifth session. It has, however, certain reservations. It considers that the development of this system by IOC must in no way impede the work of the World Meteorological Organization (WMO) and its progress towards the World Weather Watch. It should therefore not aim to replace the system by which certain oceanographic data are collected and disseminated by the WWW system, at least until such time as a parallel system for other oceanographic data has been established. The United Kingdom also feels that the requirements of oceanographers with regard to a fixed network of moored stations cannot be formulated precisely at this time, especially as the physical variability of the ocean in space and time in any particular area is so poorly understood. Many more studies of variability are required.

The United Kingdom therefore wishes to see the IOC "hasten slowly" with regard to the IGOSs project. It welcomes the decision of WMO to appoint a liaison officer to IOC and hopes that this arrangement will help each body to assist the programmes of the other and not impede them. It also considers that the Secretariat should contain an officer working full-time on the IGOSs project.

(c) The United Kingdom is of the view that there is a need for better international co-operation in sea-floor charting. In the United Kingdom view it is the responsibility of the International Hydrographic Bureau (IHB) to see that this co-operation is improved. Hydrographic surveyors and physical and geological oceanographers have many interests in common. The United Kingdom considers that IOC and IHB should have discussions at an early date to see how to improve the liaison between them: they might consider whether it would be worth while to IHB to appoint a liaison officer to IOC in the same way as WMO.

(d) The IOC has concerned itself with the problem of marine pollution, as have nearly all the United Nations (UN) agencies. The United Kingdom was glad to hear at the fifth session of IOC that it was now likely that these agencies would soon have a single working group of experts on pollution on which to call for advice. It considers that IOC should concern itself with encouraging the development of the oceanographic research necessary to deal with pollution problems of all kinds. At the present time it should not aim at becoming a regulatory body with regard to pollutants. The international aspects of the disposal of radioactive waste into the sea is the concern of the International Atomic Energy Authority (IAEA) and the European Nuclear Energy Agency (ENEA) and the control of oil pollution is the concern of the Intergovernmental Maritime Consultative Organization (IMCO). It has yet to be established that control of other pollutants in a similar way is required.

SECTION B: ADMINISTRATION AND ORGANIZATION OF THE IOC

8. In formulating the scope of the IOC's new responsibilities, it is important to ensure that its programme of work is responsive to needs with regard to the

exploitation and development of marine resources. The Commission's Secretariat will need to contain sufficient expertise from each of the main branches of oceanography (physical, chemical, biological and geological). Similarly, national delegations to sessions of the Commission will need to contain sufficient oceanographic expertise so as to allow the scientific and technical business of the Commission, brought about by the expanded international programme of oceanographic research, to be carried out in the most effective manner.

9. While welcoming this expansion of the IOC's responsibilities, the United Kingdom believes that the IOC should continue to operate within the framework of Unesco and under the authority of the General Conference and the Director-General of that organization. At the same time, it feels that the IOC should be able to draw up and present to the Director-General its own costed programme of activities for each biennium (although the formal submission of the programme to the General Conference must be made by the Director-General and through the Executive Board of Unesco), and that funds voted for this programme by the General Conference might be shown as a separate "appropriation line" within Unesco's budget. The preparation and supervision of the programme, as well as the conduct between meetings of the other business of the Commission could be handled by an Executive Committee, which would replace the present Bureau and Consultative Council, assisted by the Secretariat. The United Kingdom recommends that with the object of reducing administrative overheads and of eliminating duplication of effort, the staffing and respective fields of activity of the IOC and of Unesco's own division of oceanography, should be reviewed with the object of achieving maximum integration.

10. The United Kingdom is opposed to the proposal of the Secretary-General that the expanded programme of the IOC should be financed directly by voluntary contributions from Member States. Its activities should continue to be a charge on the Regular budget of Unesco and financed by assessed contributions. It is important to all Member States to secure successful implementation of the expanded programme of IOC. For this reason the United Kingdom considers that the cost of the programme should be financed by all Member States in accordance with the agreed cross-sharing arrangements currently in force in Unesco. With regard to the proposal that the Specialized Agencies should contribute funds to the IOC, the United Kingdom appreciates the possible advantages of such a scheme. However, the proposal requires very close scrutiny to ensure that programmes do not get out of balance, nor overall financial control be prejudiced.

11. The United Kingdom notes that the work plan of Unesco for 1969-70 has provided for a small increase in the staff of the IOC. In addition, the Commission might wish to explore the possibility of engaging staff made available by other Specialized Agencies with an interest in its work. Plans for closer co-operation between FAO and Unesco, and the appointment of a FAO representative to work in the Unesco office of oceanography, are welcome examples of such inter-Agency co-operation. Arrangements of this nature will make it easier for IOC to acquire the required wide range of expertise. Besides, they will usefully supplement the co-ordinating work of the ACC Sub-Committee on marine technology.

12. The Commission should consider encouraging the development of regional arrangements for ocean research. While recognizing that some regionalization exists already, the United Kingdom feels that the future rôle of the IOC would be more effectively implemented by a process of decentralization where it is sensible and practicable. In the United Kingdom's view, the present arrangement, whereby all

matters, regardless of the part of the world to which they refer, are discussed at a single world meeting, is becoming cumbersome and tending to retard progress. Perhaps the decentralization might take place along the lines of the regional associations of WMO. Such associations could be most effective in advancing co-operative investigations in their areas of interest, with a minimum of reference to the central organizations. They could also

- (1) bring the marine scientists working in a region together regularly, to discuss their mutual problems and to discern ways in which they can be attacked;

- (11) foster real mutual assistance.

13. Where regional bodies already exist, but outside IOC (e.g. the International Council for the Exploration of the Sea (ICES) in the North Atlantic, and the International Commission for the Scientific Exploration of the Mediterranean Sea (ICSEMS) in the Mediterranean), IOC should engage in discussions with these bodies with a view to some form of co-operative arrangements.

14. The United Kingdom welcomes the proposals made in IOC/B/31 for more orderly and efficient conduct of the business of the IOC, and hopes that they will be brought into force at the next meeting of the Commission.

3. SWITZERLAND

Extract from the letter of 2 September from the Department of Federal Policy, Switzerland:

"Oceanographic studies have not so far been undertaken on a very large scale in Switzerland. Nevertheless we have followed the work of the IOC with great interest, as you know, and we are very conscious of the importance of the prospects opened up by the scientific exploration of the seas and also of the problems involved in the peaceful use of the sea-bed beyond the limits of national jurisdiction.

Under the circumstances we wish to inform you that we are in general agreement with the recommendations of the Bureau and Consultative Council of the IOC, although we are not in a position to make specific proposals as to the practical action which should be taken upon them. It is impossible for us to say, in particular, whether the Federal authorities could eventually contribute financially to the development of IOC's activities."

4. DENMARK

Extract from the letter of 12 September 1968 from Mr. Hanne Boye of the Danish National Commission for Unesco:

"In reply to your CL/212 of 26 July, reference AVS/9/89/2C, I have pleasure in informing you that the President of the Danish National Council for Oceanography has declared that in the view of the mentioned Council a broadening of the programme of international co-operation within the oceanographic field would be

desirable. Participation in such a programme might be possible, on a scale corresponding to the resources at the disposal of Danish oceanographers. Due to the extended activities of the Commission a broadening of its base is in the opinion of the Danish National Council justified."

5. CANADA

Extract from the letter of 24 September 1968 from the Under-Secretary of State for External Affairs:

"With reference to the practical administrative and financial aspects of the proposed broadening of the Commission's base, the Government of Canada has no comments to offer at the moment but wishes to await the report of the group of consultants, authorized by Recommendation 8.4 of the IOC Bureau and Consultative Council, with a view to discussing these at the 9th meeting of the IOC Bureau and Consultative Council early in 1969.

Referring to the second clause of above sentence "as well as on the scope and character of the expanded programme to be formulated and co-ordinated by the broadened IOC", the government can state that it looks forward to co-operating when it can in the expanded programme. While each instance of significant expansion of the present level of effort will require formal government approval and additional resources of course, Canada will be most co-operative in assisting in projects where her resources and experience can be most effective.

Finally, although Canada is not prepared at this time to make the detailed proposals referred to in the second sentence, the Canadian Committee on Oceanography awaits with interest, suggestions that may arise from the United States proposal, "A Decade of Ocean Exploration".

6. FEDERAL REPUBLIC OF GERMANY

Comments enclosed to the transmission note of 27 September 1968 signed by Mr. R. Henschel of the Permanent Delegation of the Federal Republic of Germany to Unesco:

"The Federal Republic of Germany has noted with interest and approval that, in accordance with resolution 2172 (XXI) "Resources of the Sea" of the United Nations, international co-operation in the field of oceanic research shall be intensified and that the Secretary-General of the United Nations proposed in United Nations document E/4487 to broaden the base of the Intergovernmental Oceanographic Commission (IOC) belonging to Unesco. She supports the proposal contained in the ECOSOC resolution 1381 (XLV) and the suggestions made by the Chairman of IOC in the Ad hoc Committee of the United Nations in Rio de Janeiro (A/AC.135/SR.15 and 18).

Such broadening of the base will largely depend on which tasks the future IOC will have to fulfil. In the opinion of the Federal Republic of Germany, the following tasks should have priority in the Intergovernmental Oceanographic Commission enlarged and strengthened as to staff, administration, and finances.

1. Formulation of an expanded programme of scientific investigations co-ordinating the national and international plans for the exploration of the sea, the sea floor and its sub-soil within the framework of an "International Decade of Ocean Exploration".

This would cover:

- (a) Co-ordination in establishing a network of oceanographic stations for continuously recording the variations in oceanographic elements;
- (b) Organization of international oceanographic research projects;
- (c) Standardization of oceanographic methods of measurement;
- (d) Problems related to the collection, processing and dissemination of measured data;
- (e) International documentation.

2. Handling and taking care of oceanographic aspects in respect of problems of general importance, inter alia:

- (a) Freedom of scientific research at sea;
- (b) Pollution of the sea by industrial wastes and sewages;
- (c) Exploration and exploitation of the food, mineral and energy resources of sea water;
- (d) Exploration, exploitation and administration of the sea floor and its sub-soil;
- (e) Safety and economy of navigation;
- (f) Improvement in environmental forecasting;
- (g) Coastal engineering.

3. Furtherance and international co-ordination of training in oceanography:

- (a) Adapting training among the Member States; including the furtherance of international training centres;
- (b) Promotion of mutual recognition of examinations and exchange of experts;
- (c) Training aid to development countries;

For achieving such a broadened scope of activity of IOC, the Federal Republic of Germany proposes to conclude administrative agreements between Unesco and the other organizations of the United Nations, such as FAO, WMO, IMCO, etc., taking an interest in oceanographic problems. These agreements should provide that the said organizations give financial support to the work of IOC and further it by delegating members of their staff to the Secretariat and the subsidiary bodies of IOC. The IOC staff itself would have to be enlarged and the status of the

Commission within Unesco to be improved in an appropriate way. The higher financial burden resulting from this and from the enlarged scope of IOC should be compensated by the financial support of the agencies concerned and by the direct financial contributions of the IOC Member States. Finally, the IOC statutes should be adapted to these modifications."

7. FINLAND

Extract from the letter of 27 September 1968 from the Acting Director for Political Affairs:

"The project, according to which the United Nations and its Specialized Agencies agree to broaden the base of IOC through adequate financial support, a secretariat organized jointly, and an equitable participation in organizing the Commission's work, can be considered very appropriate. Especially it seems natural that, besides Unesco, also FAO and WMO would provide support to the Commission as it has been planned.

On the other hand, possibilities to implement the project, according to which the United Nations and its Specialized Agencies should provide direct financial support to the Commission, ought to be studied thoroughly. Because voluntary contributions, which have probably been taken into account, will hardly lead to any satisfactory result, it seems necessary to include fixed membership fees in the project. The fees to be paid by each Member State to the Commission can hardly be fixed in the same proportion as those paid to Specialized Agencies, as maritime interests of each State vary to a great extent. Perhaps the most appropriate solution would be to establish different categories for membership fees to be paid by Member States to the Commission and to fix separately the corresponding category for each Member State."

8. FRANCE

Extract from the letter of 27 September 1968 from Mr. Jean Fernand-Laurent, Plenipotentiary Minister, Permanent Delegate of France to Unesco:

"The French Government, for its part, is aware of the increased responsibilities which will devolve on the Intergovernmental Oceanographic Commission as a result of the various decisions adopted or in the process of being adopted by the United Nations with regard to oceanography. It is especially mindful of the action to be taken under United Nations resolution 2172 (XXI) on the Resources of the Sea and the implementation of a possible International Decade of Ocean Exploration.

The increased responsibility for co-ordination which might then be incumbent upon the Commission would probably necessitate placing increased means at its disposal. In the opinion of the French Government, however, the following considerations should be taken into account when this is done:

1. The IOC should continue to act within the framework of its present statutes, which authorize it (cf. Article 5) to set up the committees which it deems necessary and would therefore allow it to set up the desired co-ordinating body or bodies.

2. Maintaining the statutes in their present form implies that the Commission will continue to pursue its activities within the limits of its own scientific field and will not be in a position to take over the management of funds contributed by Member States.

3. A revision of the Commission's rôle, even within the limits mentioned above, is not feasible until we know the decisions of the next session of the United Nations General Assembly with regard to both the proposals of the United Nations Ad Hoc Committee on Peaceful Uses of the Sea-Bed, which has just held its 3rd session at Rio de Janeiro, and the possible institution of an International Decade of Ocean Exploration."

9. ITALY

Extract from the letter of 30 September 1968 from the Permanent Delegate of Italy to Unesco, Mr. Giorgio Ciruolo:

".... The National Research Council, which co-ordinates oceanographic activities in Italy, will let you have the opinion of our experts on the expanded programme of the Intergovernmental Oceanographic Commission as soon as the various study commissions now being appointed have been reconstituted."

10. SOUTH AFRICA

Extract from the letter of 30 September 1968 from Mr. H.J. van der Merwe, Secretary of the South African National Committee for Oceanographic Research (SANCOR):

"Oceanographic research in the Republic of South Africa is being co-ordinated by the South African National Committee for Oceanographic Research (SANCOR). Its programme functions on a limited budget and it covers research activities in physical oceanography, marine biology, and marine geology/geophysics which are considered to be of national importance. Until more detailed information is available, SANCOR cannot offer any comments on the matter.

The South African National Committee would however appreciate it if it could be kept abreast of developments regarding the proposed expanded programme of International Co-operation in Oceanic Research and further development of the Intergovernmental Oceanographic Commission."

11. NETHERLANDS

Extract from the letter of 4 October 1968 from the Director-General for University Education and Sciences, Mr. A.J. Piekaar acting for the Minister of Education and Sciences:

"The Netherlands Government being of the opinion that the rapid development during recent years in the field of Oceanographic research and oceanic service

activities throughout the world asks for concerted action to enlarge the now existing international collaboration in these fields would therefore gladly support the Secretary-General's proposal for an expanded programme of international co-operation to assist in a better understanding of the marine environment through science.

The Netherlands Government shares the opinion of the Secretary-General in considering the IOC as the most appropriate intergovernmental scientific body to carry out the task of the development of the expanded programme, realizing also that this implies the need for a broadening of the base of the IOC in order to enable it to formulate and co-ordinate the expanded programme.

The Netherlands Government notes in this respect with satisfaction that in the considerations of the Secretary-General the rôle of the Specialized Agencies and other organizations concerned is recognized and their collaboration encouraged and safeguarded.

With regard to financial consequences of the broadening of the IOC the Netherlands Government would suggest that for additional expenditures required for developing the expanded programme a trust fund could be formed, preferably with Unesco which will be used for the activities of the broadened IOC exclusively.

The Netherlands Government endorses the view of the Bureau and Consultative Council of the IOC as to the need for extensive preparatory study in order to formulate in detail the required framework of future administrative arrangements for the work of the broadened IOC and its Secretariat and welcomes therefore the establishment of a small group of consultants to do this study.

In this respect it is noted that a broadening of the IOC has at least three aspects which should be taken into consideration by the group of consultants in its study regarding the broadening of the IOC. These aspects are:

the structural base of the IOC

its workload, and

the field of responsibilities of this Commission.

As to the terms of reference of the group of consultants regarding the formulation of the estimated requirement for means and facilities, which will be needed to meet the workload associated with the expanded programme the Netherlands Government would like to suggest that this group would not consider for the present time other housing facilities for the broadened IOC than those now provided by Unesco."

12. MONACO

Extract from the letter of 4 October 1968 from the Minister of State of Monaco:

".... His Highness's Government is prepared to participate in an international agreement aimed at broadening the Commission with a view to enabling it to

formulate an expanded programme and to co-ordinate the resulting activities. His Highness's Government approves the proposals made by the United Nations for this purpose.

The position of His Highness's Government on the Resources of the Sea was explained in the accompanying paper sent to the United Nations on 28 September 1967. A copy was communicated by H.E. Mr. Arthur Crovetto, Minister Plenipotentiary, to Dr. Fedorov, Director of the Office of Oceanography of Unesco."

Enclosure:

Monaco, 26 September 1967

ACTIVITIES WITH RESPECT TO MARINE SCIENCES AND TECHNIQUES

Prince Albert I, who called himself the "Chief and Propagator of Oceanography", has made Monaco an active centre of marine sciences and techniques since the end of the last century. Amongst other achievements he set up the Oceanographic Institute and Museum and founded the International Commission for the Scientific Exploration of the Mediterranean Sea, and further he received the International Hydrographic Bureau in the Principality and at the same time issued the first editions of the GEBCO.

H.S.H. Prince Rainier III has kept up and developed the work of his grandfather: in 1960 he founded the Monaco Science Centre; in 1961 he set up the International Laboratory of Marine Radio-Activity, in association with the International Atomic Energy Agency and the Institute of Oceanography. He is the chairman and leading spirit of the International Commission for the Scientific Exploration of the Mediterranean Sea. He provided aid and support for the "Précontinent III" experiment organized by Commandant Cousteau in October 1965. With his encouragement scientific work of a continuous and practical nature is being carried out in connexion with all the subjects and activities listed by the United Nations under I. "Research" and II. "Hydrography and Miscellaneous Public Services". On the other hand, the use of the sea and its resources is limited, chiefly owing to the restricted area of the country and its small population. Mention should be made, however, of the use of thermic energy from the sea by means of a large heating pump, which has been working satisfactorily for three years, and a very active deep-sea fishing club.

After this preliminary statement concerning the position of the Principality with regard to oceanography we shall reply to the questions of a general nature which the United Nations put to us in its letter of 6 July 1967.

Current international activities connected with the United Nations General Assembly resolution on the resources of the sea were examined by the Intergovernmental Oceanographic Commission. In our view, therefore, the recommendations of that body should be followed and it should be assisted in carrying out its programme, which was defined at previous sessions and will be supplemented at the October session. It seems to us that at least a part of the funds required should be given to the IOC through voluntary contributions from member countries, in accordance with the example of the International Atomic Energy Agency.

Among these activities we would stress those of the working group on pollution of the seas, the joint study of the Mediterranean, the setting up of a submarine laboratory (viz. resolution 12 adopted at the third session of the IOC in November 1965).

Noting the IOC's directing activity, we think that its authority might be strengthened and that it might be entrusted with the co-ordination of international co-operation, which is already operative or partially established. For the joint study of the Mediterranean, for instance, positive action must be taken to achieve the close co-operation between the General Fisheries Council for the Mediterranean (FAO) and the International Commission for the Scientific Exploration of the Mediterranean Sea advised by the Council of the IOC in January last. Similarly, the experimental work undertaken by Sealab and Précontinent, the latter conducted and financed by Commandant Cousteau, should be more closely co-ordinated through the IOC.

13. INDIA

Extract from the letter of 10 October 1968 from Mr. N.N. Datta, Education Officer, Ministry of Education of India:

"..... The Government of India (National Institute of Oceanography) generally support the proposal to enlarge the scope of the Intergovernmental Oceanographic Commission as outlined in the United Nations resolution 2172 (XXI) - Resources of the Sea."

14. IVORY COAST

Extract from the letter of 14 October 1968 from the Ministry of Foreign Affairs:

"The Intergovernmental Oceanographic Commission having asked for the views of Member States on a project for the broadening of its basis, I have the honour to inform you of the position of the Ivory Coast with regard to oceanographic research and studies, which may be summed up as follows:

1. Interest of our country in the development of any studies aimed at improving the exploitation of the ocean.
2. Participation, within its means, in bilateral and multilateral agreements.
3. Limitation of the sphere of activities to the Gulf of Guinea.
4. Participation in the discussions and decisions on oceanographic problems.

With regard to the recommendations formulated by the Bureau and the Consultative Council of the IOC at its eighth meeting, the Government of the Ivory Coast suggests that it would be advisable:

to support recommendation 8.2 concerning the responsibility of the Bureau to the IOC;

to endorse recommendation 8.4 to convene a group of consultants to evaluate the volume of work of the broadened IOC, its means and its resources, its future administrative structure and its relations with the organizations which would have to sponsor it.

The Ivory Coast hopes that solutions will be found which will not impair the Foreign Commission's efficiency, but fears that an excessive administrative workload might have an effect contrary to that desired.

Lastly, resolution 8.18, and the project for an International Decade of Ocean Exploration in particular, should also be approved."

15. GREECE

Extract from the letter of 19 October 1968 from the Chargé d'Affaires of the Greek Embassy in France:

"..... the Greek Government has no objection to the broadening of the IOC's programme. It fully reserves its position, however, with respect to any obligation regarding the economic support of the said programme."

16. ARGENTINA

Extract from the letter of 30 October 1968 from the Permanent Delegate of Argentina to Unesco:

"I have the pleasure to inform you that I am today sending to the Secretary of the Commission the reply of my country's National Oceanographic Committee and also the Argentine Report on the United Nations resolution 2172 (XXI) on Resources of the Sea."

Extract from the enclosed letter from the Secretary of the Argentine National Oceanographic Committee of 20 September 1963:

"In this connexion I must inform you that the reply to your note can only be made after careful study by the National Committee, in commission and in plenary, so we shall not be able to submit it before 1 October as requested.

In regard to the submission of detailed proposals concerning the Expanded Programme of International Co-operation, this Committee has noted the closing date (1 January 1969) and hopes to submit them in time.

Meanwhile I might mention that our country's views on oceanographic activities and their possible broadening are reflected in the National Report on the United Nations resolution 2172 (XXI) on Resources of the Sea, of which I am happy to send you two copies, one for the Permanent Secretariat and one for the Secretary-General of the IOC."

17. NORWAY

Extract from the letter of 31 October 1968 from Mr. E.F. Ofstad, Deputy Director of the Department of Legal Affairs of the Royal Ministry of Foreign Affairs:

"1. The Norwegian Government endorses the positive attitude taken by the IOC Bureau with the Consultative Council towards the broadening of IOC to enable it to formulate and co-ordinate an expanded programme in marine science (recommendations 8.1, 8.2, 8.3, 8.4, 8.5, and 8.18).

2. It also expresses its general agreement with the measures taken by the Bureau with the Consultative Council to prepare for the deliberations at the coming 6th session of IOC in respect to a revision of the statutes of IOC.

3. Attention is, however, drawn to one point in the terms of reference proposed for the group of consultants, given in recommendation 8.4.

In terms (i) and (ii) the expressions "the future workload of the Commission..." and "the workload associated with the expanded programme" are used. These expressions not being defined, it would seem desirable to have them clarified, since the interpretation of the word "workload" appears essential for the financial implications of broadening IOC's activities and responsibilities.

The United Nations Secretary-General proposes that the finances of IOC be strengthened through contributions from other organizations as well as through direct contributions from Member States (The Secretary-General's report pp. 77-78). Furthermore, it is stated that "The modified statutes should permit the use of directly contributed funds for all aspects of the Commission's work". It is not explained what the latter expression implies.

So far the co-operative projects of IOC have been financed by the participating states. If the quoted sentence in the Secretary-General's report means that a change of this policy is planned, it may have an important effect upon the budgets of IOC. It would seem desirable to have this point explicitly clarified, either by an addition to the terms of reference in recommendation 8.4 or otherwise.

A change of policy with regard to the financing of co-operative IOC field work projects, whereby these would be financed by IOC through contributions from other organizations or directly from member countries, would in principle be acceptable to the Government of Norway.

4. With regard to the scope and character of the expanded programme in marine science attention is drawn to the necessity of a careful evaluation of the relative value for progress in our knowledge of the oceans of (a) international co-operative activities of the type hitherto performed by IOC and (b) intensified studies of well-defined scientific problems in oceanography. The latter type may also be undertaken by international co-operation.

The two types of co-operative activities should both have their legitimate place within the broadened IOC.

5. The Norwegian SCOR Committee will submit to SCOR the views of Norwegian oceanographers on details of an expanded programme in order that they be taken into account when SCCR is giving its advice to IOC in this matter.

6. Norway's international co-operation in oceanographic research is at present to a great extent taking place within ICES and ICNAF, and this practice may be expected to continue in the future. Participation in international projects outside these organizations will depend on the funds granted for oceanographic research in our country as well as on the expansion which Norway's resources may permit of the staff at the institutions concerned. A close co-ordination of the activities of the regional organizations and of IOC is in any case a prerequisite for an effective participation of our country, as well as of many other Member States of regional organizations, in an expanded programme in marine science.

7. The Norwegian Government accepts in principle the proposals in the Secretary-General's report and intends to support them within the limits of its resources.

The Norwegian Government reserves, however, its final acceptance of the "broadened IOC" until the Secretary-General's report has been considered by the United Nations General Assembly and adequate proposals have been presented by the IOC Bureau with regard to organization, financing etc."

18. SINGAPORE

Extract from the letter of 5 November 1968 from the Ministry of Foreign Affairs of Singapore:

"..... The Government of Singapore has no objection in principle to the proposed broadening of the Intergovernmental Oceanographic Commission's base. The government would like to suggest the inclusion of the following studies in the expanded programme to be formulated and co-ordinated by the "broadened" IOC:

- (a) Culture and utilization of tropical marine organisms such as oysters, mussels and abalone and of certain species of marine fish such as grouper;
- (b) Pollution of the marine environment from industrial, domestic and other effluents.

The Government of Singapore will not be able to commit itself financially at this stage to the expanded programme for oceanographic research as it is already committed financially to the establishment in Singapore of the Research Department of the Southeast Asian Fisheries Development Centre. The functions of the Research Department will include:

- (a) development of fishing grounds by experimental fishing;
- (b) research into fishing gears, equipment, fishing methods and handling of fish at sea;
- (c) investigation into fisheries resources and fisheries oceanography;
- (d) training of research personnel.

For your information, the Southeast Asian Fisheries Development Centre - a project of the Ministerial Conference for Economic Development in Southeast Asia - is regional in character involving the joint efforts of Japan, Malaysia, South Viet-Nam, Thailand and Singapore."

19 MADAGASCAR

Extract from the letter of 12 November 1968 from the Ministry of Foreign Affairs:

"Agreement in principle with the broadening of the basis of the IOC to enable it to prepare an expanded programme and co-ordinate the resulting activities.

Agreement in principle with an increase in the financial aid provided by the various Specialized Agencies of the United Nations and with their participation in the organization of the work.

Possibilities of participating in research and study in Malagasy waters owing to the importance of the existing infrastructure (Tuléas Maritime Station, Nosy-Bé Oceanographic Research Centre, possible participation of the Maritime Fisheries Service in applied research programmes or in the organization of experimental fishing campaigns).

Reservations concerning the increase in financial participation in the absence of information.

Interest of the Malagasy Republic in any research involving the prospection of the resources of the sea and the utilization or processing of sea products."

20. MEXICO

Extract from the letter of 29 November 1968 from the Permanent Delegate of Mexico to Unesco:

"..... After a meeting of representatives of the Ministries of the Marine, Industry and Commerce and the National Autonomous University of Mexico to discuss the new structure of the IOC, it was agreed that the IOC would gain in principle by having a broadened Secretariat with the assistance of FAO and the World Meteorological Organization. The meeting also considered that it could recommend that our country should provide adequate financial support for the Commission through its contributions to the United Nations, leaving to the future the decision as to whether it should increase that financial support or make a direct contribution as recommended by the Secretary-General of the United Nations."

21. AUSTRIA

Extract from the letter of 3 December 1968 from the Permanent Delegate of Austria to Unesco:

"..... The Federal Ministry of Education of Austria requested the Academy of Sciences, Vienna, to study the various aspects of the expanded programme. It was regretted in Vienna that you could not be informed of the position of that institution by 1 October, as there was not enough time.

With regard to a financial contribution from Austria, this will not be possible for the coming year owing to the fact that the budget for 1969-1970 has already been voted."

Distribution : limited

IOC/E-50 (2)
14 January 1969

In original English

UNITED NATIONS EDUCATIONAL
SCIENTIFIC AND CULTURAL ORGANIZATION

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION

9th Meeting of the Bureau with the Consultative
Council

(Woods Hole, USA, 3 - 7 February 1969)

EXPANDED PROGRAMME OF INTERNATIONAL COOPERATION IN OCEANIC RESEARCH
AND FURTHER DEVELOPMENT OF THE INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION

Replies of IOC Members to Circular Letter No.212 of
26 July 1968.

1. Proposals by the Ministry of Scientific Research of the United Arab Republic transmitted with a letter of 8 January 1969 by the Permanent Delegation of the UAR to Unesco :

" 1) The UAR gives its consent to the change of the constitution of the IOC, such that this change:

- a) Asserts that the encouragement of the oceanographic establishments (Institutes, Universities, Research or Training Centre, etc.) in the developing countries is an essential part of strengthening oceanography, and that it is one of the IOC's duties to bring to the attention of the developing countries, the importance of strengthening oceanography, to encourage the development by all possible means, to follow these developments, and report on them.
 - b) Permits the IOC to take a direct and increasing role in oceanographic research, particularly in areas surrounded by countries not able to assume the burden of such researches.
- 2) The UAR agrees that there should be direct contributions from member states to the IOC, to enable it to perform its duties. This, in addition to a share in the revenue collected by the U.N. as a result of exploiting the ocean resources.
- 3) The developing nations should be represented in the permanent IOC Secretariat, as this Secretariat is the prime force in the IOC structure. Since the formation of the IOC, its Secretariat was exclusively manned by Americans, Europeans and one Japanese. This resulted in the IOC being incapable to a certain extent of appreciating the point of view of developing nations.
- 4) The new IOC should have the responsibilities to oceanography scattered between UNESCO, FAO, IMO, WHO, IAEA, etc. and other organizations of the UN. All data directed to the U.N. concerning the sea should be exclusively integrated in the new IOC."

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2. Proposals submitted by the U.S.A. for the Expanded Programme of International Cooperation in the Marine Sciences in Response to IOC B & CC Recommendation 8.13. Transmitted with a covering letter of 8 January 1969 from the Office of the U.S. Permanent Representative to Unesco :

"1. The United States welcomes the IOC Bureau and Consultative Council's endorsement of the concept of an expanded, accelerated, long-term and sustained program of exploration of the oceans and their resources. The United States has previously set forth proposals relating to an expanded program of international cooperation in the marine sciences in documents such as:

a) Further Response to the Secretary General's Inquiry of July 6, 1967, on the Views of the United States concerning the General Questions of the Secretary General Pursuant to Resolution 2172 (XXI).

b) International Decade of Ocean Exploration, A Report by the National Council on Marine Resources and Engineering Development, Executive Office of the President, May 1968.

c) U.S. Comments and Suggestions to the IOC in Response to IOC B&CC Recommendation 8.5 in Connection with the Report and Proposals Prepared by the U.N. Secretary General under UNGA Resolution 2172 (E/4487) Relating to Broadening and Strengthening of IOC.

2. As is reflected in these documents, the United States believes there is a need for increased cooperative effort in a multitude of international research, education, and engineering activities in the marine sciences. The United States accordingly recommends that multilateral cooperative programs in ocean exploration be encouraged and expanded. This will require adequate development of an expanded program by the Intergovernmental Oceanographic Commission, in which the International Decade of Ocean Exploration (IDOE) proposed by the United States would be the key element. The IDOE will provide an umbrella for national and international activities and programs to: (a) increase knowledge of the location, distribution and characteristics of ocean resources; (b) increase understanding of fundamental ocean processes; (c) describe long term characteristics of the ocean environment; and (d) increase capabilities to achieve (a), (b), and (c). Ongoing IOC programs, such as those for the Caribbean, the North Atlantic, the Mediterranean and the Southern Ocean, will serve as building blocks for the expanded program and the IDOE.

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3. The responsibilities of IOC should include coordination of basic scientific research including that pertaining to marine resources. IOC should be broadly responsible for coordination and planning of international cooperative scientific research in the oceans, recognizing the specific scientific research responsibilities of various international organizations. Among the basic marine science topics that might be considered by IOC in collaboration with other marine science organizations are:

- (a) Shape, structure and composition of the sea floor and the coast, and their changes.
- (b) Chemical constituents of the ocean and their budget.
- (c) Scales of motion in the ocean, the dynamics of ocean current systems and surface boundary processes.
- (d) Ocean life and its dynamics.

4. Illustrative of the types of activities IOC might coordinate or collaborate on with other international organizations are:

- (a) Assessment of living resources useful to man in uncharted regions of the world ocean.
- (b) Assessment of current utilization of known fishery stocks.
- (c) Acquisition of knowledge relating living resources to their environment in order that greater efficiency in their capture and conservation can be achieved.
- (d) Determination of the geological structure and mineral and energy resource potential of the world's continental margins.
- (e) Preparation of topographic, geological, and geophysical maps of selected areas of the deep ocean floor.
- (f) Coring and drilling on the continental margins and deep ocean floor in selected areas.
- (g) Study of scales of motion in the sea and the dynamics of ocean current systems.
- (h) Investigations of surface boundary processes, such as the generation and propagation of ocean waves.
- (i) Investigations of evolutionary processes of ocean basins.

5. IOC activities should be carried out through global cooperative programs and regional programs underway such as CSK and CICAR, and the work of various subsidiary bodies which deal with specific scientific and technical problems -- such as data exchange, IGOSS, and marine pollution. Regional programs would be carried out in areas where no suitable regional organization exists; where one exists IOC would cooperate with it, especially on matters of wider scope than encompassed by such organization. IOC would increase its cooperation with all organizations having responsibilities in the oceanic field.

6. The broadened IOC would work with existing United Nations and other international agencies as appropriate, drawing on their experiences and resources, as well as in turn assisting them. The strengthened IOC program together with these cooperative activities should produce a net result greater than the sum of the parts for the benefit of both the Member Governments and the organizations concerned.

7. IOC, in cooperation with WMO and its World Weather Watch, should be responsible for planning and coordinating the development of the Integrated Global Ocean Station System (IGOSS) as part of the expanded program.

8. IOC should be responsible for planning and coordinating services such as those involved in an enlarged program of data exchange. To simplify data management procedures, IOC should arrange with ICSU to assume responsibility for establishing the guidelines for World Data Centers (Oceanography), with the understanding that close IOC/ICSU coordination and consultation will be maintained via SCOR and the ICSU Panel on World Data Centers (geophysical and solar). The IOC Working Group on Data Exchange should examine the problems associated with accelerating and broadening the exchange of marine science information -- including listings, indices, retrieval services -- at the international level and improving its availability and usefulness to all interested nations. The Working Group should explore the possible role that IOC, World Data Centers, and national centers to serve regional data needs, might play in this area. Toward these ends personnel with expertise in marine data management and information retrieval should be added to the staff of the IOC Secretariat as new positions are created.

9. The developing coastal nations of the world will require assistance if they are to manage and administer their marine resources. IOC should, accordingly, seek to assist its members toward this end. IOC responsibility for mutual assistance and education and training should be strengthened by according it responsibility for the programs now situated in the UNESCO Office of Oceanography and the UNDP-funded programs on oceanography currently being administrated by UNESCO Office of Oceanography. To assist the IOC in performing this strengthened role it is recommended that personnel be added to the IOC Secretariat to deal with these programs. An expansion of cooperative relationships between universities and other appropriate institutions in different countries should be encouraged. The IOC should investigate ways by which it might sponsor the sending of experts to developing countries to assist the marine sciences program of those countries.

10. The IOC should stimulate development of improved methods for the collection, analysis, and comparison of ocean data, including the adoption of standard or reference methods. The IOC might consider the feasibility of (a) arranging for various national facilities to develop such methodology and (b) publishing an IOC series of manuals on recommended standard methods.

11. Recognizing the need to develop worldwide marine scientific and technological capabilities, the IOC should consider the desirability of designating:

- (a) Regional centers for the processing and identification of the collections of marine organisms that result from the many international expeditions which are now underway as well as those expected to take place in the future.
- (b) Regional international marine research and technology centers to provide focal points for the development of capabilities. Such centers could provide facilities for the development of methodology, and of broad-spectrum marine technology for both shallow-water and deep-water environments.

12. In the expanded program of international cooperation in the marine sciences, priorities will have to be established, as it is more effective to conduct selected projects at an adequate funding level than to diffuse available international support through a larger number of projects that cannot be implemented in suitable depth and quality.

13. The U.S. Government is at present engaged in developing proposals for an expanded program and the International Decade of Ocean Exploration. Included at Appendix A are examples of the types of proposals being considered. The United States will subsequently forward more specific proposals relating to the expanded program and the IDOE at such time as they are developed.

14. The above proposals for an expanded IOC program can most effectively function and will produce maximum results if the program is operated within the appropriate programming framework of the International Decade of Ocean Exploration. The Decade concept can give needed momentum to the expanded program. The developmental scale and pace of internationally oriented ocean exploration programs will depend in large measure on the interest and participation in deliberate, coordinated programs and the mutual benefits they will yield. To realize their full potential these programs will require greater resource allocation from their participants together with closer coordination of these resources. As stated in paragraph 2 above, the United States believes that the International Decade of Ocean Exploration will serve as the key element in the expanded program of the Intergovernmental Oceanographic Commission.

APPENDIX A

Examples of Types of Proposals Being Considered by the U.S.A.GEOLOGY AND NON-LIVING RESOURCES

1. Objectives of the expanded program for non-living resources should be to provide the basic information and the framework of knowledge that will allow more effective development, conservation, and management; to select scientific programs designed to increase the basic understanding of the earth and the sea; to improve the means and the efficiency of acquiring and utilizing information from the investigations; and to provide basic engineering information necessary for more efficient operation on and within the ocean.
2. Marine mineral resources of chief interest are oil and gas, sulfur, sand and gravel, the heavy minerals -- gold, tin, platinum, the light heavy minerals -- ilmenite, rutile, zircon and monazite, and gems -- mainly diamonds. The continental shelves will be the chief sources of economic resources in the near future, although several decades from now oil and gas will be produced from the continental slopes and rises. Phosphorite will probably not be commercially attractive for several decades except for special situations.
3. The manganese nodules of the deep sea are of interest primarily for their content of nickel and copper, with subsidiary interest for cobalt, chromium, molybdenum and manganese. Deposits such as the Red Sea hot brines that at intermediate depths contain zinc, copper and lead, may have commercial significance.
4. Because of the regions of greatest potential for commercial recovery of geologic resources for the next several decades are the continental shelves, the search for mineral resources initially should be focused on the continental margins. Scientific investigations of the deep oceans for mineral resources are required to gain an understanding of what processes are acting to concentrate minerals on and within the sea floor.
5. It is recommended that underway surveys be made to provide a reconnaissance of the continental margins. These surveys should include: bathymetry, reflection/refraction seismography; magnetic and gravity recordings, and side scanning sonar where feasible. Physical sampling should include bottom surface sediment and overlying water for suspended solids and chemical composition. These initial surveys will establish areas where additional geologic information is needed. Such surveys will include grab samples, canyon dredging, visual observations, and coring. Geologic maps and sections can be provided from the combined observations and surveys.
6. Because of the international nature of the work, it is necessary that instruments be standardized, calibrated, and compared (para. 10, basic 1 tr). The manner of data presentation and map preparations should be coordinated so that uniform method, scales, and projections are used.

7. The immediate resource potential of the deep sea is far less than that of the continental margins. Investigation of abyssal sediments should continue, but the greatest eventual knowledge of resource potential will come from the basic science investigations proposed. These relate to the understanding of the origin and history of continents and ocean basins, the dynamic processes within the mantle and crust, and the movement of materials between continents and oceans.

8. Reorientation of thinking about global geologic structure began very recently following the introduction of the concept of the plate-like behavior of each major unit on the earth's surface. An integrated world-wide study of the sea floor is recommended in order to provide additional information concerning the nature of the forces involved and to further document the mechanics and movement directions implicit in this new concept.

9. Marginal and mediterranean seas form a class of structures that seem to be intermediate between continents and deep ocean basins. The depth to Moho is greater than in most ocean basins, but much less than on the continents in general, and thick accumulations of sediments are present in the few areas studied. Geophysical and geological investigations including assessment of mineral resources, elucidation of tectonic patterns, and study of sedimentation processes are recommended.

10. Quantitative data on materials introduced into the oceans by weathering have not been gathered systematically enough to calculate mass balance. Contaminating materials introduced by man are a major contributing factor. It is important to determine these rates of transfer in order to quantify the natural processes and to define potential efforts and alterations on the marine environment. Major rivers of the world should be sampled at appropriate time periods and be continuously monitored for flow rate and salinity. Atmospheric agents such as global wind systems, rain, and air should be monitored by improved methods. Suspended and bed loads of the rivers and suspended particles in the atmosphere should be analyzed for size and mineral content.

11. An active data bank of bathymetry and other physical properties of the sea floor should be assembled and employed. This "live atlas" should include such data as echo soundings, seismic reflection profiles, seismic refraction profiles, records of core and dredge samples, bottom photographs, magnetic and gravity profiles, time series records, and station data.

BIOLOGY AND LIVING RESOURCES

12. There is fair agreement that the potential yield of food from the sea could amount to 200-250 million metric tons per year, or about 4 to 5 times the present harvest. Future expanded programs should identify the nature and location of the principal latent resources, examine the degree to which known resources are under-utilized, and determine in each case the probable yield. Emphasis should be placed on studies of resources that are presently known and which can be profitably used in the next few decades. Expanded programs must go beyond exploratory stages of fishery assessment and encourage studies on the dynamics of fish populations, prediction of optimum yields, and management of the resources. There should be increased and related efforts in basic systematics and life history biology in the ecosystems being examined.

13. In considering how expanded programs might assist world fishery production, exploration and research will have to be carried out in many selected regions of the world ocean. Examples of the regions proposed follow:

- a) Atlantic Pan-American System: The region extending from the eastern tip of Brazil to Cape Hatteras and including the Caribbean Sea and the Gulf of Mexico consists of three inter-related ecological systems connected by circulation originating in the equatorial current system, passing through the Caribbean and Gulf of Mexico, with some flow outside the Antillean chain, and leaving the region as the Florida Current or Gulf Stream. These ecosystems support a growing production of many high value species, are providing a number of new fisheries to support this development, and contain large stocks of valuable under-utilized species and of un-utilized species of commercial potential. Studies of ecological processes, although advanced by world standards, are still sub-minimal in almost every area of investigation.
- b) Western Arabian Sea: This is a rich and little explored region, close to large populations where more protein is needed. At present, fishing is limited and primitive. As a result of expanded programs, it should be possible to attract private capital into the fishery, making it economically viable.
- c) Antarctic: The region contains large unexploited and relatively inaccessible resources. In recent years, much work has been done by Soviet, American and other scientists; this work should be reviewed and interpreted as a prelude to further investigations. Of particular interest are the large concentrations of the krill resource.
- d) Sun'a Shelf: This is a relatively unexploited area with potentially rich resources, adjacent to a large population that could utilize additional sources of animal protein and/or foreign exchange.

14. Special emphasis should be given to those marine biological problems whose solution would contribute to an understanding of the dynamics of ecosystems. A comprehensive understanding of ecosystem dynamics would be a major advance towards prediction and ultimate control of biological events. Such an understanding is required for the evolution of constructive measures of conservation and management of living resources.

15. Studies could be concentrated in a number of selected regions of the ocean, e.g.: (1) low latitude oceanic gyre (South Pacific), (2) high latitude oceanic gyre (Gulf of Alaska), (3) tropical enrichment (eastern and central tropical Pacific), (4) coastal upwelling (western Arabian Sea), (5) mid-latitude shelf and adjacent banks (Georges and Grand Banks), (6) very high latitudes (Antarctic waters), and (7) inland seas. It is recommended that primary attention in these regions be given to observational programs leading to ecosystem modeling.

PHYSICS AND ENVIRONMENTAL PREDICTION

16. During the expanded program major emphasis should be on studies of the upper few hundred meters of the surface layer of the ocean and its interaction with the lower atmosphere. Fluxes of heat, radiation, water vapor and momentum across the ocean-atmosphere surface are of principal importance in studying the dynamics of both environments. It is clearly to the advantage of both oceanography and meteorology that there be close coordination of such programs with those already planned through WHO (i.e., WWW, GARP, etc.). A recommended goal is to improve knowledge and understanding to the point where ocean forecasting for a variety of users can be conducted on a routine and effective basis.

17. The expanded program also should include the development of the scientific and engineering basis for the design of an adequate monitoring system and, as noted in paragraph 7, basic ltr., the Integrated Global Ocean Station System (IGOSS) is considered an integral part of the program.

18. The question of large-scale, year-to-year differences in the ocean is an important oceanographic and meteorological problem of considerable scientific and applied consequence. The effort initially will probably have to be limited to a single ocean basin because of the resources required. Within the finally selected ocean basin routine observations will have to be made from fixed and moving platforms and from satellites; accurate navigation control is also a requirement for such a study. Both routine and special observations should be produced in suitable format to be fed into a worldwide meteorological and oceanographic communications system.

19. In order to predict successfully, and perhaps modify eventually, oceanic phenomena, it is essential first to explore the mean and fluctuating components of dynamic processes in the ocean. Knowledge of the space and time scales of energy-containing processes is considered a necessary requirement before a large-scale program of observing or monitoring the upper layers of the ocean can be properly designed. Although moored buoys should form an essential part of such studies, they should be supplemented by observations from ships, drifting buoys and satellites. Velocity and transport measurements will have to be by direct methods, and early consideration must be given to appropriate means for processing and analysis of resulting data.

20. Within the upper kilometer of the ocean, major currents are responsible for most of the lateral transport of heat, salt, nutrients and other dissolved substances. It would be extremely useful to know how the transport of these named currents changes with seasons and over the years. Once the general characteristics of flow have been established, fixed current buoys may be required for the monitoring task. Important straits should be instrumented for electrical potential methods and an inter-comparison of the cable and free instrument methods planned.

21. Understanding of the mechanisms and rate of formation of deep waters, and their transport and exchange between basins and between oceans is an important element in the overall understanding of how the ocean works. A basic set of high quality observations of temperature, salinity, dissolved oxygen and

nutrients between surface and bottom is considered to be a first requirement. A grid of oceanographic stations with one station about every five degree square (about 1,000 stations) using standardized techniques and including winter observations would permit a quantitative evaluation of volume and distribution of all water masses. It also will provide a base line for future studies of secular change in the deep ocean.

22. It is considered desirable to obtain direct measurements of flow of deep water in channels connecting ocean basins. By such measurements it is considered to be possible to obtain estimates of the balance of water, salt, heat and dissolved substances.

23. Systematic measurements and analyses of deep sea tides in the world ocean are proposed leading to the construction of global cotidal charts and application to various geophysical problems, such as estimation of dissipation of tidal energy through friction, the transition problem connecting deep sea tides and those on the shelf, etc.. For the problem of tidal transition between the shelf and deep water in particular, it appears likely that during the next few years various nations will be making an intensive effort to investigate the transition problem off their respective shelves. In the deep ocean measurements are to be made by bottom pressure recorders capable of making hourly measurements for one month of tidal height to the nearest centimeter in depths up to 6 km.. Instruments capable of such measurements at each of some 300 stations in various parts of the ocean would be appropriate.

24. One of the most important applications of meteorological and physical oceanographic data, particularly for developing countries, is in the selection and design of harbor sites. Certain oceanographic factors must be known if the most advantageous sites are to be selected and if channels and structures are to be properly designed.

25. The importance of ocean surface wave data for a number of engineering purposes should be recognized. For planning construction and operations, data are needed in the form of continuous observations, measurements or hindcasts so that the statistical properties can be determined.

26. Where established laboratories and ships are available in a region they will provide the most appropriate base for investigations requiring continuity in time and frequent repetition of measurements. Where such local facilities are not available, serious consideration should be given to the use of resident ships suitably equipped and manned for the kinds of studies required - past examples, the Anton Bruun in the Indian Ocean and the Eltanin in the Antarctic. In two regions especially, the equatorial and central south Pacific, and the western Arabian Sea, the IOC may wish to encourage assignment of such ships to these areas.

27. Considering the type of ocean-wide coverage to be expected from the expanded program, ships of opportunity, similar to those now used by meteorologists can plan an increasingly important role for certain types of oceanographic measurements."

Distribution: limited

IOC/B-48
14 October 1968

Original: English

UNITED NATIONS EDUCATIONAL
SCIENTIFIC AND CULTURAL ORGANIZATION

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION

9th Meeting of the IOC Bureau and Consultative Council
(Woods Hole, U.S.A., 3 - 7 February 1969)

Report on the consultations between the IOC Bureau and
representatives of UNESCO, FAO, WMO, SCOR and ACMRR on
future development of the IOC in connection with the
expanded programme of international cooperation.
(UNESCO, Paris, 10 - 12 October 1968)

In accordance with Bureau Recommendation 8.4, the small group of consultants met on 10 October under the chairmanship of Rear-Admiral Langeraar, Chairman of the Commission. A list of participants is given in Annex I. Professor Wooster and Dr. Giermann were appointed as rapporteurs.

The Chairman opened by describing the tasks of the meeting, namely (1) to consider the future workload of the Commission, its subsidiary bodies and its secretariat, (2) to formulate the needs and requirements to meet this workload, and (3) to propose details of the administrative, organizational and legal structure of the Commission and its ties with prospective sponsoring organizations.

An agenda reflecting these tasks was adopted (Annex II).

The Secretary of the Commission then reported his views on the present and future requirements of the IOC for funds and other assistance. At the present time a staff of 5 professionals and 5 clerks handle both IOC and Unesco programmes. A sixth professional, to deal with IGOSS, will arrive in November and a seventh is foreseen in early 1969. The Secretary considered that the staff would still be inadequate, even for the present level of activity, and that it was desirable to have different persons handle

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IOC and Unesco matters. In the future it would be better to organize staff on the basis of programme function rather than by scientific disciplines. By 1972, it was estimated that a total staff of 15 professionals would be required of which 10 would be devoted exclusively to IOC matters and 3 exclusively to Unesco matters. The Secretary considered that some of the additional staff would come from other agencies, such as FAO and WMO, and possibly UN, and that some would be seconded by member states. The financial implications of such a growth were pointed out.

A preliminary discussion of the expanded programme took place and it was agreed that the IOC, provided its base was suitably broadened, would have a most important function in the formulation and coordination of this expanded programme. That function would not detract in any way from the respective present responsibilities of the individual governments and of the organizations of the UN System relating to the ocean and its resources, who would use the Commission as an instrument for discharging certain of these responsibilities in the field of marine science.

Although details of the expanded programme will not be known for some time, the general outline became clear enough to be used in considering its impact on the Commission, its structure, its secretariat and its relation to the sponsoring agencies. The programme would include scientific research and related service activities concerning not only the ocean itself, but also its boundaries and resources. The expansion would occur both in the sphere of concerted action and in other IOC activities, as well as in the coordination of international efforts. It was agreed that the expanded programme would thus be directed toward increased knowledge of the ocean, its contents and its boundaries, and improved knowledge of natural processes operating in the marine environment, with the ultimate goal of enhanced utilization of the ocean and its resources for the benefit of mankind.

Elaboration, and thus definition, as well as subsequent review of this programme will require a number of steps. As the first step, appropriate scientific advisory bodies of the IOC, Unesco, FAO and WMO would develop jointly a scientific framework for the programme. This would then be available for consideration by governments and at secretariat level by the agencies to enable them to participate closely in formulation of the programme, particularly with regard to the projects they themselves would implement and with regard to their participation in the projects of the broadened IOC.

As the next step, a suitably broadened IOC should be entrusted with overall review and finalization of the expanded programme, consisting of projects which may be implemented by governments, international organizations and organizations of the UN System, including Unesco, FAO and WMO, as well as by the IOC itself.

The IOC would thus become the focal point for the coordination of the planning, formulation and implementa-
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tion of the expanded programme among participating organizations and participating countries. A broadening of sponsorship of IOC both at governmental and secretariat level is essential if the governments and organizations concerned are to accept adequately the consequences of the Commission's coordination activities.

It was noted that some steps towards the formulation of an expanded programme were already scheduled. The scientific advisory bodies of the IOC, Unesco, FAO and WMO (namely SCOR, ACMRR and the appropriate body of WMO) are organizing a joint working party "to develop the scientific content of a comprehensive programme of international cooperation in exploration and research in the ocean and its resources", scheduled to meet during the Spring of 1969. It was agreed that the report of this working party should be considered by Unesco, FAO and WMO as well as by IOC and that it should therefore be brought to the attention of the Executive Heads of these agencies. Member governments of IOC have also been asked to submit proposals for inclusion in the expanded programme before the end of 1968, which proposals are then to be considered by a working group to be established by the IOC Bureau at its 9th meeting in February 1969. The matter is on the agenda of the FAO Council now in session, who may well invite the FAO Committee on Fisheries to give consideration to FAO participation in the expanded programme at its 4th session in April 1969. If broadening of the IOC's base could be sufficiently advanced, the expanded programme in preliminary form could be considered perhaps already at the Sixth Session of the IOC.

During the next several years the impact of the expanded programme on the Commission and on its subsidiary bodies will be relatively light since this period will be required for formulation of the programme. However, one element of an expanded programme, namely the Integrated Global Ocean Station System (IGOSS), is now in the planning stages and has already increased the workload of the Commission and its Secretariat significantly.

With regard to the workload of the Secretariat, during the formulation stages only a modest increase is anticipated. It must be recalled, however, that the present IOC programme projected at a normal growth rate has been estimated to require by 1972 the support of 10 - 12 professional staff rather than the 3 - 4 now available. Beyond this necessary increase for the present programme would be a requirement for 2 - 3 more staff as a result of expanded programme formulation activities.

The extra workload on the Secretariat resulting from implementation of the expanded programme is difficult to estimate since it is so dependent on the nature of the

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programmes. Thus it will be necessary to keep the question of secretariat workload under continuing review.

In a broadened IOC a joint secretariat containing staff provided by the sponsoring agencies, and possibly by several countries, would perform functions of common interest to the sponsoring bodies and the Commission. The agencies would continue to have their own responsibilities in the field of marine science and their own staff to deal with these responsibilities. Although members of the secretariat would be responsible to the IOC and would work under the supervision of the IOC Secretary, they would have a relation with their own agency whereby the experiences and resources of that agency could be made known and more readily available for the Commission's work. There may be occasions where the IOC work can be more effectively carried out if a responsible staff member of the IOC Secretariat is stationed for a short or long period in an agency possessing the appropriate expertise.

Salaries for increases in staff, to the level of 12 - 15 persons concerned with IOC matters, would be financed by the participating agencies or by such governments as decided to furnish personnel. Operating expenses would increase and it is desirable that agencies and governments keep this in mind. In addition to increases in agency allocations for IOC activities, there exists the possibility of establishing a trust fund administered by Unesco, where voluntary contributions from Member States or organizations could be placed. Such a fund could be used to augment the operating funds of the IOC to meet specific requirements. The magnitude of funds required depends on the nature and magnitude of the programmes that will be formulated and coordinated.

The Commission's contribution to formulating and coordinating the expanded programme will depend on broadening its base and thus making it more closely linked with participating agencies and recognized by their governing bodies. Most consultants felt that this could be most effectively achieved by a jointly sponsored Commission, along the pattern, for example, of the Intergovernmental Committee for the World Food Programme. As an interim step, however, it seems appropriate to keep the constitutional and administrative base in Unesco, and to establish a mechanism for closer links with FAO, WMO and any other organization of the UN System willing to participate.

Such a mechanism was proposed by the Director-General of Unesco and could take the form of an Interagency Board for

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the IOC, consisting of senior representatives of the Executive Heads of Unesco, FAO and WMO, meeting together with the Chairman of the Commission. Other members of the UN System could adhere to this Board when they were prepared to contribute to the Commission's Secretariat, to carry out their own programmes to sustain the work of the Commission and to use the Commission for advice and review in the area of marine science affairs.

The purpose of the Board would be to harmonize the programmes of the agencies and of the Commission. Among its functions would be selection of staff for the Commission's Secretariat and allocation of funds related to the Commission's programme, as well as exchange of views on the most effective ways to facilitate the Commission's work and the related activities of the agencies.

It was pointed out that sponsoring agencies have the right to introduce items into the agenda of IOC Sessions and it was suggested that they may wish to assist in the dissemination of invitations to IOC Sessions in order to broaden suitably the degree and character of national participation.

In considering the organization of the Commission's work, the value of regionalization was recognized. Where a regional body exists that is competent and willing to carry out programmes of interest to IOC this can be used to enhance efficiency. Similarly, the competence of an existing body may be broadened to permit it to carry out the work. Where a suitable body does not exist, it might, after consultation among interested organizations, be created. At the same time it was noted that there are practical difficulties in developing adequate regional bodies in some parts of the world. The consultants recommended that the regional development of IOC activities be given careful study by the IOC Bureau and Consultative Council. It further expressed the hope that, through the activities of a broadened IOC, a rationalization of regional marine science activities could be achieved.

Consideration was given to the desirability of enlarging the IOC Bureau from its present three members to a total of five. This appears necessary because of the proposed role of the Chairman and Bureau of IOC vis-a-vis the Secretariat and because the broadened interests of the Commission would require a broader competence in the Bureau. Although the Vice-Chairmen might chair session committees, as proposed by one member state, it was agreed that such assignment would be premature before more experience with such committees has been gained.

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The Director-General of Unesco had proposed that the Secretariat of the broadened IOC be separate from Unesco's future Division of Oceanography, and that the appointment of the IOC Secretary would be at a high level. These proposals were welcomed. It was agreed that the members of the Commission's Secretariat, however funded, should work under the supervision of the IOC Secretary who, in turn, would be placed under the authority of the Chairman, assisted by the Bureau. Administratively, members of the Commission's Secretariat would, however, during the interim period referred to above, be under the Director-General of Unesco, who would act on behalf of the Interagency Board for the IOC in exercising this authority.

The Director-General of Unesco, on behalf of the Interagency Board for the IOC, would appoint the Secretary after nominations by the IOC Chairman of at least three candidates for the post. The Chairman, in preparing this list of nominees, would consult with the Executive Heads of the sponsoring agencies.

It was agreed that the future Secretariat of the Commission should be appropriately structured, the details of this structure to be worked out by the Secretary as the responsible administrative officer.

Funds for the Commission's work would fall into several categories. Programmes of support of the participating agencies would be developed under their usual budgetary processes, although coordinated through the Interagency Board for the IOC. Estimates of the Commission's requirements for operating funds to be provided by the sponsoring agencies would be developed by the Commission in consultation with the Board which would recommend financing to the agencies and would supervise utilization of the funds so provided. When a trust fund is established it would be administered in accord with the conditions stated by the contributors.

Because of the broadening of IOC it will be necessary to broaden the field from which scientific advice is drawn beyond that covered at present by SCOR and ACMRR. It was agreed that WMO should be invited to consider providing independent scientific advice on the meteorological aspects of IOC programmes. It was also noted that there are other areas, such as ocean engineering, where it may become necessary to establish appropriate advisory channels.

In order to broaden IOC along the lines discussed in this report, revision of the IOC Statutes will be required. The following portions of the Statutes would be affected:

- Art. 1 - restatement of sponsorship and redefinition of the purpose of a broadened IOC.
- Art. 2 - adjustments to procedures for adhering to the Commission.
- Art. 4 - more comprehensive statement of specific functions.
- Art. 5 - broader statement of types of subsidiary bodies.
- Art. 6 - increased membership of Bureau.
- Art. 7 - distinction between sponsoring organizations and other agencies of the UN System, and distinction between the Commission's sessions and meetings of subsidiary bodies.
- Art. 8 - reflecting different procedures for formation of Secretariat and appointment of Secretary and staff, and the authority under which they work.
- Art. 9 - reflecting new ways of financing activities.
- Art.10 - broadening of reporting responsibilities.
- New article - establishing Interagency Board for the IOC and defining its functions.
- New article - procedures for amending the Statutes on the initiative of the broadened IOC.

A procedure for preparing new Draft Statutes was proposed, wherein a small group appointed by the Executive Heads and the IOC Secretary would complete a draft by 1 April. This draft would be distributed to Members of IOC and to the interested agencies in preparation for discussion at the Sixth IOC Session.

In view of the interest in marine science affairs of the General Assembly at its present session it was agreed to suggest to the Executive Heads of Unesco, FAO and WMO, and the IOC Chairman, that they inform the Secretary-General of the United Nations concerning the main conclusions and recommendations of the present meeting.

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AVS/9/89
10 October 1968

UNITED NATIONS EDUCATIONAL
SCIENTIFIC AND CULTURAL ORGANIZATION
INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION

Consultations between the Bureau of the IOC and representatives
of UNESCO, FAO, WMO, SCOR and ACMRR
(Unesco, Paris, 10 - 12 October 1968)

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AVS/9/89
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Consultations between the Bureau of the IOC and representatives
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(Unesco, Paris, 10 - 12 October 1968)

PROVISIONAL AGENDA

(prepared jointly by the Chairman and the Secretariat of the IOC)

1. Opening by the Chairman of the IOC.
2. Adoption of the Agenda.
3. Introductory statement by the IOC Secretary concerning the present and future requirements of the IOC for funds and secretarial assistance.
4. Discussion on the meaning of the "broadening" of the IOC's base, taking into account the proposals for:
 - i. Expanded programme, including the International Decade of Ocean Exploration (IDOE);
 - ii. Integrated Global Ocean Station System (IGOSS);
 - iii. Any other programmes as may be entrusted to the IOC.
5. The role of the organizations of the UN System with regard to the "broadening" of the IOC's base.
6. Discussion of the present and of the additional workload associated with (4), and of the ways and means available to meet this workload.

7. Desirable administrative arrangements and changes in the IOC Statutes as may be contingent on recommendations resulting from (4), (5) and (6).
8. Report to the 9th Meeting of the IOC Bureau with the Consultative Council.

Distribution: Head of Delegations,
Bureau Members, and representatives
of international organizations only.

Annex IV
10 October 1968

English only

UNITED NATIONS EDUCATIONAL
SCIENTIFIC AND CULTURAL ORGANIZATION

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION

9th Meeting of the IOC Bureau and Consultative Council
(Woods Hole, U.S.A., 3 - 7 February 1969)

SECRETARIAT PAPER

Present and future workload of the IOC Secretariat and corresponding
requirements in staff and funds

1. At the present time the professional staff of the Office of Oceanography spends daily 20 hours on the IOC work proper. The repartition of this time is as follows:

- i. Director (Secretary, IOC) 8 hrs.
- ii. Assistant Secretary 4 hrs.
- iii. 2-nd P-5 specialist 6 hrs.
- iv. Marine biologist 1 hr.
- v. Administrative assistant 1 hr.

Total 20 hrs.

In addition to this the same staff spends daily no less than 30 hours on UNESCO programme proper.

2. To ensure a normal production rate and fruitful consideration of problems in their charge, the present workload as regards IOC should be reduced by half per unit staff. Consequently, for the same total workload resulting from the present IOC programme, the Secretariat of the Commission should consist of at least 5 professional staff members working full day (8 hours) exclusively on IOC problems.

3. The present work of the clerical staff on IOC matters amounts also to 2½ working woman/days daily involving also a considerable overload, because the production rate of the professional staff is abnormally high.
4. If the professional staff of 5 were to work at the half present production rate, as suggested in para (2), the corresponding clerical staff should also be consisting of 5 persons, whose workload per person under such conditions would be close to normal.

Conclusion 1. In order to cope with the present IOC programme meaningfully, the staff of the IOC Secretariat already now should consist of 5 professional and 5 clerical members dealing exclusively with IOC work.

5. While it may not be possible to achieve the above goal during 1969-1970 Budgetary Period, the necessity to free the IOC Secretariat from any UNESCO work should be kept in mind as regards any proposals for a more distant future.
6. Without making any prediction as to the contents of the Expanded Programme, allowing simply for the natural expansion of the present IOC activities the following composition and structure of the IOC Secretariat may be proposed as a goal to be achieved in 1971 or 1972:
 1. Secretary General
 2. Deputy Secretary General (in 1972)
 3. Assistant Secretary General for Cooperative Research Programmes
 4. Programme coordinator
 5. Programme coordinator (in 1972)
 6. Assistant Secretary General for IGOSS
 7. Network coordination officer
 8. Telecommunication officer
 9. Instrumentation specialist
 10. Data Exchange Officer
 11. Fishery Coordinator
 12. Interagency Relations Officer (in 1972)
 13. Chief Editor
 14. Assistant Editor (in 1972)
 15. Documentalist

Clerical staff of no less than 14 persons should be added.

The total cost of such staff would amount to \$400,000 per year.

Conclusion 2. Taking into account that by the end of 1968 the professional staff of the Office of Oceanography will reach 6 persons and that it will be increased by UNESCO to only 7 in 1969-70, and also assuming that 3 to 4 professional staff members will always be needed to run the UNESCO programme in oceanography on the full-time basis, it is necessary to find funds for adding 8 professionals and 8 persons of clerical staff during the year 1971 and beginning of 1972. While one may expect to find 3 professionals through outposting by FAO, WMO and UN, another 5 can only be provided either by secondments from IOC members, or through fund in trust. Clerical staff cost can be met from funds given by the sponsoring agencies or from the fund in trust.

7. The above provision would provide for the following make up of the Secretariat by the end of 1972:

From UNESCO	:	4 - 5	professionals
From FAO	:	2	professionals
From WMO	:	1	professional
From UN or IMCO	:	1	professional
Seconded or hired through fund in trust:		3 - 4	professionals

SCIENTIFIC ADVICE AND PLANNING OF AIR-SEA INTERACTION STUDIES

(Submitted by WMO)

1. Certain GARP sub-programmes are expected to include air-sea interaction studies and, consequently, the IAMAP/IAPSO/SCOR Joint Committee on Ocean-Atmosphere Interaction was requested to advise the JOC on scientific requirements of such studies. In the spirit of UN Resolution 2172 (XXI) calling for close co-operation between international organizations involved in ocean research, it was considered that the planning of the implementation of air-sea interaction projects, whether GARP or non-GARP, should be closely co-ordinated between ICSU, WMO and IOC. With this in mind, the WMO Executive Committee proposed, at its twentieth session (Geneva, 1968), the establishment of a joint WMO/IOC/ICSU Panel on Ocean-Atmosphere Interaction Studies within the framework of the WMO/ICSU Joint Organizing Committee for GARP. The relevant paragraph of this Executive Committee Resolution is attached as Appendix A.
2. The relationship of the proposed panel with the IAMAP/IAPSO/SCOR Joint Committee on the one hand and the JOC on the other has been clarified in an organizational diagram and in draft terms of reference for the proposed panel. These were submitted to ICSU as an illustration of the thought behind the proposed arrangement for which the concurrence of ICSU was sought. The diagram and draft terms of reference are attached as Appendices B and C.
3. The proposed panel was thought to provide a suitable mechanism which would enable IOC, as required, to assist the JOC in the planning of the implementation of relevant GARP sub-programmes. It would also ensure co-ordination between WMO and IOC on those air-sea interaction projects which would ultimately not be considered suitable by the JOC for insertion in GARP sub-programmes. The number of members of the panel should be limited to say 6 persons and some of them should be drawn from the IAMAP/IAPSO/SCOR Committee to ensure co-ordination of work.
4. The WMO proposal was briefly considered by the session of the ICSU Panel for GARP in September 1968 and subsequently by the ICSU officers. It was not felt necessary by ICSU to have another WMO/IOC/ICSU Panel but there are indications that this conclusion was, to some extent at least, the result of a misunderstanding. The General Assembly of ICSU (September 1968) did not discuss the subject.

EXTRACT FROM RESOLUTION 17 (EC-XX)

"THE EXECUTIVE COMMITTEE,

DIRECTS the Secretary-General to invite UNESCO:

(2) To give consideration, subject to the concurrence of ICSU, to IOC joining with WMO and ICSU in a Panel on Ocean-Atmosphere Interaction Studies within the framework of the WMO/ICSU Joint Organizing Committee for the Global Atmospheric Research Programme (GARP), instead of establishing the proposed new arrangements for a Joint WMO/IOC Working Group on Ocean-Atmosphere Interaction as proposed by IOC Resolution V-20-C;"

Explanation of Diagram

1. The proposed WMO/IOC/ICSU Panel should, in principle, play a role in all air-sea interaction programmes whether GARP or non-GARP and whether of main interest to the meteorologist or to the oceanographer.
2. The proposed Panel reports to the JOC with regard to the planning of GARP sub-programmes which include air-sea interaction studies; it reports to WMO, IOC and the JOC with regard to the planning of non-GARP air-sea interaction projects.

Proposed terms of reference of the WMO/ICSU/IOC Panel
on Ocean-Atmosphere Interaction Studies

1. To examine proposals by the IAMAP/IAPSO/SCOR Joint Committee on Ocean-Atmosphere Interaction for scientific investigations on air-sea interaction in order to advise on their applicability to international governmental programmes on joint action.
2. In respect of the agreed GARP air/sea interaction studies, to assist the JOC:
 - (a) In the planning of observational programmes required, taking into account existing facilities in the WWV and IGOSS System;
 - (b) In the implementation aspects of these observational programmes.
3. In respect of air/sea interaction studies which are not considered suitable by JOC for insertion in GARP programmes, to make recommendations to WMO and IOC jointly concerning:
 - (a) The respective priorities to be allocated to these studies and the arrangements required for their execution;
 - (b) Where applicable, the co-ordination which may be required with GARP sub-programmes for the execution of these studies.
4. To evaluate the results of air/sea interaction studies with a view to ascertaining their applicability in the operation of the WWV and IGOSS.

JAN 10 1969
 NATIONAL ACADEMY OF SCIENCES
 NATIONAL RESEARCH COUNCIL
 COMMITTEE ON OCEANOGRAPHY
 2101 CONSTITUTION AVENUE, WASHINGTON, D. C. 20418

8 January 1969

Dr. Warren S. Wooster
 President, SCOR
 Scripps Inst. of Oceanography
 La Jolla, California 92037

Dear Dr. Wooster:

The U.S. National Committee to SCOR has examined in detail the proposed role of the Intergovernmental Oceanographic Commission in facilitating clearances for research vessels. At this time we wish to offer the following statement for consideration by SCOR.

The U.S. National Committee to SCOR recommends that the most useful role for the Intergovernmental Oceanographic Commission in facilitating clearances for research vessels undertaking fundamental scientific research would be passive in nature. In the exercise of this limited function, the IOC upon receipt of requests from member states for research clearances, would immediately transmit them to the concerned coastal state, certifying (when such is found to be the case) that statements are included in compliance with the following:

- 1) Data from such research programs will, upon request be made available as soon as practicable to the coastal state; any data or samples not feasible to duplicate will, upon request, be made accessible to the coastal state;
- 2) The results of such research programs will be published in a timely fashion in an open scientific publication; and
- 3) The coastal state shall have an opportunity to exercise its right to participate in such research programs by at least one representative, and the proposed arrangements for this participation should be included in the notice.

In addition, it is our belief that other means for facilitating ocean research will be required and should be explored and undertaken as necessary. These may include diplomatic discussions and occasionally the conclusion of bilateral or multilateral agreements.

Sincerely yours,

 John C. Calhoun, Jr.
 Chairman, U.S. National
 Committee to SCOR

cc: NASCO & IMSAP

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Distribution : limited

AVS/9/89U (10)
Paris, 19th December, 1968
English only

UNITED NATIONS EDUCATIONAL,
SCIENTIFIC AND CULTURAL ORGANIZATION

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION

IOC Working Group on Training and Education
(First meeting - Unesco, Paris, 2-4 December, 1968)

RECOMMENDATIONS

The Working Group,

Having reviewed and recognized the rapid increase in research activity in the oceans, exemplified by such proposals as that for the International Decade of Ocean Exploration, expresses its concern that these plans and activities must be adequately backed up by appropriate training programmes. It wishes to emphasize the critical importance of training both for basic oceanic research and towards practical uses of the ocean.

The Working Group took note of the proposals made by the Secretary General of the United Nations concerning training and education in marine science and technology in the report under Resolution 2172 (XXI) (Doc. E/4487). It felt strongly that in light of these proposals the Intergovernmental Oceanographic Commission should assume greater responsibility for promoting training and education in marine science than is presently envisaged in the IOC Statutes. This feeling of the group is reflected in the recommendations formulated below. The group suggests that these enlarged responsibilities of the IOC should eventually find their proper reflection in the IOC Statutes.

1. The Working Group endorsed the recommendations of the ECOSOC Resolution 1382 and reviewed the need for stronger emphasis on elements of marine science in teaching of biology, geography and other relevant fields. Unesco should assist schools by provision of teaching materials and by finding means for further training of teachers in these fields. In these activities the responsible educational units in Unesco should obtain the expert advice of the Office of Oceanography as well as the appropriate National Committees wherever warranted;
2. Marine science should not be considered as a science or technology to be studied only "on-the-job", i.e. following graduate training. Rather, especially in those countries where marine science research is carried out, oceanography must be recognized as an independent component of the contemporary natural science university curriculum to be introduced following the first 2 or 3 years of instructions in natural sciences and related disciplines. The teaching should include at least the following basic disciplines:

- Marine Physics
- Marine Chemistry
- Marine Biology

According to particular national needs, fisheries biology, marine geology, ocean engineering, and maritime meteorology should also be taught.

Moreover, wherever required, marine research should be accompanied by appropriate post-graduate training programmes and facilities in close connection with universities and other institutions of higher learning;

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3. IOC, through its programme of mutual assistance, and through close cooperation with other organizations of the United Nations family, should assist member states and facilitate their individual activities in the establishment of training programmes and units, in the provision of foreign teaching personnel, in the further training of local teaching personnel, in the provision of teaching materials (particularly textbooks), and in the granting of fellowships for the exchange of students and teachers within regions;
4. Within the limits of its statutory authority, IOC should assist universities, at their request, in obtaining basic curricula and attendant guidance. For this purpose the IOC Secretariat staff should be encouraged to draw upon facilities of member nations and consultative services, such as SCOR; (the member nations, in turn may wish to designate a responsible individual contact person for training matters);
5. Graduate students must be given adequate opportunity for sea-shore and sea-going work. National oceanographic committees should ensure that appropriate facilities are made available taking advantage of the possibilities of regional cooperation.
6. The Working Group recognized the outstanding success of the Unesco fellowship programme in marine science, particularly under its Regular Programme. It also recognized that, for the purposes of the long-term expanded programme of oceanic research as proposed by the Secretary-General of the United Nations (Doc. E/4487), this and other similar fellowship programme are still subject to the following limitations:
 - a. Their overall scale remains at a level insufficient to meet even present demands, and would therefore be quite inadequate to satisfy the demands resulting from forthcoming expansion of marine science research programmes.
 - b. While fellowships of six to nine months' duration are suitable for various kinds of specialized training and small research projects (if well prepared in advance), they are too short for following complete courses in basic disciplines of marine science.
 - c. Extensions of fellowships, though relatively simple operations under Regular Programmes of the UN agencies, may involve complicated procedures under the United Nations Development Programme, (Technical Assistance sectors).
 - d. Time factors involved and selection practices are such that awards under the Regular Fellowship Programme (Unesco) cannot be used as an instrument to achieve balanced training of personnel in different professions, which will be needed in relation to the expanded programme of international cooperation with which IOC is concerned.
 - e. Although ship-board fellowships have recently gained considerable importance in the programmes of both Unesco and FAO, greater speed, flexibility, and efficiency are needed in handling both the offers and applications for such fellowships. Similar considerations apply to studies of seasonal phenomena.

Realizing that these and other limitations, as well as a number of others mentioned in the discussion, are inherent in the necessarily general approach of a large international agency, the Working Group recommends that:

- a) every effort be made to make appropriate improvements in the international fellowships programme,
 - b) new additional arrangements be made directly through the Intergovernmental Oceanographic Commission (see Recommendation 7 below) where they can be developed to the satisfaction of the Commission's members.
7. After reviewing the increasing need for competent scientists in the various fields of basic and applied marine science, particularly in physical and chemical oceanography, the Working Group recommended that the IOC establish a new programme of Intergovernmental Oceanographic Commission Research and Training Fellowships. This programme should be closely oriented to IOC cooperative investigations, and comprise both fellowships tenable abroad and ship-board fellowships. These fellowships should be awarded by the IOC Bureau and Consultative Council or by another appropriate body as the Commission may designate and administered through the IOC Secretariat, making full use of Unesco machinery. Local announcements, applications, and placement of candidates, should be carried out through national oceanographic committees. This programme should be financed by national contributions in kind, e.g. provision of facilities, subsistence and tuition fees, or in cash (through trust funds) with travel funds also supplied if necessary by Unesco or other Agencies. This programme should be guided by as flexible rules as possible in order to ensure maximum effect of these fellowships for all parties involved. In particular, such fellowships may be awarded with a view to establishing viable research groups in developing countries.
8. The Working Group acknowledging the useful information on training facilities given in "International Marine Science", affirms the critical importance of effective communications between the IOC Secretariat and the member nations, and realizes that many more training opportunities are available in individual member nations than are communicated to the Secretariat or could be publicised through the conventional IOC communications media. The Group suggests that each member nation (possibly through an appropriate national committee) may wish to designate a national contact for matters relating to training in marine science ; the Secretariat could, in turn, publish the names of these contacts in its correspondence manual or other appropriate organ. Concerning the specific problem of announcement of training opportunities, the Working Group feels that issuing a catalogue of such opportunities would be cumbersome and inefficient, and recommends instead that World Data Centres A and B explore the possibilities of incorporating such information within their inventories, filed for instant retrieval, according to:
- a. subject of training course (including shipboard training opportunities)
 - b. date and place
 - c. qualifications for admission
 - d. number of candidates to be admitted
 - e. financial considerations
 - f. name and address of principal contact.

9. The Working Group recommended that a post for a Training and Education Officer be established, as a matter of urgency, in the Office of Oceanography to deal with the Training Programmes under Unesco and related IOC activities, including their coordination with the jointly planned training programmes of other agencies as envisaged in the above paragraphs. In noting that the ACMRR had made a similar recommendation respecting the FAO Department of Fisheries, the Working Group expressed the conviction that such appointments would enhance the support in this field to be given by the specialized agencies to the work of the IOC. The Working Group emphasized that if IOC will in future conduct a training programme as proposed above, it would be necessary for its Secretariat to be adequately staffed for its implementation.
10. Because of the limited time available to cover a very broad scope of subject matter, the Working Group deferred discussion of several extremely important items. These included, but would not be limited to the following:
 - a. preparation by Unesco and FAO of lists of modern textbooks and manuals,
 - b. training programmes for technicians to assist and support marine scientists and engineers,
 - c. scientific training programmes in subjects of interest to a broader spectrum of marine industry.

Accordingly, the Working Group recommends that it be reconvened for a second session, possibly some time late in 1969, to consider the above questions as well as to give further detailed consideration to some of the present proposals.

ACC	Administrative Coordination Committee
ACMRR	Advisory Committee on Marine Resources Research (FAO)
B&CC	Bureau and Consultative Council
CICAR	Cooperative Investigations of the Caribbean and Adjacent Regions
CIVO	IOC Working Group on Cooperative Investigations of Variability in the Oceans
COFI	Committee on Fisheries (FAO)
CSK	Cooperative Study of the Kuroshio
ECOSOC	Economic and Social Council
FAO	Food and Agriculture Organization
FWPCA	Federal Water Pollution Control Administration
GARP	Global Atmospheric Research Program
GFCM	General Fisheries Council for the Mediterranean
IABO	International Association of Biological Oceanography
IAEA	International Atomic Energy Agency
IAMAP	International Association of Meteorology and Atmospheric Physics
IAPSO	International Association of Physical Oceanography
ICAO	International Civil Aviation Organization
ICES	International Council for the Exploration of the Sea
ICITA	International Cooperative Investigations of the Tropical Atlantic
ICNAF	International Commission for Northwest Atlantic Fisheries
ICSEM	International Commission for the Scientific Exploration of the Mediterranean Sea
ICSU	International Council of Scientific Unions
IDOE	International Decade of Ocean Exploration
IGOSS	Integrated Global Ocean Station System
IHB	International Hydrographic Bureau
IIOE	International Indian Ocean Expedition
IMCO	Intergovernmental Maritime Consultative Organization
IOC	Intergovernmental Oceanographic Commission
IPFC	Indo-Pacific Fisheries Council
ITIC	International Tsunami Information Center
ITU	International Telecommunications Union
IUGG	International Union of Geodesy and Geophysics
IWC	International Whaling Commission
SCAR	Scientific Committee on Antarctic Research
SCOR	Scientific Committee on Oceanic Research
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
WARC	World Administrative Radio Conference
WDC	World Data Center
WHO	World Health Organization
WMO	World Meteorological Organization