

Intergovernmental Oceanographic Commission
Reports of Governing and Major Subsidiary Bodies

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1. OPENING

1. The Chairman, Mr. Geoffrey Holland, opened the Thirty-first session of the IOC Executive Council at 10:00 on 17 November 1998.
2. **The Executive Council received and noted with appreciation the welcoming statements by the Chairman and by the Executive Secretary on behalf of the Director-General of UNESCO. These statements are reproduced in Annex III, Parts A and B.**
3. The Chairman stressed the importance of the International Year of the Ocean during 1998, not only for the promotion and events taking place throughout the year, but for the actions and activities that have been initiated, both nationally and internationally, that will affect the IOC into the next millennium. The Chairman called the attention of the meeting to the special celebrations planned later in the session for the International Year of the Ocean Activities. In particular, he noted the Youth Forum and the importance of listening to the voice of the future.
4. The Chairman welcomed the new Executive Secretary, Dr. Patricio Bernal, on behalf of all Member States. He reminded the participants that the past Executive Secretary, Dr. Gunnar Kullenberg, would be giving the Revelle lecture in the evening and afterwards there will be an opportunity to bid him farewell. The abstract of the lecture can be found in Annex III.

2. ADMINISTRATIVE ARRANGEMENTS

2.1 ADOPTION OF THE AGENDA

5. The Delegation of Argentina questioned the absence of OSNLR in the agenda. He also raised other items that reflected on the breadth of the subjects covered by the Agenda. In this he was supported by Portugal. The Delegate from Greece commented on the need to focus on the efficiency of the meeting process. The Chairman reiterated his intention to restrict the meeting Agenda as far as possible to items requiring decisions. However he agreed that it was also necessary to consider these decisions in the context of the full programme of the IOC. The Executive Council adopted the Agenda as given in Annex I.

2.2 DESIGNATION OF THE RAPPORTEUR

6. The Council accepted the proposal from Italy, seconded by Portugal and China to designate a Rapporteur from Canada. The Canadian Delegate requested the meeting to allow the Rapporteur's duties to be shared between Ms Gisele Trubey and Ms Caroline Bookless. This was approved by the Executive Council.

2.3 CONDUCT OF THE SESSION, TIMETABLE AND DOCUMENTATION

7. The meeting noted the provisional timetable IOC/XXXI/Add.prov/rev.2 and adopted it with minor amendments. A Technical Review Committee for the Resolutions was approved under the chairmanship of Dr Victor Neimann, Russia, with participation of Algeria, Brazil, China, Costa Rica, France and the United States of America.
8. The Chairman also raised the possibility of establishing other *ad hoc* sessional groups. In particular, he foresaw a need for a small drafting group to prepare a statement from the IOC to the next session of the United Nations Commission on Sustainable Development (UNCSD) and a sessional group to discuss the report of the DOSS-2 study group and its proposed recommendations on changes to the Statutes and Rules of Procedure. The Delegate of Portugal agreed with these suggestions and proposed that such groups could be formed later in the

session. The meeting agreed. The Delegation of United States of America asked whether it was the intention of the meeting to establish an *ad hoc* sessional group on finance. The suggestion was deferred until the budget had been introduced under Agenda Item 3.2.

9. The Executive Secretary introduced the documentation to the meeting and apologized for some of the documents being available in English only. This was due to the timing of the events close to the present session which had precluded preparation of the respective documents in all working languages.

2.4 REVELLE LECTURE

10. Dr. Gunnar Kullenberg was the invited speaker for the Revelle Lecture. He was introduced by the Chairman, who paid tribute to his contribution to the work of the Commission as Executive Secretary for the previous ten years. The abstract for Dr.Kullenberg's presentation is given in Annex III.
11. After the presentation, Dr.Kullenberg was thanked by Professor Ulf Lie, ex-chairman of the IOC, and a brief ceremony was held to honour the speaker. Dr.Bernal, in his capacity of present IOC Executive Secretary, made a presentation to Dr.Kullenberg on behalf of all Member States of the Commission.

3. DEVELOPMENTS SINCE THE NINETEENTH SESSION OF THE IOC ASSEMBLY

3.1 REPORT OF THE EXECUTIVE SECRETARY ON PROGRAMME IMPLEMENTATION

12. The Executive Secretary recalled that the Annual Report 1997 (IOC Annual Report Series 4) has been distributed as an Information Document (in English, French, Spanish and Russian). The Report contains a detailed written account of progress in the implementation of the resolutions adopted at the XIX Assembly of IOC. Therefore, in his presentation, he updated the report with information on further development of the programme during 1998, and presented to the Executive Council his views concerning some general management policies.

3.1.1 Management policies affecting the work of the IOC Secretariat

13. The Executive Secretary recalled that IOC is the only UN organization dedicated to the integrated consideration of ocean knowledge and ocean development and its sustainable use. Accordingly, the permanent elements of the IOC mission are linked to Science: that is, to an open ended commitment to improve the understanding of oceanic processes. However, he pointed out that during the last thirty years IOC relationship with Ocean Science has changed from an emphasis on the management of scientific programs to an emphasis on the development and management of the ocean through science and technology.
14. This change can be characterised as a paradigm shift for the institution and can be understood in terms of the immediate products of IOC activity. In the first case, the products delivered to society are scientific knowledge and technological innovation. In the second case, the products are a variety of instruments, based on science and technology, designed to implement sustainable development policies in member states.
15. As an important structural factor, influencing the design of the Programs, the Executive Secretary stressed the very uneven distribution of scientific capacity among IOC member States. This fact is associated directly to development and to the relative strength of cultural, political and economic links to the Ocean by member states. This disparity in capacity constitute the permanent justification for the Training Education and Mutual Assistance (TEMA) programme of IOC. Through TEMA in the last thirty years, IOC has made the difference in accelerating the rate of development of scientific capacity at the national level in many regions of the world. But

capacity building should not be confused with training and education. A critical element of capacity building is the capacity to use knowledge. Obstacles for using knowledge very often are institutional in character and quite specific to each society. This is a second level of heterogeneity among member states of IOC: disparity in the capacity to use scientific knowledge on the oceans.

16. Reflecting on the role of intergovernmental organisations, and their relationship with science, the Executive Secretary stressed the need to recognise the autonomous mode of operation of science as represented by the practices of the scientific communities. In this context Science considered as a social institution, is more akin to a "culture". Scientists doing science, operate as a "guild", structured according to their own internal rules of mutual recognition and validation, and in doing so, they are rigorous guardians of their autonomy and independence.
17. Intergovernmental organisations acting in science, where decisions are made following the will of States, must fulfil a different role. One obvious one is the co-ordination of scientific activities in which the will of states is already committed. There are areas of scientific research that not only benefit of, but require international co-operation. These areas of research are either too specialised, requiring very expensive infrastructure, such as astrophysics, nuclear physics, deep-sea drilling, space exploration, or the spatial scale needed to understand the natural processes under study surpasses well beyond national boundaries. Geophysics, Geology, Environmental sciences, Oceanography, Hydrology Meteorology are good examples of these scale-dependant sciences. However there is another feature common to all intergovernmental organisation or programs. By being a forum of States they are privileged channels to reflect the demands of the societies they represent. Accordingly, they can help to organise that social demand and serve to establish a key institutional link, an interphase, between the scientific communities (knowledge-producers) and society (knowledge-users).
18. This year, during the International Year of the Ocean, nature gave us the opportunity to prove the relevance of IOC activities through the prediction and follow up of El Niño. The year also provided us with plenty of evidence that there is an urgent need to further develop our capacity to observe the Ocean: Central America suffered the devastating effect of hurricane Mitch and Papua New Guinea experienced an extremely destructive Tsunami.
19. In relation to El Niño 97/98, IOC can be genuinely proud to have been instrumental in developing the capacity to monitor and forecast the phenomena. A key element of this capacity lies in the TAO Array, a set of current-meters located in the Equatorial Pacific, developed as part of the TOGA Project. TAO after proving the concept through scientific research, evolved into the first operational oceanic array of instruments.
20. But this shift is not only a theoretical one. It has major practical implications. There is a strong difference in the cost of a scientific program and running an operational system. This cost ratio is 1:10, and it cannot be expected that those resources can be diverted from the ever shrinking science budgets. According to current agreed protocols 1100 stations launch twice a day radiosondes every day of the year. Each sonde has an approximate cost of \$ 200. Without taking into account operational costs associated to launching, registering, processing and transmitting information, this cost of the expendables used in this simple observation, a very small fraction of the global meteorological observation system, amounts to close \$270.000.000. In this case the cost is beared by Member States of the WMO by discharging their obligations under the statutory instrument established by WMO, an instrument which has the status of a convention. We do not have an equivalent instrument for the ocean, legally binding.
21. If the motivation for acquiring predictive capacity of the oceans is societal, societies are to provide the resources. However this doesnot need to come exclusively from public resources. There is a whole array of potential users that can share this increased cost. If basic data and first order derived products are agreed to remain in the public domain, industries (Shipping, Offshore Oil, Fisheries) benefiting from the newly develop information could partially pay for the development of the global observing systems. The utility of these systems derives from the spatial scale at which observations are collected. Therefore, there is a demonstrable and demonstrated economy of scale. There is also a unique comparative advantage to consider this as a pre-

competitive investment. These two considerations, in no way contradict the development of proprietary rights for secondary, tertiary and further added value products.

3.1.2. Programme Implementation during 1998

22. Updating the programme, the Executive Secretary reported that a UNESCO/IOC External Evaluation Process is being conducted in accordance with the 29 C/5, Appendix VIII, to review the Commission Programme during the biennium 1998-99. This process is predicated upon the instructions laid down in DG/Note/97/47 *Preparation of the Work Plans for 1998-1999*, and is backstopped by the Central Program Evaluation Unit (BPE/CEU).
23. A critical aspect of the Implementing Phase of the Evaluation Process is the review of the IOC Programme at the hands of an independent external panel. To that effect during June, the Director-General requested National commissions to suggest names of potential members of the several review panels being appointed this biennium. The external panel, after being appointed should be provided with the necessary background information and specially prepared briefing dossiers. During this phase the external panel will submit its report by gathering extra information, cross-checking with external users, observers and constituencies. The Executive Secretary also informed the Executive Council that in addition to the lists of experts offered by UNESCO National Commissions, he has conducted personal consultations to identify a group of senior experts to be considered as potential members of the External review panel.
24. The Executive Secretary also referred to the IOC-SCOPE-SCOR effort of the work of the joint scientific advisory group for the assessment of the state of marine science and its contribution to sustainable development. The Executive Secretary explained that, implementing the resolution of the XIX IOC Assembly in 1997, an ocean assessment had been called. In response to these requests it has been agreed that IOC, in collaboration with SCOR and SCOPE, will conduct an assessment and analysis of the state of marine science, identify key scientific issues for sustainable development and evaluate the capability of the scientific and governmental communities and the private sector to respond to these issues and to apply the results to the needs of society in different parts of the world. The advisory group met in Paris, 22-23 October 1998, and agreed on the mechanism, structure and outline of the assessment. For each different topic to be assessed a paper will be provided and authors have been identified and contacted. These papers and a series of key studies will be collectively discussed in a workshop to be held in Postdam (Berlin), 15-20 May 1999. In this workshop, special emphasis will be made to ensure the participation of users coming from government, management, private sector and NGO's.
25. Next, the Executive Secretary reported on the Pan-African Conference on Sustainable Integrated Coastal Management, PACSICOM, which took place in Maputo (Mozambique), 18-22 July 1998. PACSICOM was organized by UNESCO, UNEP, and the Governments of Mozambique and Finland, and 48 states of the African continent participated in it, 36 of them at the ministerial level. The proceedings of the conference were divided in three segments, a first series of six technical workshops organized by UNESCO-IOC, in which close to 100 experts from Africa and elsewhere, analyzed the current constraints for Integrated Coastal Management, making recommendations to governments and international agencies. The second part of the Conference was centered around four trans-sectoral areas of action, where technical advisers to ministries together with experts sorted out priority issues. Finally a ministerial segment took place, where the recommendations of the two previous ones were discussed and a series of recommendations adopted.
26. IOC played a pivotal role in organizing a trans-sectoral response from UNESCO to PACSICOM, by designing a program that incorporated contributions from the Education, Culture and Communication sectors and the direct involvement of other Science sector Divisions and CSI. Two main objectives were accomplished: first to re-inforce the need to define an African-driven process to address the coastal management challenges, and to offer the African governments a new methodological approach takes into account the cultural, educational and communication factors involved in the implementation of successful sustainable development policies. The PACSICOM process, will continue with two other programmed conferences, the first one organized

by the Republic of South Africa and ACCOPS, to take place in Cape Town at the beginning of December 1998, and a Partnership Conference, with the active involvement of donor agencies, to be organized during 1999.

27. IOC has been actively participating in the El Niño Task Force, an inter-agency committee charged with reporting on the implementation of Resolution XIX-13. The task force is coordinated by the IDNDR Secretariat and has been concentrating its efforts in convening a follow-up assessment of the 1997-98 El Niño. Two aspects need to be addressed: first a thorough scientific and technical assessment of the adequacy of current data flows to feed predictive models of El Niño, with the view of improving the current deployment of instrument arrays and data flows; second to analyze the efficiency achieved by international organizations in delivering early warnings on El Niño to governments. Finally, and following the mandate of the Assembly, a socio-economic analysis of the impact of the 1997-98 El Niño need to be conducted.
28. As part of this effort, IOC convened the XIII Session of the CPPS, WMO, IOC Joint Working Group on the El Niño Phenomena. An advanced copy of the report is available as an information document. This meeting took place in Guayaquil, Ecuador, in November, together with the International Symposium on the 1997-98 "El Niño" Phenomenon organized in cooperation with WMO, its WCP, IDNDR and UNEP and the Government of Ecuador (2-13 November 1998).
29. The Executive Secretary reported on an informal advisory consultation on implementation of IOC Assembly Resolution XIX-19, establishing the Advisory Body of Experts on the Law of the Sea (ABE-LOS), which took place in Paris, at UNESCO headquarters, 2-3 November 1998. It was recommended that the following three topics should be given priority initially: i) Guidelines for the implementation of Article 247 UNCLOS by IOC; particularly identification of the criteria for selecting research projects which would qualify for the procedure under Article 247. ii) Principles for the transfer of marine technology, implementing Part XIV UNCLOS; further elaborating on Doc.IOC/INF. 1054. iii) Criteria and guidelines for ascertaining the nature and implications of marine scientific research (Art. 251 UNCLOS). In this connection, the need was identified to first collect information from Member States on current practices, in particular relating to implementation of Article 246, paragraph 5 (a). The questionnaire will be circulated by the Executive Secretary during 1999.
30. Finally, the Executive Secretary made an appeal to the Council to provide guidance towards the definition of a common strategy for IOC in the future. He recalled the need for open discussions in order to come to a common understanding of the role IOC has to play for various groups of Member States, with different strategic approaches that sometimes create unnecessary tensions. He also urged the Executive Council that in doing this analysis the most important factor was to take into account the differences between Member States, particularly between developed and developing countries, rich and poor. It is necessary to discuss a unique approach that incorporates this diversity. If a common strategy based on the recognition of the differences and difficulties, is agreed upon, then the discussion of priorities becomes possible. IOC cannot implement diverging strategies, over-extending the small amount of resources and capacity at its disposal.
31. As an example the Executive Secretary referred to the development of the Global Ocean Observing System (GOOS). In order to answer on a scientific basis the question of climate predictability, at least one hundred years of extensive and high quality observations of the ocean will be required. For this fundamental reason humanity needs to start collecting those ocean observations as soon as possible. However, we must agree on developing GOOS as a multitask Programme that could serve the immediate interests of all Member States, developed and developing, as well as the long-term common benefits. Up to now, because the pressing need to answer the climate change question it has been the climate module of GOOS that has developed faster. However, during this year we concentrated our efforts in developing the coastal module of GOOS as well as the living marine resources module.
32. The basic principle of GOOS is the free and open exchange of data. This principle provides an incentive for everybody to participate. Since most of the coastal GOOS observations will be done in jurisdictional and/or territorial waters of coastal states, GOOS creates an equitable

opportunity to cooperate between developed and developing countries. Furthermore, it provides IOC with a concrete opportunity to use relevant guidelines, rules and regulations contained in UNCLOS applicable to scientific programs. There should be no reason for any country to exclude itself from the joint development of this data system.

33. Several Member States endorsed the Executive Secretary's view that, at present, IOC responsibilities have been extended beyond the co-ordination of ocean research activities, involving other important areas related to ocean and coastal affairs, thus shifting the Commission's role on co-operative efforts to a new paradigm. In this context, the **Executive Council** noted that the follow-up of recent resolutions has been implemented. Member States insisted in the need of keeping an appropriate balance between science, services and capacity building activities in the programme as a whole. The importance of focusing in Integrated Coastal Management (multi disciplinary) issues was emphasized as well as the further development of services and capacity building components, so as to get higher political profile and recognition by Member States.
34. Regarding the proposed external evaluation, Member States considered that this exercise should encompass, an assessment of the resources and staff required to implement the programme with the purpose of improving the allocation of resources coming from UNESCO and extra- budgetary sources. Other essential elements listed for the evaluation were: participation of Member States and their liaison arrangements with IOC advisory bodies; and existing regional co-ordination mechanisms. Since this exercise is being undertaken following a decision of the UNESCO General Conference, the reporting should be equally informed to UNESCO and IOC. Considering the new paradigm the evaluation should also be directed to measure the impact of activities on final users for which they need to be consulted.
35. Strengthening capacity building should take into account priorities listed by Member States at appropriate political level following the definition of ocean policy at each country. In this process, partnership at the national level should be done around well established recognized and accountable institutions. The IOI representative reminded that in this context, co-operation is important both at the intergovernmental and non-governmental level.
36. GOOS development represents a high priority. NEAR-GOOS was mentioned by Japan as an example of progressive regional implementation of the global system. Several Member States called the attention on the need to maintain proper balance between the climate and the other modules of GOOS. If this balance is attained, and due to the fact that GOOS is mainly targeted to users, Member States will increase their interest in participation in IOC activities and ocean affairs in general.
37. Regarding the information provided on relationship between UNCLOS and IOC, Member States agreed that the best procedure is multilateral consultation as set forth by article 247. In terms of interpretation of provisions of article 251, Member States requested that guidelines be prepared to define and to help countries to ascertain when activities requested to be undertaken within the jurisdictional waters fall under the category of "scientific research".
38. Member States insisted on the importance for all programmes of the Commission in keeping free exchange of data and information.
39. The Chairman of IOC announced that the 4th Session of the WESTPAC will be held in Seoul, in 22-26 March 1999.
40. Several Member States re-stated the need to concentrate activities through setting up programme priorities while others insisted on the need to increase the availability of resources. Many expressed concern about the limited number of staff in the Secretariat affecting programme implementation. In this context, the Executive Council regretted that Commission III of the General Conference of UNESCO, ignored the relevant resolution proposed by IOC. Finally, the Executive Secretary confirmed the permanence of the IOC Secretariat in UNESCO Headquarters under the present circumstances.

3.2 PROGRESS REPORT ON THE EXECUTION OF THE BUDGET

41. The Executive Secretary introduced this agenda item, referring to Document IOC/EC-XXXI/16 which would be issued shortly. He noted that this document provides a general overview in regard to implementation of the IOC Programme and Budget, taking into account: the Draft Programme and Budget for the 1998-1999 biennium (29 C/5), as approved by the XIX IOC Assembly; and subsequently endorsed with amendment by the 29th UNESCO General Conference; implementation to date; and an initial projection of implementation trends during the biennium as a whole.
42. The Executive Council was informed that the provision of funding, both through the UNESCO Regular Programme and from contributions to the IOC Trust Fund, was in line with that anticipated and that programme implementation in 1998 has been made in conformity with that forecast under the main lines of action included within the 29 C/5. It was emphasized that decision of the UNESCO General Conference at its 29th Session in regard to an 'incompressible' provision for the IOC, coupled with the regularity of two six-month instalments, has considerably contributed to a firm basis for planning of programme implementation. As contributions to the IOC Trust Fund, especially for ear-marked purposes, reflect the interests and fiscal calendars of the donors, adjustments to programme implementation as a whole continues to be a subject of concern.
43. In concluding, the Executive Secretary recalled that the views and advice of the Executive Council should focus upon any changes to the forecast budget that may be required concerning: (i) adjustments in distribution of funding between the main lines of action as found in the 29 C/5; and (ii) adjustments in distribution between programme funding and provision of staff costs.
44. Following initial observations from members of the Executive Council, the Chair proposed that a sessional drafting group chaired by the First Vice-Chairman be established for agenda items 3.2 and 8, with a view to preparing for consideration by the Executive Council: (i) text to be included within the Summary Report as internal decisions in regard to programme implementation 1998-1999; and (ii) a draft resolution in regard to the IOC programme and budget for 2000-2001 (draft 30 C/5) which could encompass resources requested from UNESCO as well as from Member States, whether as direct contributions to the IOC Trust Fund or through mobilization of other extrabudgetary support.

4. IMPLEMENTATION OF FOLLOW-UP ACTIONS RELATED TO UNCED

4.1 INTEGRATED GLOBAL OBSERVING STRATEGY

45. Dr. Summerhayes introduced this item, explaining that as part of a general drive towards increasing efficiency and effectiveness within the UN system it is incumbent on the IOC and its fellow sponsors of global observing systems to make it plain to Governments that there is coherence, synergy, and integration between the different bodies undertaking global scale observations of the land, sea, and air, and that we are working together to provide the most cost-effective and efficient response to the increasing demand for the observations of the whole Earth system that provide the basis for understanding and forecasting environmental change. To respond to this charge, the sponsors of the global observing systems (GOOS, GTOS, GCOS; otherwise known as the G3OS) have agreed to an Integrated Strategic Plan for the Global Observing Systems, for which there is now a published brochure. This strategy integrates the activities of the three observing systems under one over-arching umbrella. In parallel, the Committee on Earth Observation Satellites (CEOS) and its affiliates (including IOC and GOOS) have developed an Integrated Global Observing Strategy to integrate satellite and *in situ* measurements of the earth
46. Recently, the G3OS sponsors and CEOS agreed to unite their two strategies into a common Integrated Global Observing Strategy (IGOS). The different UN agencies which sponsor the global observing systems are being asked to obtain support from their governing bodies for

this new initiative. WMO's support has already been obtained. The IOC-EC is asked to recommend the support of the IOC Assembly for IGOS.

47. IGOS involves the major space-based and *in situ* systems for global observations of the Earth, including in particular the climate and atmosphere, oceans, land surface and Earth interior, in an integrated framework. IGOS aims at enabling better observations to be derived in a more cost-effective and more timely fashion. It strives to build upon the strategies of existing international global observing programs, and upon current achievements, with additional integrated efforts being directed to focus on those areas where satisfactory international arrangements and structures do not currently exist.
48. IGOS should improve understanding for governments of global observing plans; provide a framework for decisions on the continuity of observation of key variables; reduce duplication; help to improve resource allocation; and assist in the transition from research to the operational domain.
49. It is proposed that IGOS be managed by an IGOS Partners' Forum, which will further the definition, development and implementation of an IGOS. To keep costs down, meetings of the Forum will take place as an integral part of (i) the CEOS Plenary meeting (usually in November), and (ii) the G3OS Sponsors meeting (usually mid-year).
50. Currently the IGOS Partners are facilitating the development of 6 pilot projects designed to demonstrate the benefits of an IGOS. One of these projects is the Global Ocean Data Assimilation experiment (GODAE), a pilot project of the Ocean Observing Panel for Climate (OOPC), which is the Climate Module Panel for GOOS.
51. Several delegates considered that it was very important that the IOC should be a partner in this important new venture bringing together the agencies responsible for the observing systems and those responsible for providing the remote sensing observations needed by the observing systems. They recognised that IGOS is a unifying strategy that will not affect the functional autonomy of the partners to it. Indeed IGOS forms a necessary regulatory mechanism to enable each partner to work to best effect through coordinating its efforts with others. IOC and other organizations had insisted that there be no significant additional cost in the creation and management of the IGOS Partners Forum, scheduling Forum meetings to take place in the margins of other key meetings that all partners would normally attend would keep costs down.
52. **The Executive Council adopted Resolution EC-XXXI.8.**

4.2 INTERNATIONAL OCEAN ASSESSMENTS

53. This item was introduced by Colin Summerhayes, who explained that an ocean assessment had been called for at the 69th meeting of the Executive Board of ICSU (Thailand, 1995), and at the 29th meeting of the Executive Council of the IOC (Paris, 1996) and subsequently endorsed by the 19th IOC Assembly in 1997.
54. In response to these requests it had been agreed that the IOC, in collaboration with SCOR and SCOPE, will conduct an assessment and analysis of the state of marine science, identify key scientific issues for sustainable development, and evaluate the capability of the scientific and governmental communities and the private sector to respond to these issues and to apply the results to the needs of society in different parts of the world. It should identify to what extent increased knowledge and understanding of the ocean have contributed to improve the management of the ocean, as the basis for identifying areas with a high benefit/cost ratio for future R & D investment, and improving our ability to develop the institutional arrangements that transform science into useful products for society. This exercise is expected to lead to a substantial report that will guide the community in its priorities for the coming millennium.
55. At a meeting between IOC, SCOR and SCOPE at the SCOPE Secretariat on 29 May 1998, the three organisations agreed that a jointly conducted assessment of marine sciences was

desirable, and that it would complement other planned or ongoing assessments such as the Global International Waters Assessment (GIWA) by the World Bank, and the assessment of the health of the ocean by GESAMP. It was agreed that within the proposed assessment, the goals of IOC were complementary to those of SCOPE and SCOR, with the latter two focussing on the state of ocean science *per se* and its relevance to solving ocean environmental problems, and the IOC focussing on: (i) increasing awareness of ocean matters and of IOC's role; (ii) reinforcing partnerships for ocean science and management; (iii) strengthening links to users and awareness of their needs; (iv) encouraging the development of operational oceanography to meet those needs; and (v) topics where IOC can really make a difference.

56. A subsequent meeting between the three organisations, and with a number of eminent scientists, was held at the SCOPE Secretariat, ICSU (Paris, 22-23 Oct, 1998) to plan the way forward.
57. The key audience for the assessment comprises policy makers, government officials, resource managers and the public. The assessment will enable scientists to provide this audience with a clear message about the oceans, much as the IPCC has done for climate. It will provide policy makers with advice on how to gather and use ocean information efficiently and cost-effectively for a multitude of purposes, and what to invest in to get the best results. And it will provide information for the media and the public about the ocean's role in global change.
58. The exercise will comprise an assessment of ocean science by SCOPE/SCOR/IOC, and an assessment of ocean science management by IOC. Both will address what has been achieved in recent years, and the needs for and directions of ocean science for the next 20 years. The two assessments will come together in a Workshop in Potsdam, Berlin, provisionally from 15-20 May 1999. There will be around 50 participants representing the scientific and user communities. At the Workshop the complementary approaches and results will be integrated for eventual output in the form of a book; publication on an IOC web site; a CD; a glossy brochure to distill the message for politicians and officials; and a press kit.
59. The background work will be done by a mixture of scientists and stakeholders representing the management and user community, to ensure that both the science and the societal issues are addressed in a realistic, credible and comprehensive manner.
60. The IOC assessment process has begun, and the output of its deliberations will be available at the workshop. The IOC assessment group (of probably 12 people) will need to be selected soon so that it can meet before mid December (at latest early January) to decide how to finalise the exercise. IOC regions will be consulted during the exercise. A consultant may be engaged to finalise the IOC part of the assessment, drawing for instance on published national assessments. IOC must also finalise the details of the budget to be allocated for the process.
61. Veronique Plocq of SCOPE added that the overall goal is to show how the application of marine science and technology can improve the ability of environmental/ fisheries (etc) managers in industry or government agencies to perform their duties, and to highlight what is required in terms of marine science and technology R & D to meet their needs and to solve development issues. The assessment will focus on two target dates: (i) the year 2000 (i.e., what is being done now); and (ii) the year 2020 (i.e., what changes in marine science and technology and in user requirements are expected by 2020).
62. In discussion, several delegates noted that this sounded like an ambitious but nevertheless a worthy undertaking, and they supported the procedure while noting that it would be essential for the IOC to involve the regions in soliciting input for the assessment. Delegates appreciated that it was necessary, indeed vital, to pause from time to time and take stock, as the basis for checking and if necessary adjusting the course of any organisation. Results will enable the refining and prioritising of one of IOC's most important programmes, GOOS, and it should be made clear to the organisers of the Workshop that GOOS should be among the topics considered.
63. Some delegates advised seeking more involvement of the social science sector. Others requested some specific details on the budget.

64. In response, the Executive Secretary noted that this exercise is different from previous assessments in that it fully engages the user community and is directed to such issues as sustainable development. Regardless of the fact that forward looks tended to decay rather rapidly, there was no escaping the need to do them as the basis for ensuring that the ship was headed in the right direction. With regard to the 'human' dimension, he noted that UNESCO's social sciences and MOST programmes would be involved in the exercise. Member States would also be involved in the exercise so as to ensure good regional coverage. Turning to the budget he noted that the partners were anticipating that the book would be a commercially viable publication and therefore would not be a cost drain. He envisaged the main cost of the exercise as being the running of the Workshop, which he estimated at around US\$150-180,000, and noted that the costs have been allowed for in the regular budget.

65. The Executive Council approved the proposed plans for the workshop and the various outputs, as well as the need for IOC to arrange its contribution to the exercise.

4.3 JOINT TECHNICAL COMMISSION ON OCEANOGRAPHY AND MARINE METEOROLOGY

66. Colin Summerhayes introduced this item, noting that over the last two decades a number of bodies had been created by IOC and WMO, sometimes working together, to deal with oceanography and marine meteorology. All of these bodies report separately to Governing Bodies, and display significant overlap and little coordination. They include IGOS (including SOOP), IODE, DBCP, GTSP, GLOSS, and CMM for example.

67. In recent years we have seen demands for integrated marine meteorological and oceanographic data and services emerge from the creation of newer bodies, like GOOS and GCOS, and from the wider user community. Meeting these demands requires integrated implementation and coordination of oceanographic and marine meteorological observations. Difficulties in coordination, and the high costs of maintaining separate intergovernmental bodies dealing with marine observations, services and data management (CMM and IGOS), make it imperative that we improve the situation. In addition, improved coordination at the international level should signal the need for similar improvement at the national level between the bodies responsible for collecting oceanographic and marine meteorological data.

68. This is the context in which the IOC and the WMO began discussing the creation of a new body that brings together formerly separate structures dealing with the sectors of oceanography (IGOS) and marine meteorology (CMM). A joint study has now been completed by consultants appointed by IOC and WMO. It recommends co-sponsorship of CMM by the IOC, and consequent rationalisation of marine-related bodies. The recommendation was endorsed by the WMO-EC in June 1998.

69. The objective of the proposed co-sponsorship is threefold:

- (i) to provide a coherent and cost-effective intergovernmental mechanism for coordinating and regulating marine observing systems, marine data and met-ocean services to marine users;
- (ii) to provide a unified mechanism for implementing and coordinating a global ocean observing system;
- (iii) to enhance involvement of IOC Member States and WMO maritime Members in this activity, and to encourage and facilitate coordination and integration at the national level between meteorological and oceanographic communities.

70. A joint IOC/WMO body is regarded as essential to draw on the strengths and expertise, and ensure the full involvement of both communities. It must retain the highest possible status in both WMO and IOC; i.e. of a WMO Technical Commission. Its implementation should result in

reduction to the overall costs to both organisations. Its formation should not adversely affect IOC's and WMO's traditional marine activities.

71. The new joint IOC/WMO intergovernmental body will replace the existing CMM and IGOSS, with terms of reference like those of the present CMM, and assume the existing functions of both bodies. It will be called the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (J-COMM). It will become the parent body for GLOSS and the DBCP; for the time being IODE will remain separate, but with close working links. Members of J-COMM shall be experts in the fields covered by the J-COMM Terms of Reference, and nominated by Governments through both organisations. J-COMM shall have co-chairs from both fields. Meetings, reporting procedures and subsidiary body structures will be like those of the present CMM. J-COMM will cover the existing responsibilities of CMM, IGOSS, and GLOSS; will be the reporting and coordinating mechanism for DBCP and the TAO Implementation Panel; and will become the main implementation mechanism for GOOS.
72. J-COMM will meet every 4 years, with the IOC and WMO funding alternate meetings, at no extra cost to the IOC above that experienced now for IGOSS. The proposal allows for rationalisation of subsidiary bodies, with consequent cost savings which would be passed on to support GOOS/GCOS implementation and associated capacity building.
73. The Terms of Reference for the new joint body include: (i) further development of the observing networks; (ii) implementing data management systems; (iii) delivering products and services; (iv) providing capacity building; (v) assisting in the documentation and archival of the data in international systems.
74. The IOC EC was asked to support the proposal and to request the Executive Secretary IOC, in consultation with the Secretary-General of WMO, to prepare appropriate documentation, including a draft resolution to effect this recommendation, for consideration by the 20th IOC Assembly in July 1999. In particular, the Executive Council was invited to:
- (a) make a recommendation to the IOC Assembly concerning the establishment of a Joint WMO/IOC Commission for Oceanography and Marine Meteorology (J-COMM) to replace the existing CMM and Joint Committee for IGOSS;
 - (b) approve the draft report and recommendations in Appendix A. of document EC-XXXI.10. This document does not contain any substantive proposals which modify programme activities requiring shifting of resources from the budget.
75. Bob Landis of the WMO noted that the proposal had received strong support at the 50th Executive Council of the WMO, and would be recommended to the 13th WMO Congress in 1999. WMO and IOC had collaborated closely and successfully over the past three decades, and continued collaboration in this new mode was now required to fulfil the needs of a wide range of users, including GOOS and GCOS. J-COMM will increase efficiencies, reduce dislocation, and enable resources to be better spent. It would be a fitting legacy from the International Year of the Ocean.
76. Johannes Guddal, president of CMM, fully supported the proposal, which would bring synergy through enhanced coordination of the WMO and IOC programmes.
77. Dieter Kohnke, Chairman of IGOSS, recalled that he had polled the members of IGOSS for their opinion and that there was no substantial objection against the proposal. The proposed move was long overdue.
78. The proposal was warmly welcomed and endorsed by Japan, Canada, Russia, France, Jamaica, Australia, the United States of America, China, Costa Rica and Nigeria, recognising that J-COMM would improve efficiency, be more cost effective, and lead to the desired integration.
79. Delegations supported the idea that there be co-chairs from the oceanographic and meteorological sides. To questions about whether the new body should be a Committee or a

Commission, the Chairman responded that it was quite acceptable for the IOC to have sub-commissions, and that J-COMM could be a Technical Commission of the IOC; it was not in the IOC's interests to give the body a name that lowered its status in the eyes of the WMO. There was support for calling the body a Technical Commission.

80. France noted that the different subgroups all had different terms of reference and asked that when J-COMM is formed these terms be re-examined in the light of the new structure. This was consistent with the request from some other delegations that the transition be handled carefully to preserve the positive aspects of both original bodies. Jamaica asked that the term 'oceanographer' not be so tightly defined that it prevented some member states from nominating a representative to serve on the new body. Australia noted that some consideration would have to be given in due course to what range of data was to be in the remit of the new body. The consultants had deliberately left this vague to give J-COMM flexibility.
81. Responding to a question from China, it was noted that the J-COMM Secretariat would be shared between WMO and the IOC in much the same way that the Secretariat for IGOSS is now shared.
82. Argentina and Portugal considered the proposal consistent with the idea of avoiding duplication of efforts, as well as with the improvement of IOC's efficiency. Nevertheless, it was noted that there might be some difficulties with this integration at the national level in those countries where oceanography and meteorology were run by separate organisations. The Chairman and Executive Secretary pointed out that we have to recognise that many of our national institutions are not shaped to deal with natural processes, and it would be the institutions that had to change in due course to recognise this.

83. **The Executive Council adopted Resolution EC-XXXI.13.**

4.4 PRIORITY AFRICA

84. The Chairman invited the Executive Secretary to present the IOC activities under the Priority Africa Programme.
85. The Executive Secretary stressed that Africa was a priority both for UNESCO and for the United Nations System-wide Special Initiative on Africa (UNSSIA) and informed the Executive Council of two important programmes that IOC was carrying out in that region, in conjunction with African states, in the framework of the International Year of the Ocean. They were the Pan-African Conference on Sustainable Integrated Coastal Management (PACSICOM, Maputo, Mozambique, 18-24 July 1998) and African Ocean Days (AOD '98, Dakar, Senegal, 26-28 October 1998).

PACSICOM

86. The Executive Secretary had held a meeting to brief the African Permanent Delegations to UNESCO on the conclusions and recommendations of PACSICOM. He explained that IOC would be able to act as a catalyst to support African states in their efforts at capacity-building in the field of the sustainable integrated management of coastal and marine zones. He reported on the proceedings of the Maputo Conference, describing the role played by IOC as the UNESCO co-ordinating unit for PACSICOM.
87. IOC had organized two technical workshops, one on national and regional capacity-building, and a GOOS-Africa workshop dealing with data in the context of the Global Ocean Observing System for sustainable integrated coastal management in Africa. The results of the workshop had been submitted to the Ministerial Conference, which had studied and adopted important documents, namely, the PACSICOM Statement, the PACSICOM Resolutions and the Maputo Declaration.

88. He further informed the Executive Council about the forthcoming workshop on large marine ecosystems, to be held in Cape Town from 27 to 28 November 1998 as a prelude to the Conference on Co-operation for the Development and Protection of the Coastal and Marine Environment in Sub-Saharan Africa, from 30 November to 4 December 1998. IOC will participate in this workshop.
89. He announced that IOC will assist in the setting up of a UNESCO Chair in the science and technology of the sea at the Eduardo Mondlane University in Maputo, Mozambique. IOC will work to link the Chair with the other UNESCO Chairs in Africa so as to include them in UNESCO's UNITWIN network. He stressed how important it was to implement the PACSICOM recommendations in conjunction with the other agencies of the United Nations system and the African states.

African Ocean Days '98 (AOD '98)

90. IOC supported AOD '98, whose objectives were the following:
- (i) to raise the awareness of governments, local communities, the private sector, non-governmental organizations and specialized associations involved in the management of coastal areas;
 - (ii) to facilitate better communication between the range of actors mentioned above, including centres for research, education and teaching;
 - (iii) to maintain the ongoing dialogue thus established among the various users.
91. Two workshops were held in the framework of AOD '98:
- (i) integrated planning and sustainable management of coastal and marine areas, including better preservation of biological diversity;
 - (ii) protection of coastal and marine environments against pollution.
92. The establishment of an agency for the integrated and sustainable management of coastal and marine areas is part of the main recommendations of AOD '98.
93. The Executive Secretary also invited Mr. P. Pissierssens of the Secretariat to report on the ODINAFRICA programme. He explained that the ODINAFRICA programme contains two regional components: (i) ODINEA which focuses on the development of national and regional oceanographic data management capabilities; and (ii) RECOSCIX-CEA which will create a regional marine information exchange network for the IOCEA region, as a parallel initiative to the RECOSCIX-WIO network, successfully implemented by the IOC, and Belgium since 1989. He welcomed the substantial financial support by the Flemish Government which complemented funds provided by IOC and Sweden.
94. The Representative of Japan, who was first to take the floor, informed the Executive Council that his country had organized the second Tokyo Conference on Development in Africa. The objectives of that meeting were:
- the alleviation of poverty; and
 - the integration of the African economy in the global economy.
95. The marine sciences would be among the themes of the next conference.
96. Speaking next, the Delegate of Belgium said that his country through the Government of Flanders was contributing to the UNESCO Hydrology Programme and the IOC programmes. He invited the other Member States to make financial contributions to the programmes under way. On the basis of his country's 15 years of experience, in co-operation with Kenya, in marine ecology, he stressed the importance of direct investment in the field of capacity building and the need to encourage the PACSICOM process whose recommendations concerning data-exchange systems were based on ICAM principles. In addition, he observed that the TEMA and ICAM

programmes provided excellent frameworks for reinforcing sustainable capacities in Africa, and emphasized the need to establish focal points in both West Africa and East Africa.

97. The Delegate of Portugal said that his country was co-operating with the African states, in particular those speaking Portuguese. He supported the ACOPS Conference in Cape Town and would bear the cost of interpretation and translation into Portuguese. In conjunction with Brazil, Portugal was developing partnerships in ocean sciences with the Portuguese-speaking countries of Africa. He would like to offer his experience to the UNESCO Chair in Maputo.
98. It was, in his view, important for IOC to develop projects to enable it to play a catalytic role in the implementation of the TEMA programme in the various regions. He supported the application of the IOCEA-IV resolutions.
99. The Delegate of South Africa, speaking next, endorsed the PACSICOM process and suggested that the University of Cape Town might contribute to the development of GOOS-AFRICA. He also requested that other NGOs also become involved in the work of IOC so as to spread the load of international commitments related to marine science more widely amongst the small oceanographic community of scientists in South Africa.
100. The Delegate of Canada, stressed that the point of PACSICOM was to get ICAM started in Africa. After emphasizing his country's ongoing support for the region, he drew attention to the productive co-operation with the Organization of African Unity (OAU). He urged donors to provide the funding needed to turn PACSICOM resolutions into sustainable development projects. He also stressed the need to involve local institutions in these projects and to ensure that due regard was given in their preparation to the needs observed by regional specialists.
101. Lastly, he said that conferences were forums for reflection on common problems for the purpose of drawing up recommendations and resolutions; these latter would have been adopted in vain if they were not followed by concrete action. To avoid wasting energy and resources at conferences it was important to seek the resources and means essential to the creation and building up of human capacities, of infrastructures and of institutions.
102. The Delegates of Kenya, Nigeria and OAU spoke in turn about the situation as regards the integrated and sustainable management of marine and coastal zones in Africa.
103. After recalling the obstacles to economic development on the African continent, the Delegate of Kenya thanked UNESCO for its participation in the PACSICOM initiative and Belgium and Sweden for their financial assistance to the RECOSCIX programme. That programme on information management, which had already provided researchers in East Africa with a very useful forum for dialogue (RECOSCIX-WIO), would also be set up in West Africa (RECOSCIX-CEA) The ODINAFRICA programme needed support as well as other important contributions including the allocation of study grants, travel allowances for WIOMSA researchers and the financing of multidisciplinary projects.
104. The Delegate of Kenya asked the members of the Executive Council to support the implementation of the resolutions adopted at PACSICOM and during the African Ocean Days (AOD '98) and the allocation of substantial amounts from the budget of UNESCO and other United Nations agencies for the follow-up to those two conferences.
105. Furthermore, as Africa is a UNESCO priority, that continent's needs ought to be reflected in IOC's programmes. To that end, the continent's priority issues and special features should be taken into consideration in the IOC programmes. He urged the Executive Council to support the accomplishment of priorities that were essential to the sustainable management of the coastal zones and marine environment in Africa including:
- (i) the building of national and regional capacities to enable African experts to be the promoters of the sustainable development of Africa;
 - (ii) the strengthening of infrastructure such as research ships and laboratory facilities;

- (ii) the repatriation of data stored on Africa in research and documentation centres abroad;
- (iv) access to information.

106. Speaking along the same lines, the delegate of Nigeria said that although the world was a global village, the African part of it was still isolated; he therefore requested the Executive Council to support the two draft resolutions submitted by his country on behalf of the African states and with the support of the Organization of African Unity (OAU). He also stressed the need to make access to data easier for African states.
107. The Representative of OAU thanked the Director-General of UNESCO for having supported the establishment of the Priority Africa Department and for his personal involvement in the success of the PACSICOM process. He laid emphasis on the need to put PACSICOM recommendations into practice in the form of development projects; in that connection, he urged the Executive Council to adopt the two draft resolutions submitted by Nigeria on behalf of the African states. In addition, he then spoke about the aim of the Pan-African organization, which was to establish a platform for exchanges, co-operation and interfacing among the various African states and between them and other world partners. He called for close co-operation between IOC and OAU on programmes for Africa. He informed the Executive Council that OAU would submit a Pan-African programme for the establishment of a network on marine sciences and technology to the Cape Town Conference.
108. SOPAC, in its statement, supported the plea from Kenya, Canada and the OAU for concrete action to be taken following PACSICOM. It recommended that IOC encourage South-South co-operation: SOPAC Member States wished to share their experience with the African states in a world in which regional oceanographic and climatic problems (El Niño) had global repercussions and therefore called for global vision and action.
109. After that statement, the Chairman said that the issues being addressed by society were of a global character and that it was not possible to save only one part of the planet. All were concerned and all had to be involved in solving the problems.
110. **The Executive Council, on the initiative of several African states adopted Resolution EC-XXXI.6 and 7.**

4.5 WORLD CONFERENCE ON SCIENCE

111. **The Secretary of the World Conference on Science for the Twenty-first Century: a New Commitment**, Mr Howard Moore, made a presentation on the Conference, which is being organized to be held in Budapest, Hungary on 26 June - 1 July 1999. The Conference will be a major forum at which scientists, political decision-makers and representatives of society at large can together discuss the service that science is to provide to society in the years and decades to come, and plan the means by which there can be increased commitment to the scientific venture on the part of all stakeholders. The terms of a new social contract for science were described.
112. The organization of the Conference is being achieved in close collaboration with the International Council for Scientific Unions (ICSU), while a range of IGOs and NGOs are being involved in the planning of component events. The Conference is to be made up of three successive forums, and the final output embodied in two principal documents: **a Declaration on Science and the Use of Scientific Knowledge** and **a Science Agenda - Framework for Action**.
113. In response to the Canadian Delegate, the Secretary of the WSC informed members of the Executive Council that there would be a parallel Youth Forum as well as teleconferencing during the WSC.
114. Various delegates deemed that Member States should make sure that at least one of their IOC representatives be part of the national Delegation at the Budapest Conference. They also insisted that oceanography and marine sciences should appear formally in the Conference Action

Plan. One delegate noted that the dates of the Conference conflict with the planned IOC Assembly in 1999.

4.6 MULTIDISCIPLINARY PROGRAMMES IN UNESCO

115. The ADG for the Coordination of Environmental Programmes emphasized the important linkages and cooperation existing between the IOC and other relevant programmes within UNESCO. He reported on the third joint meeting of the Chairpersons of IOC, IGCP, IHP, MAB and MOST in November 1997 which resulted in a Joint Statement by the Chairpersons to the 29th session of the UNESCO General Conference. In presenting some of the important subject areas agreed upon for cooperation, Dr Glaser called upon IOC to be an active partner also at the national and sub-regional levels to enhance interaction and to develop cooperative activities with IGCP, IHP, MAB and MOST national counterparts. In concluding, the Coordinator for the Environmental Programmes expressed strong support for the IOC.

116. Several delegates commented on Dr Glaser's presentation indicating their view that cooperation amongst the above-mentioned programmes needed to be improved and that the responsibility for doing this rested largely with the Member States themselves.

5. PROGRAMME MATTERS REQUIRING DECISIONS BY THE EXECUTIVE COUNCIL

5.1. OCEANS AND CLIMATE

5.1.1 WCRP and

5.1.2 The Climate Module of GOOS

117. Mr. Arthur Alexiou, Technical Assistant Secretary IOC, reported that IOC climate related activities have continued to expand. He cited several notable events. The IOC co-sponsored the International WOCE Conference in Halifax in May 1998; meetings of Working Groups 1 and 3 of the IPCC would be hosted by IOC here in UNESCO starting shortly after the Executive Council; in early December the IOC would host the International CLIVAR Conference; and in January 1999, the 2nd International Ocean Symposium organized under the auspices of the IOC-JGOFS Ocean CO₂ Advisory Panel would be held in Tsukuba Japan.

118. The OOPC held its 3rd meeting in Grasse France 6-8 April 1998. The past year has focussed on identifying the steps and fostering organizational structure that must be considered to convert design of an ocean observing system into reality. As the technology has been developing rapidly the Panel revisited and modified some of the recommendations and priorities published in the final report of the Ocean Observing System Development Panel in March of 1995. The Panel set a course of action to develop an OOPC Implementation Plan starting with sections for a Surface and Marine Data SubProgramme, and for a special set of permanent moored surface reference sites. OOPC also contributed from the ocean perspective to the preparation of the SBSTA Report to COP-4 of the UN FCCC on the Adequacy of the Global Climate Observing System. Since events and progress in implementing ocean observations was moving so rapidly, it was the conviction of those involved with CLIVAR, GOOS, GODAE and other programmes that it was desirable to schedule an Ocean Observations for Climate Conference in 1999 with primary consideration given to October in Washington DC. A. Alexiou emphasized that the effort necessary to coordinate needs of its three sponsors and the myriad of other related groups involving modelling, data management, *in situ* and space observations and technology developments, was unsustainable at present staffing levels.

119. GODAE, which began as an OOPC initiative has rapidly evolved into the experimental project for which it was destined. It has established its own organizational structure consisting of "Patrons", and "Partners". A GODAE Scientific Steering Team has been established and it has already produced a proposal for ARGO, a global array of 3000 profiling floats. ARGO's design will

satisfy the upper ocean requirements of both CLIVAR and GODAE and will eventually become a part of GOOS.

120. Dr. Hartmut Grassl, Director of the WCRP, reviewed the long standing relationships and strong support from the IOC, ICSU and WMO that were key to the success of the WCRP. He expressed gratitude for the continued financial support from ICSU and IOC which was crucial for supporting the many groups involved in planning and managing the large-scale programmes like WOCE and CLIVAR. He noted the huge response from the more than 60 countries to the upcoming International CLIVAR Conference next month and suggested it was indicative of their rapidly growing interest in climate change issues. Dr Grassl urged the Council to find ways to channel additional support for management of programmes at the international level. While representing only a tiny fraction of programme costs, it is essential to their success and without question the investment pays off.

121. Many countries indicated their strong support for the directions that IOC was moving with its climate activities and recognized the growing burden on the OOPC and IOC staff caused by the increasing number of panels, workshops and meetings accompanying the growth of climate activities. Support for CLIVAR was voiced by many delegates. Many indicated their countries had formed national CLIVAR organizations. Planning that served to integrate OOPC and WCRP activities with GOOS development was encouraged by several delegates. A few voices went beyond appreciation of the progress made by climate researches, and urged greater consideration be given to improving communication between modelers and users so that more timely products more tailored to the needs of users can be developed and distributed on a regular basis. The importance of access to data, CD-ROMs and technology to improve self-help of nations was stressed, especially in the southern hemisphere, so that potential benefits of this increased knowledge become globally available.

122. The Chairman noted that Mr. Alexiou in his OOPC report, and that the United States of America and Japan in the debate had referred to the International Ocean Color Coordinating Group. He reported that the IOCCG is pursuing a rigorous programme and wished to correct some unfortunate wording in the IOC 1997 Annual Report concerning IOC support to the Group. He emphasized that the Executive Secretary has pledged continuing support for those IOCCG activities of special importance to the IOC.

5.1.3 El Niño 1997- 98 follow-up: improvement of early warning systems and

5.1.4 IOC-UNESCO initiative on capacity building and education for adaptive strategies to reduce the impact of El Niño related disasters

123. Mr. William Erb, Senior Assistant Secretary IOC, reported on El Niño and natural disaster reduction related activities at the IOC.

124. The suggested references are the provisional agenda, IOC/EC XXXI/2 prov., paras 5.1.3 and 5.1.4, and IOC Assembly Resolution XIX-13 of July 1997 introduced by Peru with the support of several other delegations. The resolution instructed the Executive Secretary IOC to encourage the acceleration of activities in IOC related to the socio-economic study of the 'ENSO' phenomenon. No detailed budget was proposed as funds were expected to be provided by member states. IOC participated in the IDNDR Task Force on El Niño and also with IACCA as part of a coordinated UN approach in accordance with UN General Assembly Resolution 52/200 of 18 December 1997 also introduced by Peru. It requested action for the development of a strategy for the prevention, mitigation and rehabilitation of the damages caused by the El Niño phenomenon.

125. A plan developed primarily by IOC and WMO was combined with a proposal of the Government of Ecuador and CPPS resulting in the meeting entitled: First Governmental Meeting of Experts: International Seminar on the 1997-98 El Niño Event, which was held in Guayaquil during 9-13 November 1998. The Government of Ecuador through the Vice-President of the Republic, proposed the creation of an International Research Centre on El Niño Phenomenon with Headquarters in Guayaquil. This Centre will develop strategies for the mitigation of disasters. This centre will work in close cooperation with the Permanent Commission for the South Pacific, CPPS,

and its specific programme on the El Niño Phenomenon. The declaration recommends immediate action to assess the feasibility of establishing an International Center for the Research of the El Niño Phenomenon, in Guayaquil, as proposed by the GOE, and suggests that such action be undertaken within the context of the UN Interagency Task Force on El Niño. Also, the results of the retrospective El Niño meeting and its recommendations will be reported to UNGA and ECOSOC.

126. A number of important issues emerged from the many presentations given at the seminar. These include:
- The existing space based platforms and *in situ* observations are not adequate to monitor all the important characteristics of the climate system and the future of those systems are not assured.
 - The need to progress further the science of climate prediction leads to a need for research to develop and improve necessary climate models.
 - Regional cooperation and the sharing of infrastructure at a recognised center are essential for most countries if they are going to exploit capabilities in climate prediction.
 - More detailed regional observation networks, data collection and processing facilities will be essential for sustainable management of climate-sensitive resources.
 - Sustained capacity building over an extended period will be essential to build up scientific skills and maintain operational infrastructure for the development of user-focused services.
127. The unique role for the IOC, with respect to El Niño, is clearly on the technical, scientific side of the equation. GOOS provides routine systematic, long-term measurements of relevant ocean properties to underpin accurate forecasts of the changes in ocean conditions. The TAO array is being expanded by the PIRATA fixed array of buoys in the tropical Atlantic, which will in due course be extended to the Indian Ocean and North Atlantic. Data from these arrays is supplemented by information gained from Ships of Opportunity, satellites, drifting buoys and research vessels. To improve the system, funding is required not simply to maintain, but also to extend the observational network, to improve the numerical models used to process data, and to improve the methods by which the data are assimilated into models. To this latter end the IOC, along with the Committee for Earth Observing Satellites (CEOS), has recently launched the Global Ocean Data Assimilation Experiment (GODAE). IOC also operates the International Oceanographic Data and Information Exchange System, comprised of more than sixty countries and three major data centers.
128. Also in Guayaquil, prior to the El Niño Seminar, the XIII Session of the Joint Working Group on El Niño, sponsored by the IOC, WMO and CPPS was convened during 5-7 November. This meeting confirmed CPPS as the central coordinating unit for El Niño research activities in the region. The meeting report proposes development of a buoy array, parallel to the South American coast, which would measure oceanographic and meteorological parameters and contribute to the study of El Niño by measuring the long range propagation of remote signals into the eastern boundary current. This proposal requires to be considered in forums such as CLIVAR, and also the identification of funding sources.
129. As noted in the provisional agenda the, IDNDR will end in 1999, and the UN system will have to decide how, or if, to continue this programme. Within UNESCO, IOC is participating with the other sectors to decide the future role envisioned for UNESCO, in disaster reduction issues. The Director General of UNESCO requested that potential natural disaster reduction activities and pilot projects be identified in the draft 30 C/5 budget document. In the case of IOC, there are obvious activities that will contribute such as GOOS, the tsunami programme, GLOSS, IODE, ICAM and possibly others.
130. Sixteen countries and the representative of CPPS commented on agenda items 5.1.3 and 5.1.4. Many delegates described the impact of El Niño in their regions and their responses to it. The effects of El Niño were experienced around the globe. It was acknowledged that El Niño forecasts often vary locally- an area where drought is predicted may have nearby localities where heavy rain occurs. El Niño's also vary from "event" to "event" in terms of how they affect certain

areas. There was strong support for IOC's involvement in integrating socio-economic and cultural aspects. The need for improved communication between modellers, forecasters and users was expressed. Some delegates expressed satisfaction at the improved predictions while others stressed the importance of improving the observation and data management systems, the modelling and forecasting so as to understand climate more fully. One delegation indicated that incorporation of El Niño activities into the GOOS programme could be advantageous. Also, it was noted that preventive measures (taken in advance) almost always result in lower costs (losses) when compared to cases wherein no preventive action is taken. The need for regional observation systems was identified, particularly by the countries comprising CPPS (Chile, Ecuador, Colombia and Peru), and this was strongly supported by the representative from CPPS, as well as the continuing role of CPPS in El Niño studies. Finally, the Executive Council supported a continuing role for IOC in El Niño activities and in the UNESCO process presently underway to address natural disaster reduction in general.

5.2 HARMFUL ALGAL BLOOM PROGRAMME (HAB)

The Development of An International Science Programme on the Global Ecology and Oceanography of Harmful Algal Blooms

131. The IOC Assembly at its 19th Session, through Resolution XIX-1, approved Recommendation IPHAB-IV.2 concerning the development of a science agenda on the ecology and oceanography of harmful algal blooms as an element of the IOC HAB Programme.
132. The IOC Coordinator for HAB, H. Enevoldsen, reported on the follow-up by the Secretariat. SCOR has accepted an invitation from the IOC to co-sponsor the development of the science programme. The first joint step was a SCOR-IOC Workshop on the Global Ecology and Oceanography of Harmful Algal Blooms which was held at Havreholm, Denmark, 12-17 October 1998. The Workshop was Chaired by Professor John Cullen (Canada). The Workshop received financial support from SCOR, IOC, the Maj and Tor Nessling Foundation (Finland), the US NOAA, NSF and NASA, and the Danish International Development Assistance (DANIDA).
133. The report of the Workshop proposes a plan for co-ordinated scientific research and co-operation to develop international capabilities for assessment, prediction and mitigation of harmful algal blooms: the Global Ecology and Oceanography of Harmful Algal Blooms, GEOHAB.
134. This new science programme was presented as the next step in the implementation of the IOC HAB Programme Plan which has as a scientific goal to foster research to better understand the population dynamics of harmful algae. It was underlined that the IOC HAB Programme thus provides the framework for a focussed science programme such as GEOHAB filling a prominent gap in the activities implemented so far, where emphasis has been on networking, training and capacity building. The IOC Intergovernmental Panel on HAB will provide the intergovernmental mechanism for developing and implementing GEOHAB and the partnership with SCOR will help coordinate the scientific efforts.
135. The SCOR-IOC Workshop recognized that successful research to date shows that the key to explaining the HAB phenomena is to identify and quantify special adaptations of HAB species that lead to their selection in particular hydrodynamical and ecological conditions. Thus, the central research problem is to understand the critical features and mechanisms underlying the population dynamics of HAB species. The understanding can be used as a basis for monitoring and predicting the occurrence, movement, toxicity, and environmental effects of HABs.
136. The IOC Coordinator for HAB presented the mission of GEOHAB as to foster international co-operative research on HABs in the context of their ecological systems and oceanographic processes which influences them. It was emphasized that improved global observation systems will be required to resolve influences of environmental factors (anthropogenic and climate-related) on distribution and trends in HAB occurrences. This should be facilitated through links between GEOHAB and GOOS.

137. **The Executive Council responded strongly** to the presentation with 18 delegations expressing their views. Many delegates reported on the recurring serious effects of HABs on national and regional economies and public health. **The Executive Council commended** the HAB Programme for its development in close contact and interaction with the scientific community and referred to GEOHAB as a science programme which provides an important scientific challenge and at the same time responds to societal needs. **The Executive Council requested** close interaction with regional subsidiary bodies and groups in the further development and implementation of GEOHAB.
138. **The Executive Council reiterated** the importance of GEOHAB providing results which will improve systematic monitoring and thus strengthen the development of the relevant GOOS modules. **The Executive Council noted** the importance of including 'training through research' in the development and implementation of GEOHAB.
139. The Executive Director of SCOR reported that SCOR at its General Meeting, Amsterdam, October 1998, enthusiastically endorsed GEOHAB as a new programme of the Committee and that ICSU already has provided and obtained support for the further development of GEOHAB in 1999. The Executive Director of SCOR expressed the hope that IOC and SCOR could jointly proceed with the establishment of a Scientific Steering Committee for GEOHAB as well as work towards the establishment of GEOHAB Project Office in the very near future following the model of other science programmes such as GLOBEC and JGOFS.
140. The Director of the GOOS Office welcomed the GEOHAB initiative and summarized the natural links in particular with Coastal GOOS. He noted that Dr. Adriana Zingone, the Chair of the IOC Intergovernmental Panel on HAB is a member of the Coastal Module Panel of GOOS, because observing and forecasting HABs is regarded as an essential component of Coastal GOOS. At its meeting in Curitiba, Brazil, 29 October - 1 November 1998, the Coastal Panel of GOOS agreed that developing adequate monitoring and forecasting for HABs **requires greater understanding of the oceanographic controls on HAB development and distribution**. The Panel therefore fully supports the GEOHAB initiative, and expects to inherit the legacy of GEOHAB in the form of an effective monitoring and forecasting systems for HABs. The Coastal GOOS Panel is developing a pilot project on HABs, to determine what needs to be monitored as the basis for alerts in coastal seas. The focus will be on southeast Asia between Manila and Jakarta. This highlights the need for GOOS to promote research in certain fields to ensure that its eventual operations are strongly underpinned by science. The Coastal GOOS Panel will be working with the HAB Panel to develop a network (to be called HABNET or PHYTONET) to make better use of existing phytoplankton and HAB laboratories and databases to monitor HAB events. It is likely that Europe will be chosen as the trial area for starting this network.
141. The IMO representative informed the Executive Council of IMO's efforts to minimize the risks of transferring aquatic organisms, including algae, with ballast water on board ships. A legally binding framework is under consideration supported by scientific advice provided by the ICES/IMO/IOC Study Group on Ballast Water and Sediments.
142. The support of IOC in co-operating with IMO in this regard was recognized and highly appreciated. The IMO representative further drew attention to future co-operation necessary with IOC regarding scientific methodologies for sampling and analysis of ballast water, as well as for training programmes and the establishment of information networks.
143. **The Executive Council adopted** Resolution EC-XXXI.1
- 5.3 POLICY OPTIONS FOR FUTURE DEVELOPMENT OF THE OSLR PROGRAMME AND RESTRUCTURING OF CURRENT PROGRAMME ACTIVITIES
144. A brief history including a summary of current activities of the OSLR programme was provided. It was noted that although the fisheries recruitment studies, that were the core of the programme from 1983 to 1993, have been largely completed, there are continuing demands from

management for determining ecosystem carrying capacity, developing indices of resiliency and identifying parameters for assessing ecosystem conditions.

145. Current components of the OSLR programme include the Harmful Algal Bloom Programme which continues to be important and active as noted in the discussions of the proposed GEOHAB initiative. Annual consultations on the status and progress of the Large Marine Ecosystem Programme are sponsored by OSLR. OSLR is developing the Living Marine Resource Module of GOOS and coordinating the implementation of the Global Coral Reef Monitoring Network. When operational, both of these will become part of the GOOS programme.
146. Given the completion of the recruitment studies and the existence of new ongoing international ecosystem studies it was proposed that the OSLR Programme be reviewed by a group of experts with the objectives of identifying research needed (i) to provide estimates of ecosystem carrying capacities, (ii) to improve the indices of ecosystem resilience and (iii) to identify appropriate variables for monitoring that maybe indicative of ecosystem conditions and their response to change.
147. The Executive Council was also asked for guidance for obtaining sufficient staff support for the OSLR programme.
148. The Representative from China expressed strong support for the review and indicated that it should be linked to integrated Coastal Management. He also recognized the need for staff.
149. The Representative from the United States of America remarked that the historical review of OSLR was useful and supports the proposed review, stressing that research of ecosystem carrying capacity and the development of resilience indices, as proposed in the document, was a good approach. The Representative from the United States of America informed the Executive Council that they would continue to support OSLR by the secondment of an Associated Expert. The Chairman, on behalf of all the Member States, thanked the United States of America for this significant contribution.
150. The Representative from Portugal remarked that the OSLR Programme needed clarification and renewed vitality. A review should consider the needs of subsidiary bodies in regard to their living marine resources. He did not support the establishment of a GEOHAB Project Office outside the Secretariat as the best strategy to strengthen IOC but recommended the reinforcement of OSLR.
151. The Representative of Canada endorsed the proposed review of OSLR Programme which should take into account the GOOS Report on Living Marine Resources. He also suggested that OSLR should also become more involved in research on ballast water as a vehicle for introducing foreign organisms.
152. The Representative from Nigeria supported the review and offered to participate.
153. The Representative from Australia questioned whether OSLR is a coherent set of activities or a convenient grouping of programmes. He agreed with the proposed review but suggested that it should be also focused on the programmes that OSLR serves.
154. The Representative from SCOR concurred that a review of OSLR is timely and appropriate and that such reviews are important and a normal part of scientific projects and programmes.
155. The Executive Secretary expressed concern about IOC being identified with open-ended activities and suggested that programmes and projects should have well defined goals that guide them to completion. Permanent activities of IOC should be better identified by other terms.
156. The Chairman proposed that Representatives of FAO and SCOR and other relevant organizations be invited to participate in the review of OSLR to be undertaken.

157. The Executive Council adopted Resolutions EC-XXXI. 2

5.4 INTERNATIONAL TSUNAMI WARNING SYSTEM IN THE PACIFIC (ITSU) AND OTHER IDNDR-RELATED ACTIVITIES

- 158.** The ICG/ITSU Chairman, Mr. H. Gorziglia (Chile) introduced for adoption the summary report and recommendations of the sixteenth session of the IOC International Coordination Group for the Tsunami Warning System in the Pacific (ICG/ITSU-XVI) held in Lima, Peru, from 23 - 26 September 1997 under the auspices of the Dirección de Hidrografía y Navegación de la Marina de Guerra del Perú, with the participation of the representatives of the countries of the Pacific and International Organizations.
- 159.** He started his presentation by expressing thanks to the Government of Peru for hosting the Session, providing excellent facilities and for hospitality extended to all participants.
- 160.** He then focused attention of the Session on some major issues of the Tsunami Programme Implementation, on the progress achieved after ITSU-XVI and on the problems faced by the ICG/ITSU.
- 161.** In providing an overview of the ICG/ITSU activities, he emphasized the importance of the International Tsunami Information Center (ITIC) in developing disaster prevention and preparedness activities. ITIC activities are key in reducing the need for disaster relief, and in disseminating information on the progress in the Tsunami Warning System.
- 162.** It was pointed out, however, that during the last year, there was a visible decline in the ITIC activities (e.g. visiting experts programme has not been implemented, publication of the Tsunami Newsletter is delayed, etc.). To improve the situation, Dr. R. Nuñez from Chile, was nominated to the post of the Associate Director of ITIC and the review of the ITIC activities will be brought to the attention of the ICG/ITSU Officers meeting planned to be held in Honolulu, Hawaii, United States of America, from 26 - 29 January, in order to identify ways for improving the effectiveness of ITIC.
- 163.** In the last years, capacity building in the development of preventive measures continued to be of high priority in the ICG/ITSU agenda. A few training courses and workshops on tsunami modelling and organization of preventive measures have been arranged in the Pacific region. The ICG/ITSU experts participated in related meetings organized in other geographical areas like Caribbean and Europe and had an opportunity to share experience of the ICG/ITSU in the tsunami mitigation. The publication of the IOC manual on the Tsunami Inundation Modelling Exchange (TIME) as well as of the field guide for post-tsunami surveys was finalized and the publications are available in four languages. The ITSU-XVI recommended that a second phase of the TIME project be implemented to develop a more advanced numerical model(s) for tsunami propagation and inundation through integrated co-operation among tsunami modelling experts of the world. The project on the creation of a comprehensive source of historical data on tsunamis for the entire Pacific has been successfully implemented and a prototype version of the data set on CD-ROM "Tsunamis in the Pacific, 681-1999" is under completion. This product will be beneficial for a wide scope of application and to different user groups. The publication of an updated version of the communication plan marked an important contribution to increasing effectiveness of the warning system.
- 164.** Mr. Gorziglia reminded the Executive Council that today the Tsunami programme is unique among the IOC activities by being directly involved in saving human lives and property. In the IDNDR publications, the tsunami warning system is identified as being within very few existing operational disaster warning systems. Updating the Master Plan of the IOC tsunami programme for the years after 2000 is coming to a final phase and will help to identify the strategy for further improving the tsunami warning system. He noted that the danger of the tsunami disaster is of a global nature and the development of tsunami warning systems in other geographical areas is in process and the ICG/ITSU is considering ways of assistance in these efforts.

165. Mr. Gorziglia expressed his satisfaction with the cooperation established with the IUGG Tsunami Commission, Tsunami Society and WDC-A on Tsunamis in meeting the IDNDR objectives and expressed a hope that through coordinated efforts with the IUGG and GEBCO Committee the ICG/ITSU will be able to develop digital bathymetry datasets. For the tsunami mitigation purposes, the importance of presenting the IOC tsunami programme at the 1999 IDNDR Forum and the Conference on disaster prevention, land use planning and sustainable development was emphasized.
166. Mr. Gorziglia concluded by drawing attention of the Executive Council to the problems in implementing the programme: (i) small resources at the national and regional level are available for the establishment of new or improving existing tsunami warning centers. He expressed concern with a slow development of the Kuril-Kamchatka project aimed at reconstructing the destroyed network of tide-gauges in the area (special mention was made to the fate of the South West Pacific project proposal which was not implemented due to the lack of support from the funding agencies; (ii) the low level of support provided by the IOC through the regular fund arrangements in spite of the high priority given to the programme. He thanked the governments of United States of America and France for contributing to the IOC Trust Fund in support of the programme and invited other countries to follow this example. He pointed out the benefits for Member States to have an effective warning system in the Pacific and addressed Member States which don't participate in the programme to join the ICG/ITSU and contribute to the programme implementation.
167. **The Executive Council expressed its appreciation with the work made by the ICG/ITSU and accepted the summary report of ITSU-XVI and recommendations contained therein.**
168. **The Executive Council thanked the Government of Peru for hosting ITSU-XVI.**
169. Many delegates reported on their national activities and expressed full support to the programme. In particular, the Delegate of Japan informed of the actions taken for improving communications between the tsunami warning centres and for authorizing JMA satellite operators to relay data from the Kuril-Kamchatka tide gauges to the PTWC.
170. The Delegate of Russia informed of the latest developments in the implementation of the Kuril-Kamchatka project and expressed a desire to see the project finalized in 1999.
171. The Delegate of France informed on the progress in tsunami modelling development and modification of the TREMORS system, as well as on the contribution of the country to the development of promotional materials - publication of the brochure - "Tsunami-Great Waves" in French language.
172. The Delegate of Jamaica expressing full support to the programme noted with concern the problems in communications between the countries of the Caribbean basin and IOC and recommended that the IOC Regional Office in Cartagena (Colombia) should assist in regional planning against disasters and in keeping the Member States regularly informed on the progress in the tsunami programme implementation.
173. The delegation of the United States of America pointed out that the Tsunami Warning System in the Pacific is one of the most durable and successful of IOC programmes, despite the marginally adequate funding available for its operation. While recognizing fully the merits of the proposed new initiatives in the Atlantic, Mediterranean and Indian Ocean, the United States of America delegate stressed that these should be funded from new budgetary sources. The United States of America would object to diverting funding from the present programme in the Pacific to new programmes.
174. **The Executive Council agreed on the need to develop and disseminate a recommendation on the threats of natural disasters to coastal countries and on the IOC role in their mitigation, and instructed the Executive Secretary IOC to take necessary actions. The Executive Council supported the statement of the SOPAC Representative on the importance**

of co-operation with this regional organization and recommended to identify jointly mechanisms of co-operation. The Executive Council reiterated the high priority of the programme as the one targeted to meet the IDNDR objectives and being responsible for protecting the Member States' lives, infrastructure, and other national assets from the impact of tsunami. The Executive Council requested the Executive Secretary IOC to seek further financial support for the programme.

175. The Executive Council agreed that due to limited resources available to the programme today, they should not be dispersed to creating tsunami warning systems in other areas than the Pacific. Assistance to these areas can be provided by the ICG/ITSU through sharing the ICG/ITSU experience and knowledge, through joint public education and awareness efforts.
176. The Executive Council acknowledged with thanks the confirmation of the Republic of Korea to have the next ICG/ITSU Session in Seoul, in the fall of 1999 and instructed the IOC Executive Secretary to make arrangements for the Session.
177. The Deputy Executive Secretary introduced document IOC/EC-XXXI/7 containing the project proposal on storm surges for the Northern part of the Indian Ocean prepared by experts of IOC, WMO and IHP of UNESCO in response to a decision of the Nineteenth Session of the IOC Assembly.
178. This proposal is a five-year programme to develop the infrastructure necessary for providing effective and timely storm surge forecasts and warnings. The primary objective is saving lives and property. In addition, the project will make substantial contributions to encourage investment for sustainable coastal development and to significantly reducing the aggravation of poverty caused by storm surge disasters in the region.
179. The proposal includes improvement of the meteorological, marine and hydrological observing systems, and of the telemetry and data processing systems required. Suitable cyclone model and storm surge model developments are proposed, along with an operational oceanographic and hydrological numerical storm surge prediction facility. Procedures for strengthening of the links among the National Meteorological Services, National Hydrological Services, Marine Agencies and the counter-disaster and environmental organizations are also proposed, in order to have the warning-response mechanism in place so that appropriate disaster prevention and preparedness measures be taken promptly. A key component of the proposal is capacity building and human resources development through training, provision of equipment and workshops/seminars.
180. He stressed that this project is a response to the recommendation of the UNCED Agenda 21 calling for cooperation among international agencies in the implementation of joint projects. This project also fully corresponds to the recommendations of UNCED on sustainable development and to the principles and objectives of IDNDR. He informed the Executive Council that the project proposal was discussed and approved by the Intergovernmental Council of IHP of UNESCO and by the Fiftieth Session of the WMO Executive Council in June 1998.
181. He invited the Executive Council to consider the project for adoption and to provide guidelines to the Executive Secretary IOC for its implementation.
182. The Delegate of India emphasized the importance of the project and informed the Council of the decisions of the IOCINDIO Regional Committee relevant to the Storm Surges Research and mitigation. He invited the Executive Council to have an IOCINDIO Workshop on Storm Surges in India in the second half of 1999 and advised the Executive Council that the meeting on the storm surges project be arranged in conjunction with the Workshop with the participation of the Member States representatives of the region and international organization concerned, including funding agencies in order to develop a detailed plan for the project implementation.
183. The Executive Council expressed satisfaction for the development of the proposal and the role of IOC. The Executive Council stressed the importance of the project not only for the

countries of the Indian Ocean but of other regions as well where disastrous storm surges occur.

184. **The Executive Council welcomed** the Indian invitation for the Workshop and a meeting on the project planning and instructed the Executive Secretary to implement these activities. **The Executive Council noted** that it would be most desirable to give an opportunity to experts from other than IOCINDIO region to also take part in the Workshop and provide their experience in the storm surges research.
185. The Delegate of Nigeria noted in this regard the effects of regular floods observed in the African Western countries caused by storm surges. **The Executive Council supported** the appeal of the WMO Council to potential funding agencies to support the project proposal by providing required funds.
186. **The Executive Council noted** the concerns expressed by the Representative of WMO for a more clear justification of some of the project components and for strengthening its hydrological component. **The Executive Council was also informed** of the view of the Coastal GOOS Module Panel which noted the lack of an inundation model for flooding prediction in the project. **The Executive Council supported** the need for the project improvements and the view to address concerns jointly with C-GOOS experts.
187. **The Executive Council recommended** that all necessary modifications be made to the project proposal in the first quarter of 1999 well in advance of the meetings planned in India, through coordinated efforts of all organizations and committees concerned, and **instructed** the IOC Executive Secretary to inform the Heads of WMO, IHP of UNESCO and the Chairman of the Coastal GOOS Panel of the adopted decisions.
188. **The Executive Council adopted** Resolution EC-XXXI.3.

5.5 GOOS AND RELATED MATTERS (IGOSS, DBCP AND GLOSS)

5.5.1. Balanced development of GOOS

189. Dr. Summerhayes, Director of GOOS Project Office, introduced the presentation on GOOS, summarized in Annex VI.
190. The discussion on this item began acknowledging the efforts of the GOOS Project Office and the GOOS Panels in taking GOOS forward, and recognition that substantial real progress was now being made. Especial praise was given for the creation of the GOOS Initial Observing System, and publication of The GOOS 1998, which should prove to be extremely useful in persuading Governments of the value of investing in GOOS.
191. During the discussion, many delegates endorsed the principle of balanced development of GOOS, and welcomed the efforts that the Coastal GOOS Panel was making to make this balanced development a reality.
192. Delegates felt that it was extremely important that users be engaged by all GOOS Panels in the design process from the beginning, and were pleased to see that the Coastal Panel was holding meetings with users. Other GOOS Panels, including regional ones, need to demonstrate similar contacts.
193. The Philippines suggested the need for integration of the appropriate coastal, oceanic, natural and social sciences, to recognise that no matter how much science we provide, its use requires understanding of the social and political dimension of our actions. The International Ocean Institute endorsed the need for socio-economic linkages and noted the need to provide more information on costs and benefits.

194. Delegates approved the concept of building GOOS on the basis of existing systems, and asked that all Panels make full use of existing systems. Sweden suggested developing dialogue with managers of existing groups like ICES and BalticGOOS to learn from their mistakes so that we do not reinvent the wheel.
195. It was clear from the discussion that the GOOS paradigm, comprising an integrated, holistic and issue-driven approach to the development of operational products and services and the research necessary to implement them, is already influencing thinking and planning at the national level, and that many Member States are now planning, or indeed collecting, their own coastal observations in line with the GOOS concept and Principles. This is exciting news, as implementation along GOOS lines at the national level will make it all the easier to integrate observations from neighbouring states as GOOS develops. Indeed several delegations made it clear that they were now preparing to make commitments to GOOS, and would soon be in a position to list the systems that they proposed to make available as GOOS components.
196. In that context, some delegations expressed disappointment that the GOOS Agreements meeting that had been initially proposed for the summer of 1998 had not taken place, although they fully understood the reasons for postponing it so that the issue can be considered at the next IOC Assembly. Several delegations stressed the importance to persuade Governments to subscribe the GOOS Agreement proposed in the Draft Resolution that had been circulated to Member States for consideration before the next Assembly. They regarded it as very important that the Assembly should pass this Resolution as a means of strengthening the argument for Governments to make commitments to GOOS.
197. Delegates wondered when the proposed Commitments Meeting, at which several Member States would have announced their Commitments to GOOS, would now take place. They urged that a mechanism be found to hold this meeting as soon as possible, perhaps in association with the next IOC Assembly or shortly thereafter.
198. There was widespread and strong support for the creation of regional GOOS bodies, like MedGOOS, PacificGOOS, Black-Sea-GOOS, and Caribbean GOOS as devices for promoting the development of GOOS. It was recognised that attention would have to be given to ensuring that these new ventures were appropriately resourced, and that while much of the resourcing would have to be local in origin, some would come through funding and aid agencies. There is clearly a role for developed countries to help developing ones build their GOOS involvement, starting at the regional level, as part of the capacity building process.
199. A strong plea was made by Israel, Italy, Greece and Turkey, supported by the Black Sea Regional Committee and the International Ocean Institute, for the IOC to provide more help in establishing an integrated approach to the development of research and services across the Mediterranean, and including MedGOOS and MedGLOSS. This initiative should be discussed with other international bodies involved in Mediterranean activities, especially the European Union, to avoid thematic duplications and to ensure coverage of research areas and regions not included in existing programmes. The recommendation of the Nineteenth Session of the IOC Assembly on co-ordinated involvement of northern and southern Mediterranean countries in all activities should be taken into account. It would be desirable to involve interested Black Sea countries in this initiative, since there is an intimate oceanographic link between the Black Sea and Mediterranean basins. The unified Mediterranean programme of the IOC should be submitted for approval to the Twentieth Session of the IOC Assembly.
200. Several delegations noted that continued enhancement of GOOS by IOC was essential to meet the requirements specified by the Fourth Conference of the Parties to the FCCC in Buenos Aires (November 2-14, 1998) for the improvements in the observations of the climate system that were necessary to understand and forecast climate change and man's effects on that change. In that context, many delegations underlined their willingness to participate in the implementation of GODAE, which they regard as a key next step in taking GOOS forward, and the sole easily identifiable and cost-effective means of obtaining global coverage of the temperature and salinity of the upper ocean.

201. To further improve the collection and management of data and production of appropriate products by GOOS, several delegates underlined the importance of integrating the oceanographic observations of IGOSS with those of the WMO's CMM, through the proposed mechanism of a Joint Commission on Oceanography and Marine Meteorology (see agenda item 4.3). France and Australia applauded the creation of an Interim Implementation Advisory Group as a useful step to ensure that the process of integration began as soon as possible.
202. Delegates welcomed the change in the structure of the GOOS planning and coordinating mechanism represented by the replacement of J-GOOS by the GSC. Sweden, Germany and the United Kingdom expressed disappointment that the make up of the GSC was not already what was proposed in the Memorandum of Understanding under which the GSC had been set up, namely that there should be an even proportion of experts from operational agencies and academic/government institutions. There was a strong feeling that this put the GSC at risk of being far too academic in its outlook, prejudicing the emergence of designs and plans that addressed the needs of the whole user community. They asked that the make up of the GSC should be changed as soon as possible to reflect the sponsors' requirement.
203. There was also concern that the present structure, comprising two parallel bodies, (i) a group of experts (the GSC) and (ii) an intergovernmental body (I-GOOS), might not be robust enough for the coordination of a major intergovernmental programme. The normal practice would be for the intergovernmental body to steer such a programme with advice from a group of experts which would comprise an appropriate subsidiary body. It was agreed that the new structure should be continued without alteration, but that the question of the most appropriate structure for GOOS in the long run should remain on the agenda.
204. Russia and India remarked that although the Strategic Plan and The GOOS 1998 now gave a much more coherent picture of what GOOS was and how it should develop, advice was still urgently needed on what data should be collected, and their spatial and temporal resolution and accuracy. Early publication of the OOPC's recommendations is needed, as is a speedy conclusion to and publication of the Coastal GOOS design, along with rapid definition of the GOOS data and information management plan.
205. Finally, many delegates fully appreciated the fact that the rapid growth of GOOS meant that more and more demands were being placed on the GOOS Project Office, which needed appropriate resources in terms of staff, as well as money to run the necessary planning, coordination, and (increasingly) implementation meetings. Several delegates called for an inter-sessional group to determine the level of resources required, to inform discussion at the Assembly in 1999.
206. **The Executive Council adopted Resolutions EC-XXXI.5 and 8.**

5.5.2 Change to GLOSS Group of Experts Terms of Reference

207. Dr. C. Summerhayes introduced this item, explaining that it had been suggested by the GOOS Steering Committee and CLIVAR that there was a need for a new sea level group to work alongside the GLOSS Group of Experts (GLOSS-GE) to provide scientific advice on sea-level to the wider community. This group would take on some of the activity of the GLOSS GE, leaving the main task of the GLOSS GE as carrying out and coordinating the implementation of the sea level network in response to scientific requirements which, in future, would come to it from the proposed Sea Level Working Group cosponsored by GOOS, GCOS, and the WCRP (CLIVAR). If this change is accepted then it requires a minor change to the GLOSS Terms of Reference.
208. The Chairman asked delegates if they felt that there was a need for a decision at this time. He noted that the matter had not been debated by the full GLOSS GE, although the change had been agreed to by the Chairman of the GLOSS GE. He reminded delegates that the GLOSS GE would now be meeting in May 1999, suggested that it might be more appropriate if this matter was debated there before going to the Assembly, and asked those present for their advice.

209. The United Kingdom delegation suggested that no resolution be put at this time, and that the GLOSS GE be asked to examine the question, including the terms of reference of the proposed new Sea level Working Group. He noted that in the background papers containing the Terms of Reference of the GLOSS GE and the proposed new Sea Level Working Group, both groups were asked to update the GLOSS Implementation Plan, so clarification of responsibility is clearly needed, as is clarification of the responsibility for training. Some statement is also needed in the Terms of Reference of the GLOSS GE regarding the integration of altimetry with ground-based sea-level measurements.
210. These concerns were shared by Portugal, Russia and Germany, arguing against the proliferation of advisory bodies, and asking why two separate bodies were needed for advice and implementation.
211. The Brazilian Delegation noted that a GLOSS Training Course will be held at the Oceanographic Institute of the University of Sao Paulo in 1999, with the support of IOC.
212. On behalf of the IOC, C. Summerhayes thanked Dr. David Pugh, former Chairman of GLOSS for all his efforts on behalf of GLOSS over the years, and presented him with a Certificate of Appreciation. David Pugh thanked the IOC for the Certificate, saying that GLOSS was now in good hands and that he was pleased that it had become a key part of the new GOOS Initial Observing System. He felt that the thanks were not due to him but to the Member States who supplied and operated the tide gauges that made GLOSS possible in the first place.

5.5.3 Inventories of Coastal Monitoring Systems

213. This item was introduced by C. Summerhayes, who explained that through GOOS and ICAM the IOC is now seeing a new demand for an inventory of existing national coastal monitoring systems so that we can (i) evaluate which of them might be appropriate candidates for Coastal GOOS; and (ii) give advice on what monitoring systems still need to be set up for ICAM. The LMR Panel of GOOS is requesting a similar inventory of the systems for observing living marine resources. In addition the IODE is being pressed to produce a metadata file showing all data from coastal seas. Thus the community is asking IOC to provide a large amount of information that is currently not available and which would take considerable work to collect. This is a cross cutting issue, affecting ICAM, GOOS and IODE.
214. Given that the IOC Secretariat staff is already overloaded with programme activities, it would seem wise to meet this need by hiring a consultant for a short period, to capture the necessary information and to build the necessary metadatabases, including, where possible, information about the use and availability of satellite data. The efficiency of working with IODE in this regard was stressed.
215. The LOICZ research programme of the IGBP has a similar interest. LOICZ is intending to make an inventory of coastal observations from the specific regions of interest to LOICZ researchers. In discussion with the Director of the LOICZ Project Office it has been agreed therefore that the IOC and LOICZ could share the work and cost of producing a full global inventory. The cost to IOC would be in the region of US\$35,000.
216. The Chairman introduced the discussion by noting that it is critical to capture this kind of information at this time, and that doing so should be an important part of IOC's remit. The idea was strongly endorsed by several delegations including Portugal, Colombia, the Philippines, Canada and the United Kingdom, with the recommendation that best use should be made of existing compilations of such information like those already made by UNEP, ICES and other regional bodies, as well as by some individual countries, like the United Kingdom, for instance, whose information is available on the Internet. Full use should be made of the Internet in collecting the information required, and the United Kingdom offered to assist in this matter.
217. The Philippines reminded delegates that IOC recently supported the International Seagrass Biology Workshop at which it had been decided to form the UNESCO-IOC Global

Seagrass Scientific Monitoring and Exchange Information Network (Seagnet), which would be helping the inventory and collecting the kind of information required for the C-GOOS and ICAM.

218. It was suggested that the results of the work should be available via Internet.

219. The Chairman asked delegates to suggest to the Secretariat the names of additional national contact points who could help with the process.

220. **The Executive Council adopted Resolution EC-XXXI.9.**

5.6 CONSOLIDATED IMPLEMENTATION STRATEGY FOR TEMA ACTIVITIES IN ALL PROGRAMMES OF IOC

221. This item was presented by the Executive Secretary IOC with a brief introduction emphasizing the nature of TEMA-Capacity building across all IOC scientific programmes and services at short, medium and long-term scales and the forthcoming implementation of an internal mechanism to co-ordinate efforts, not only inside the IOC Secretariat but also with other programmes within UNESCO especially the Education Sector. This co-ordination will also be extended to other UN agencies and relevant NGO's.

222. The introduction was supplemented by the Technical Secretary Dr. V. Scarabino, Coordinator of TEMA in the Secretariat, addressing documentation available for this Agenda Item, namely: the strategy and framework plan developed during the second meeting of the TEMA Group of Experts for Capacity Building (Doc. IOC/TEMA-CB-II/3; and doc. IOC/INF-1112: Background elements, concepts, definitions, principles and pilot implementation) as well as the results of the three workshops dealing with the pilot implementation for LAC (Workshops Reports 138 - Chile -; 139 - Brazil -; and, 151- Colombia).

223. The Executive Director of SCOR, Ms. E. Gross, informed that the Council of SCOR suscribed during its last meeting in Amsterdam a new initiative which is aimed at developing regional centers of excellence for high level training in oceanography and the marine environmental sciences in developing countries. Such a regional approach to graduate education has been proposed as an effective means to increase the local supply of researcher qualified to tackle pressing regional environmental problems. There is an existing programme, supported by UNESCO/IOC and several national aid agencies, in which courses leading to Masters and PhD degrees are offered to students from the entire Latin American region, and where overseas scholars are supported to teach intensive, short courses thereby supplementing the expertise in the region. The potential exists for similar programme in other regions, and SCOR is actively studying ways and means to help in implementation. The Executive Director of SCOR invited the IOC to become a strong partner in this effort.

224. The Representative of Portugal while appreciating the intentions behind the initiative of SCOR expressed words of caution on its potential duplication of IOC TEMA activities, and encouraged SCOR to consider a strategy of support to such activities.

225. During the discussion that followed, eighteen Member States, two intergovernmental organizations (OAU, SOPAC), two non-governmental organizations (SCOR, FER) and one technical committee (CGOM), intervened.

226. Most Members States of the Executive Council strongly supported the implementation of TEMA actions, at regional and sub-regional levels. Canada and other Member States considered the Capacity Building programme of IOC as a good functional mechanism to incorporate efforts of regional indigenous bodies in human resources development.

227. Several Members States coincided that evaluation should be a constant and systematic element in all capacity building activities in order to ensure proper implementation. Other interventions pointed out to an appropriate balance between short and long term capacity building initiatives. The need to identify and designate regional focal points was re-stated as a subject of

vital importance to provide concrete information on real needs on capacity building coming out from the regions.

228. France emphasized the need to privilege partnership with official, well recognized and accountable institutions. Training must not be a programme in itself but an indispensable part of programme implementation. France also requested more information on the nature and legal status of FER.
229. In order to facilitate the implementation of TEMA activities (representing in real terms large investments), fluid communication with valid governmental as well as non-governmental partners should be ensured. In the same spirit, co-ordination with relevant bi-lateral co-operation agencies should be strengthened. France, Germany and Japan listed examples of important bilateral assistance and others as Jamaica and Korea offered national capabilities to improve regional needs, the latter announcing the establishment of a Center for Integrated Coastal Management and a Marine Environment Training and Education Center. Several African Members States, as well as the representative of the OAU, stressed the needs for training and education in the whole region.
230. The President of the European Federation of Networks (FER) and standing Chairman of the TEMA Technical Committee, Mr. M. Vigneaux, elaborated on the origin, structure and composition of FER, as one of the principal partners in the search for european co-operation external funding and in the present pilot initiative for LAC. He explained that marine science and technology is one of the five axes of co-operation encompassed by the framework agreement signed with UNESCO in May 1995.
231. Several Member States manifested support to the SCOR initiative and favoured joint efforts to be developed along the IOC Capacity Building strategy. The Russian Federation and Ukraine mentioned the Floating University programme as another example which can be valid for different regions.
232. **The Executive Council strongly re-stated** the need of secretariat reinforcement, so as to maintain a central functional capacity on training and education.
233. The Consultative Group on Ocean Mapping (CGOM) described its activities on ocean mapping to relevant partners in the Indian Ocean, including the urgent need for strong capacity building components.
234. The Chairman of IOC recapitulated that the TEMA Capacity Building programme of the Commission should play a catalytic and synergistic role in its relationship with Member States and these should ensure strong national support to the proposals submitted to funding agencies and donors.
235. The Executive Secretary announced plans for activating the revised Group of Experts on Capacity Building, to meet the recommendations of the last meeting of the Group (re. doc. IOC/TEMA-CB-II/3).
236. **The Executive Council endorsed** the presentation and report presented by the secretariat on this item.

5.7 IMPLEMENTATION OF IOC RESOLUTION XIX-5 ON MARINE SCIENCE INPUTS TO ICAM

237. The Technical Secretary, Mr. Julian Barbière, introduced the Agenda Item, referring to Document IOC/ECXXXI/14 entitled Expert Consultation on the Development of the IOC Programme on Marine Science and Observation Inputs to ICAM.
238. He recalled that following-up to Resolution XIX-5, IOC has strengthened its efforts to support the development of integrated coastal area management, and in particular based on the

recommendation of the Assembly, IOC has established an independent and interdisciplinary coastal zone programme drawing upon existing IOC as well as UNESCO programmes, with its own financial allocation. An IOC Co-ordinator on Integrated Coastal Area Management has been appointed by the Executive Secretary IOC. A strategy has been developed following an internal consultation and was reviewed and endorsed through the convening of a Group of Experts last October in Paris. The objectives of the Programme are to address coastal zone problems through an interdisciplinary approach that incorporates contributions of natural as well as social sciences and ensure good co-ordination among existing IOC and other relevant UNESCO programmes such as CSI. This programme also aims to provide a mechanism to promote interactions between the IOC programmes related to ICAM and those of other international organisations, between marine natural scientists and social scientists, as well as between scientists, coastal managers and policy makers. Five thematic areas are proposed as potential core projects of this Programme (as presented in Document IOC/ECXXXI/14), they are:

- (i) Development of Multidisciplinary Study of Coastal Processes for ICAM.
- (ii) Marine Scientific and Technological Information System for ICAM.
- (iii) Methodology Development in support of ICAM.
- (iv) Monitoring Systems for ICAM.
- (v) TEMA in Marine Science for ICAM.

239. Various ICAM-related activities carried out by the IOC since the last Assembly, were reviewed, in particular the results of the International Conference in Education and Training on Integrated Coastal Area Management, convened by ICCOPS in May 98, in Genoa, Italy; the development of the IOC-NOAA-University of Delaware(CSMP) Global Website on ICAM, the '98 IOC-KMI International Workshop on Integrated Coastal Management(ICAM) which was held in April this year in Seoul, Republic of Korea.
240. He recalled that IOC has recently signed a Memorandum of Understanding with the International Geographical Union, which calls for better integration between natural and social sciences. The two organisations have agreed to co-operate in the present IOC/ICAM programme. Finally he mentioned the increasing collaboration with the Land Ocean Interaction in the Coastal Zone Project (LOICZ) of IGBP in the investigation of coastal processes.
241. The Delegate of France welcomed the proposal and recalled co-operation activities undertaken by France in the Western Indian Ocean, as well as the continuation of efforts in the development of methodological tools for ICAM. He supported the development of regional training consortia in the field of ICAM, as suggested by the Experts Consultation.
242. The Delegates of Russia and Ukraine stressed the importance of considering the use of legal instruments when addressing coastal zone issues, in particular capabilities of countries to implement UNCLOS should be considered. In answering the objection raised by these delegations as to the fact that the expression "Coastal Zone" was not among the legal categories contained in UNCLOS, the Executive Secretary stressed that this was a science programme trying to develop new methods for coastal management and accordingly the use of a technical term such as "coastal zone" in this context had no legal implication.
243. The Delegate of China expressed his satisfaction to this new direction adopted by IOC, and welcomed the ICAM strategy as a mechanism to apply marine sciences to the management of coastal zones. He called for the appointment of a full time co-ordinator for the programme, and for sufficient funding to be allocated to the programme for its co-ordinated implementation.
244. The Delegate of Portugal approved the proposal and encourages IOC to make a presentation during the UNCSD-VII meeting which will be held in April 1999, on its role and activities in the field of coastal zone and ocean management.
245. The Delegate of Korea expressed its willingness to support the programme as it meets the recommendations of the Seoul Statement adopted during the International IOC/KMI Training Workshop on Integrated Coastal Management, held in April 1998.

246. The Representative of IOI invited IOC to co-operate with its regional programmes in the field of capacity building, and recalled the complementarity of IGOs and NGOs.
247. The Representative of SOPAC drew the attention of the Council on the need to consider the specificity of small islands as interconnected systems, and pleaded for the integration of SIDS management systems into the IOC/ICAM programme.
248. The Executive Council requested greater interaction and co-ordination of the IOC/ICAM programme with existing relevant programmes of UNESCO, and in particular with the joint Coastal Regions and Small Islands Unit (CSI) of which guiding Committee the ADG/IOC is a member.
249. The Executive Council welcomed the recommendations of the Expert Consultation and emphasized the need to implement the ICAM strategy mainly through IOC subsidiary bodies at the regional level, based on the strategy proposed by the Expert Consultation, taking into account the special needs of each region.
250. The Executive Council adopted Resolution EC-XXXI.5.

5.8. GLOBAL INVESTIGATION OF THE MARINE POLLUTION IN THE MARINE ENVIRONMENT

251. The Chairman IOC indicated that this was a special agenda item requiring no decisions by the Executive Council but, bringing to the attention of the Council the recent developments in the GIPME Programme. He further indicated that the vacant position of the senior Executive Secretary for the Marine Pollution and Monitoring Unit is now filled by Dr. Umit Unluata and that Dr. Michael Bowers has been appointed as the new Chairman of the GIPME Programme. He then invited Dr. Bowers to give a summary of the GIPME activities during 1997-1998.
252. Dr. Bowers draw attention to the Doc.IOC/INF-1110 "GIPME Activities 1997-1998" and provided a succinct summary of the intersessional activities of GIPME, emphasizing those related to the assessments of the marine environment, joint activities with the sponsoring agencies (UNEP, IMO) and co-ordination with the Health of the Ocean Module of GOOS.

6. PROGRESS REPORT OF THE AD HOC STUDY GROUP ON IOC DEVELOPMENT, OPERATIONS, STRUCTURES AND STATUTES (DOSS-2)

253. The DOSS-2 *ad hoc* Study Group met in Paris on 15-18 April 1998, to continue its work on modification of the IOC statutes in accordance with Assembly Resolution XIX-15. The results of the meeting were reported in IOC/EC-XXXI/6, dated 20 October 1998. The Chairman of IOC introduced the report indicating that the Executive Council would return to the item upon the arrival of the DOSS Chairman, Dr. Manuel Murrillo. Mr Holland indicated that the Executive Council should consider the document and any possible amendments prior to final approval at the next Assembly, noting the possibility of an additional DOSS meeting before the next Assembly to resolve issues.
254. There was some debate on the IOC-UNESCO functional relationship and a strong reconfirmation that IOC was always viewed by the DOSS committee, and by member states, as an integral part of UNESCO. It was noted that the timing was critical and that the statutes should be updated as soon as possible. One delegate and DOSS member reminded the delegates that DOSS has been working on the revisions since 1989, and the member states have had ample opportunity to provide input at the open-ended DOSS meetings. The Chairman of IOC informed delegates that procedures require that Executive Council recommendations be provided to member states three months prior to the Assembly. The Assembly would then forward its recommendations to the UNESCO General Conference for endorsement. On a question raised concerning revision of the Rules of Procedure, one delegation pointed out that this is something that the IOC can do itself after the Statute changes have been approved.

255. The Chairperson of Group DOSS-2, Dr Manuel Murillo, presented a summary of work carried out to date.
256. At its Eighteenth Session (June 1995) the Assembly, by its Resolution XVIII-1, had decided to continue the work of the *ad hoc* Study Group on DOSS, and requested from it a progress report for the Executive Council at its Twenty-ninth Session (1996), an interim report for the Nineteenth Session of the Assembly (1997) and a final report for the Twentieth Session of the Assembly in 1999.
257. Resolution XVIII-1 entrusted the *ad hoc* Study Group with the study of the following subjects:
- The Statutes and Rules of Procedure of the IOC, taking into account the previous studies and the need for adjustments to better reflect IOC practice in accordance with the functional autonomy of IOC within UNESCO;
 - The feasibility, in the longer term, of an IOC Pledging System;
 - All aspects having a bearing on geographical distribution;
 - Administrative and management matters, including:
 - The adequacy of the financial contributions;
 - Methods and mechanisms to ensure continuing budgetary responsibility and administrative efficiency of the Commission;
 - The need for an objective methodology for regular evaluation of the IOC programmes, structures and procedures;
 - The frequency of meetings for the IOC Assembly and Executive Council and the roles and responsibilities of these bodies;
 - The role of the elected officers of the IOC, individually and as a group;
 - Evaluation and advice on staffing requirements, including making the best use of all available resources for the IOC.
258. These terms of reference are essential for the analysis made by the Assembly to fulfil an organized action at the international and regional level for a better visibility of IOC, as well as updating of its objectives, strategies and priorities. This revised structure should warrant supplemental financial resources to develop a real efficient programme.
259. In order to carry out that wide-ranging mandate, the *ad hoc* Study Group had met in plenary on four occasions, namely:
- 24 May 1996, at UNESCO Headquarters;
- 13-17 January 1997, in Southampton, United Kingdom of Great Britain and Northern Ireland;
- 20-23 October 1997, at the International Conference Centre, in Paris;
- 15-18 April 1998, at UNESCO Headquarters.
260. Furthermore, in August 1996, a sub-group had met in Lisbon to look at the theme of financial contributions and options for the establishment of a contributions system for Member States.
261. To date, the *ad hoc* Study Group had produced two progress reports. The first had been brought before the Executive Council at its Twenty-ninth Session, in October 1996, and the second submitted to the Nineteenth Session of the Assembly, in July 1997.
262. In October 1996, the Council had given specific guidelines to the *ad hoc* Study Group, in particular regarding amendments to the Statutes, observing that a careful, orderly and integrated approach would help to ensure that the draft revised Statutes fully reflected the expanded role and responsibilities of IOC to its Member States and to other organizations.

263. The Assembly had analysed carefully the results of the *ad hoc* Study Group's work and had adopted Resolution XIX-15, which was in two parts:

(i) The first part referred to the proposals which were approved, with indications of action that should be taken on themes of importance for the Commission, which encompassed subjects such as:

- adequacy of contributions,
- budgetary responsibility and administrative efficiency,
- regular evaluation of the IOC programmes, structure and procedures,
- frequency of meetings of IOC governing bodies,
- the role of the elected officers of IOC, and the possibility of establishing a 'bureau' or steering committee,
- evaluation and advice on staffing matters, and
- options for mobilization of support.

(ii) The second part dealt with themes on which the group should carry out further study, namely:

- amendments to or revision of the Statutes and Rules of Procedure of the IOC,
- aspects having a bearing on geographic distribution,
- options for mobilization of support for the IOC,
- analysis of the proposals presented in Annex 5 of Document IOC-XIX/2 on ways of achieving a consistent and harmonized evaluation procedure.

264. In addition, the Assembly had directed the *ad hoc* Study Group to take into account the changes needed to:

- increase the number of vice-chairmen to five, and specify that there would be one vice-chairman for each geographic region,
- abolish the hierarchical order of vice-chairmen,
- specify election procedures to reflect the above.

265. Pursuant to the instructions, which included IOC responsibilities entrusted by UNCLOS and UNCED, the substantive part of document IOC/EC-XXXI/6 (progress report of Group DOSS-2) contained the proposed amendment to the Commission's Statutes. The proposal was intended to make it possible, by a resolution of the Executive Council, to lay the foundations for the final revision which was due to take place at the Twentieth Session of the Assembly (1999), in order to prepare the text to be submitted in a timely manner to the UNESCO General Conference at its forthcoming session, scheduled for the end of 1999. It was important that the consultation stage should be concluded at the present Executive Council so that a formal consultation of Member States could be carried out in sufficient time for the debate to take place at the Twentieth Session of the Assembly.

266. The Chairperson of the Group said finally that the *ad hoc* Study Group was ready to continue focusing on the tasks awaiting it, in particular the production of a document to amend the Rules of Procedure and the formulation of a proposal on achieving a consistent and harmonized evaluation procedure for the IOC.

267. The Executive Council realized that these tasks would logically have to await the decision of the Assembly on the amendments to the Statutes and progress on the IOC Evaluation. Therefore the Assembly should consider the possibility of a final meeting of this group as it is presently constituted, shortly after the Assembly.

268. The DOSS-2 *ad hoc* Study Group also offered potential services as an informal sessional group at the Assembly to assist the process on the Statutes debate.

269. The Executive Council adopted Resolution EC-XXXI.14.

7. EXPERIENCES FROM THE 1998 INTERNATIONAL YEAR OF THE OCEAN

270. The Director-General of UNESCO, Dr. F. Mayor, congratulated members of the Executive Council and all present for the successful implementation of the IYO. He extended his appreciation to Portugal for the immense impact of Expo-98.
271. The Director-General emphasized the importance of the ocean for the future generations and thanked IOC for what the Commission is doing in ocean research, monitoring and increasing public awareness. The importance of bringing the ocean issues into school curricula was specifically mentioned.
272. The Director-General recalled that the IOC is an institution within and of UNESCO, adding that on behalf of the Organization he will ensure that the Commission can perform its task with the autonomy it needs.
273. In this context, he informed members and that he would consider favourably all proposals that could further reinforce the IOC and its mission.
274. The Director-General is of the view that the development of a network of IOC offices close to the oceans could only strengthen the IOC and the implementation of its programmes on a regional and sub-regional basis.
275. The Director-General finished his statement by reiterating his strong support to the IOC programmes and stressed that he would be responsive to IOC needs.
276. Dr. I.Oliounine, Deputy Executive Secretary IOC and the IYO Co-ordinator, introduced Doc./EC-XXXI/13 containing the review of the implementation of the Year of the Ocean initiatives as they were identified by the IOC Assembly at its Nineteenth Session (Paris, France, 2-18 July 1997) and approved by the UNESCO General Conference at its Twenty-ninth Session (Paris, France, 21 October-12 November 1997).
277. His review contained the description of achievements attained towards the goals of the IYO by IOC Member States, UNESCO/IOC Secretariat, international organizations and national institutes and individuals. More than two hundred conferences, workshops and training courses have been implemented as dedicated to the IYO; research and training courses were organized by dozens of countries with truly global coverage. Many of the vessels were flying the UNESCO/IOC/IYO flag to show the dedication of the ship owners to the goals of IYO. Scientific monographs, proceedings of numerous workshops and conferences were announced as contributions to the IYO.
278. Dr.Oliounine emphasized the political importance of signing The Ocean Charter campaign which was sponsored by Canada. At the end of October, eminent officials from more than fifty countries signed The Ocean Charter. Although being a non legally binding document, the Ocean Charter raised awareness at the highest political level of the need to protect the ocean and contribute resources to its research, management and protection. More than a million signatures were collected under the popularised version of the charter called My Ocean Charter. The signatures promised to preserve the principles of the IYO and joined in an international appeal to protect the oceans contained in My Ocean Charter.
279. Dr. Oliounine paid special attention to the development of the IYO Homepage which was visited since June 1997 by more than half a million people. He paid special tribute to the participation of the UNESCO Educational Sector and Planet Society jointly with IOC in the implementation of the educational programme, which included efforts in developing textbooks and educational posters, in organizing training cruises for university and school children at national and international levels, in producing TV/video programmes and CD-ROMs. Special mention was made to the educational kits prepared jointly with the Education Sector of UNESCO which are planned to be published with the support of UNESCO during next year in order to include the ocean issues in school curricula next year. The possibility of using the network of the UNESCO associate schools for implementing this project is under consideration.

280. Dr. Oliounine stressed the importance of mass media in raising awareness and acknowledged the support of UNESCO/OPI in implementing public information initiatives. The IYO press kits were issued with information on the IYO objectives and IOC activities and distributed around the world in English, French, Portuguese and Spanish. The press kit also contained a message from the Director-General of UNESCO to the people of the world, calling for their input to the IYO objectives. TV, radio programmes, films and video demonstrations, press briefings and conferences were arranged containing information about IOC activities and IYO objectives. As an example of very close, friendly and constructive co-operation with UNESCO programmes, he referred to the stamp campaign launched by IOC jointly with the Planet Society. A special series of stamps dedicated to the IYO with the IOC logo were issued by eighty countries on ocean research and protection topics. An attractive celebratory stamp album was produced to accommodate the IYO stamp collection.
281. Dr. Oliounine then presented some conclusions and recommendations for future activities, as presented in Doc. IOC/EC-XXXI/13, which were accepted by the Executive Council.
282. More than twenty Member States and observers presented information on national activities and shared their experiences in supporting the International Year of the Ocean objectives. They emphasized the benefits Member States gained in contributing to the implementation of the IYO initiatives.
283. **The Executive Council decided** in order to preserve the memory of national initiatives and making them widely known, the national reports on the implementation of the IYO should be submitted to the IOC Secretariat for inclusion into the IYO Homepage and a CD-ROM be produced both as an archive and a platform for future initiatives. The Executive Secretary IOC was instructed to bring information on the implementation of this decision to the attention of the next Assembly.
284. **The Executive Council agreed** that the 1998 International Year of the Ocean marked a milestone in the history of the protection of the ocean and public awareness and it was considered a great success. The year started a new phase in international collaboration with marine and maritime matters based on a wide and open exchange of information, constructive co-operation and friendly dialogue. **The Executive Council expressed its thanks** to the Government of Portugal for bringing the idea of the IYO into the UN and UNESCO agenda, and **congratulated** the IYO Task Force and the IYO Co-ordinator for their efforts in implementing the IYO objectives. **The Executive Council expressed** its special thanks to Mr.P.Pissierssens and other staff in the Secretariat for their input to the success of the IYO Homepage.
285. **The Executive Council appreciated** the dedicated and successful effort of international organizations, governmental agencies, academic institutions and individuals in the increasing awareness on the need to protect the ocean.
286. **The Executive Council supported** the view that the momentum gained during the IYO in increasing awareness should be kept and extended to the coming years. The objectives are valid and the implementation of the initiatives should continue. More attention should be given to obtaining commitments from governments to provide adequate resources for the ocean and coastal zone research and protection.
287. In the future, focus should be on educational aspects. In this regard, **the Executive Council noted** the Recommendation of the Conference on Sustainable Oceans in the Twenty-First Century (Wilton Park, U.K., 30 March to 2 April 1998) that more basic education on the marine environment and the ocean is desirable. This Recommendation fully corresponds to a policy of UNESCO, presented by the Director-General of UNESCO in his welcome address, on the importance of bringing ocean issues into the school programme. **The Executive Council appreciated** the efforts made by the Executive Secretary in promoting educational aspects which have been particularly effective in the Year of the Ocean. **The Executive Council decided** that the development of a report on national, UNESCO and IOC initiatives in this area will give valuable guidance in developing academic programmes in schools. **The Executive Council recommended** that such a report be prepared and submitted to the next session of the IOC

Assembly for consideration, and encouraged Member States to provide required information without delay.

288. **The Executive Council adopted Resolution EC-XXXI.11**

289. Discussions on the experience of the 1998 IYO was one of the items of the Ocean Day held on 23 November 1998 in conjunction with the Executive Council session. The complete programme of the Ocean Day which included press briefing, inauguration of the IYO exhibition, Ocean Panel and Youth Forum is presented in Annex III.

290. **The Executive Council acknowledged** with thanks the contributions of the IOC Member States and international organizations to the Ocean Day and paid a special tribute to Canada for its support.

291. The Ocean Panel brought together the representatives of about twenty NGOs and was chaired by the IOC Executive Secretary. The objective of the Panel was to share experiences gained during the IYO and identify ways and means for future co-operation. The Panel concluded that the collaboration between NGOs and IOC should continue and expand. The abilities of NGOs to work at the grass-root level and communicate with the public at large in a better and more effective way can be very beneficial to IOC. **The Executive Council agreed** with the conclusions of the Panel and invited the IOC Executive Secretary to further improve this co-operation.

292. The Youth Forum was the first attempt to have the young generation to bring their concerns and needs to the attention of the IOC governing bodies. More than fifty school children and college students took part in the discussion co-chaired by the IOC Chairman and one of the youth participants.

293. During this meeting, the participants emphasized the role of education as a medium to heighten regional and global awareness of the oceans. To this end, they stressed the necessity of putting pressure on governments and decision-makers, essentially through IOC. They requested continuity in youth awareness by extending the youth linkages beyond the present forum. Importance was given to the need of continuing the work that began during the IYO.

294. The Youth Forum formulated a statement with the commitment to the principles presented in the Ocean Charter and brought the statement to the attention of the Council (Annex III). **The Executive Council praised** the statement and the general opinion was that this type of meeting should be continued in harmony and partnership between different generations.

8. IOC PROGRAMME AND BUDGET

8.1 ADJUSTMENTS TO THE IOC PROGRAMME AND BUDGET FOR 1998-1999

295. The Executive Secretary introduced this agenda item by referring to Document IOC/EC-XXXI/16 (IOC Programme and Budget: Adjustments to Current Biennial Budget 1998-99) and the preliminary discussion that had taken place under agenda item 3.2. He recalled that a sessional drafting group had been established to prepare text to be included within the Summary Report of the present session as internal decisions in regard to programme implementation for the 1998-99 budgetary period.

296. In considering the information provided on income and expenditure, programme implementation and restructuring of the IOC Secretariat, **the Executive Council gave** its general endorsement to the views expressed in the reference document, while stressing that more detailed analyses should be prepared in regard to both programme and budget projections as well as implementation, as proposed by DOSS.

297. Recalling the views expressed by the Assembly through IOC Resolution XIX-19, the **Executive Council reiterated** the urgent need to provide within the IOC Secretariat the required programme management and administrative functions and associated staff positions.
298. The **Executive Council also considered** that more detailed reporting on programme and budget matters was an essential element to deliberations within its functions and those responsibilities deferred to it by the Assembly. It was emphasized that the efforts of Member States to mobilize the substantial extrabudgetary support required to complement that provided by UNESCO would benefit from the guidance of the Executive Secretary in regard to programmes and activities which could not be successfully implemented within identified resources.
299. Bearing these considerations in mind, the **Executive Council instructed** the Executive Secretary, in consultation with the Chair and Vice-Chairs, to present to the Twentieth Session of the IOC Assembly a comprehensive report on programme and budget matters, including restructuring of the IOC Secretariat, together with identification of gaps and shortfalls in anticipated resources, both for programmes and staff.
300. To facilitate the decision-making process in regard to draft resolutions considered by the IOC Governing Bodies, the **Executive Council agreed** to the proposal by the Executive Secretary that associated financial implications should be defined within: (i) funding available within the UNESCO regular programme support to the IOC; (ii) support committed through ear-marked contributions to the IOC Trust Fund; and (iii) funding to be mobilized from other extrabudgetary resources.
301. The Delegate of Italy stressed that, in his opinion, a number of the resolutions adopted by the Executive Council did not have a clear legal basis. In a number of its resolutions, the Executive Council had decided to implement new activities which went beyond the Programme and Budget (29 C/5) adopted for 1998-1999 by the Assembly, exercising an authority which properly belonged to the Assembly. Furthermore, no funds were identified in the 1998-1999 budget for the implementation of those new activities, which therefore depend on extrabudgetary contributions. The fundamental problem of the financing of the resolutions concerning new activities thus remained unsolved.
302. In response the Chairman replied that the IOC was unique in UNESCO because its budget represents a ceiling including projected resources coming to the Trust Fund and from external donors. It was therefore quite logical for the governing bodies of the IOC to approve programmes subject to funds being found, even if there were no funds available in the regular budget.
303. The Delegate of China announced a contribution of US \$ 45,000 to the IOC Trust Fund in support of Shanghai Meeting on Coastal Large Cities to take place in 1999 and to the new ICAM programme.

8.2 FRAMEWORK FOR THE DRAFT IOC PROGRAMME AND BUDGET FOR 2000-2001 (Draft 30 C/5)

304. In introducing this agenda item, the Executive Secretary referred to Document IOC/EC-XXXI/17 on the IOC Programme and Budget: Projections in Connection with the 30 C/5 within which information was provided on the development within UNESCO of initial projections for the 2000-2001 biennium, with particular reference to advice offered to the Director General by the 155th UNESCO Executive Board. He drew attention to the proposed IOC component of the draft 30 C/5, noting that the relevant text was an initial suggestion of the Secretariat and that the views of the IOC Executive Council would provide the basis for further elaboration.
305. During the ensuing debate, several policy issues were raised concerning the rationale that had been applied by the Executive Secretary in his proposals to the Director General, the interface of such with the traditional schema of IOC Programmes, and possible implications to provision of resources, whether through UNESCO or other partners. In response to questions raised, the Executive Secretary stressed the fact that his proposals to the Director General had

been made taking into account that UNESCO would be developing its next biennial programme and budget with an increased orientation toward results and on the basis of zero-nominal and zero-real growth scenarios.

306. The Director of the Bureau of Studies, Programming and Evaluation was invited to address the Executive Council in order to provide complementary information and clarification as to the procedures that UNESCO is undertaking in regard to development of the Draft 30 C/5, with particular reference to the role of IOC Governing Bodies in this context. It was noted that the concept of an 'incompressible' provision by UNESCO to the IOC applied only within a given biennial budget as approved by the UNESCO General Conference. It was further noted that the Director General welcomes the views of the IOC Executive Council which would be taken into account in further elaboration of the IOC component of the Draft 30 C/5.
307. Following this presentation, which was most appreciated by the Executive Council, the First Vice-Chair completed the work of the sessional drafting group that had been established to deal with Item 8.2.
308. In considering the proposed draft resolution, the Executive Council recognized that the presentation of IOC programmes and expected achievements should reflect a clear message to UNESCO and all concerned partners as to the major lines of action that will be followed within the basic mandate of the Commission.
309. Noting that the Draft IOC Programme and Budget for 2000-2001 would be presented to the Twentieth Session of the Assembly for its consideration and approval, the Executive Council instructed the Executive Secretary to provide a report on relevant proposals made by the Director General and decisions taken by the 156th UNESCO Executive Board, together with a projection of financial implications to the IOC programmes.
310. **The Executive Council adopted Resolution EC-XXXI.12.**

9. ARRANGEMENTS FOR THE THIRTY-SECOND SESSION OF THE EXECUTIVE COUNCIL AND THE TWENTIETH SESSION OF THE ASSEMBLY

311. The Chairman recalled the decision of the last Assembly with regard to the time and place of the XXXII IOC Executive Council and the XX IOC Assembly. He informed the meeting that EC-XXXII will be held on 22 June 1999 and IOC-XX on 23 June-9 July 1999.
312. Russia enquired whether the Assembly could be brought forward a week because it was in conflict with the World Conference on Peace Meeting in St.Petersburg on 22-25 June. The Chairman expressed his sympathy but constraints within UNESCO made any move impossible, however he indicated that legal-related items on the agenda of the Assembly may be able to be delayed until after 25 June 1999. The Delegate from Israel requested the Executive Secretary IOC to investigate the possibility of moving the planned MEDGOSS meeting in June 1999 one week earlier so that the results of that meeting could be prepared and submitted to the Assembly. The Executive Council accepted the suggested dates for the EC-XXXII and IOC-XX.
313. In discussing the Bruun and Panikkar lectures, Japan volunteered the names of two scientists for the Bruun lecture with the respective subjects of HAB and coastal area management, and tsunamis and coastal engineering. A comment was made that the latter may be most appropriate in the final year of IDNDR. The Chairman undertook to discuss these and possible candidates for the Panikkar lecture with the IOC Executive Secretary.

10. ADOPTION OF RESOLUTIONS, SUMMARY REPORT AND CLOSURE

314. The Executive Council welcomed the offer of the Vice-Chairman Dr. Victor Neimann and the United States of America to work with the Secretariat to produce guidelines for the presentation of IOC Resolutions.
315. The Executive Council reviewed the draft resolutions and the draft report. The Executive Council adopted the resolutions and the report as herein presented.
316. The Chair expressed his thanks to all delegations for their constructive participation in the debates, to the interpreters, the translators, the Secretariat and related staff. He closed the Session at 17h30 on 26 November 1998.

ANNEX I

AGENDA

- 1. OPENING**
- 2. ADMINISTRATIVE ARRANGEMENTS**
 - 2.1 ADOPTION OF THE AGENDA
 - 2.2 DESIGNATION OF RAPPORTEUR
 - 2.3 CONDUCT OF THE SESSION, TIMETABLE AND DOCUMENTATION
 - 2.4 REVELLE LECTURE
- 3. DEVELOPMENTS SINCE THE NINETEENTH SESSION OF THE IOC ASSEMBLY**
 - 3.1 REPORT OF THE EXECUTIVE SECRETARY ON PROGRAMME IMPLEMENTATION
 - 3.2 PROGRESS REPORT ON THE EXECUTION OF THE BUDGET
- 4. IMPLEMENTATION OF FOLLOW-UP ACTIONS RELATED TO UNCED**
 - 4.1 INTEGRATED GLOBAL OBSERVING STRATEGY (GTOS/GCOS/GOOS)
 - 4.2 INTERNATIONAL OCEAN ASSESSMENTS
 - 4.3 JOINT COMMISSION ON OCEANOGRAPHY AND MARINE METEOROLOGY
 - 4.4 PRIORITY AFRICA
 - 4.5 WORLD SCIENCE CONFERENCE
 - 4.6 MULTIDISCIPLINARY PROGRAMMES OF UNESCO
- 5. PROGRAMME MATTERS REQUIRING DECISIONS BY THE EXECUTIVE COUNCIL**
 - 5.1 OCEANS AND CLIMATE
 - 5.1.1 WCRP
 - 5.1.2 The Climate Module of GOOS
 - 5.1.3 El Niño 1997-98 follow-up: improvement of early warning systems
 - 5.1.4 IOC-UNESCO initiative on capacity building and education for adaptive strategies to reduce the impact of El Niño related disasters
 - 5.2 HARMFUL ALGAL BLOOM PROGRAMME
 - 5.3 POLICY OPTIONS FOR FUTURE DEVELOPMENT OF THE OSLR PROGRAMME AND RESTRUCTURING OF CURRENT PROGRAMME ACTIVITIES
 - 5.4 INTERNATIONAL TSUNAMI WARNING SYSTEM IN THE PACIFIC (ITSU) AND OTHER IDNDR-RELATED ACTIVITIES
 - 5.5 GOOS AND RELATED MATTERS (IGOSS, DBCP AND GLOSS)
 - 5.5.1 Balanced Development of GOOS
 - 5.5.2 GLOSS
 - 5.5.3 Inventories of Monitoring Systems

- 5.6 CONSOLIDATED IMPLEMENTATION STRATEGY FOR TEMA ACTIVITIES IN ALL PROGRAMMES OF IOC
- 5.7 IMPLEMENTATION OF IOC RESOLUTION XIX-5 ON MARINE SCIENCE INPUTS TO ICAM
- 5.8 GLOBAL INVESTIGATION OF POLLUTION IN THE MARINE ENVIRONMENT (GIPME)
 - 5.8.1 IOC contribution to the Global Programme of Action for the protection of the marine environment from Land-Based Activities (GPA-LBA; IOC Resolution XIX-16)
 - 5.8.2 Progress report on the Restructuring of GIPME Programme Activities
- 6. PROGRESS REPORT OF THE *AD HOC* STUDY GROUP ON IOC DEVELOPMENT, OPERATIONS, STRUCTURE AND STATUTES (DOSS-2)
- 7. 1998 INTERNATIONAL YEAR OF THE OCEAN: Results and Follow-up
- 8. IOC PROGRAMME AND BUDGET
 - 8.1 ADJUSTMENTS TO THE IOC PROGRAMME AND BUDGET FOR 1998-1999
 - 8.2 FRAMEWORK FOR THE DRAFT IOC PROGRAMME AND BUDGET FOR 2000-2001 (Draft 30 C/5)
- 9. ARRANGEMENTS FOR THE THIRTY-SECOND SESSION OF THE EXECUTIVE COUNCIL AND THE TWENTIETH SESSION OF THE ASSEMBLY
- 10. ADOPTION OF RESOLUTIONS, SUMMARY REPORT AND CLOSURE

ANNEX II

RESOLUTIONS

No.	Agenda Item	Title
1	5.2	HAB - The Development of an International Science Programme on the Global Ecology and Oceanography of Harmful Algal Blooms
2	5.3	OSLR - Ocean Sciences in Relation to Living Resources
3	5.4	ITSU - International Tsunami Warning System in the Pacific (ITSU) and other IDNDR - Related Activities
4	5.5	IOC Support of Efforts to Reduce Vandalism of Oceanographic Equipment at Sea
5	5.7	Marine Science and Observation Inputs to Integrated Coastal Area Management
6	4.4	Pan African Conference on Sustainable Integrated Coastal Management (PACSIOM) and the African Ocean Day (AOD'98)
7	4.4	Priority Africa
8	4.1	Integrated Global Observing Strategy (IGOS)
9	5.5.3	Inventories of Coastal Monitoring Systems
10	5.5	Global Ocean Observing System (GOOS)
11	7	1998 International Year of the Ocean
12	8.2	IOC Programme and Budget for 2000-2001 (Draft 30 C/5)
13	4.3	Joint Commission on Oceanography and Marine Meteorology (J-COMM)
14	6	Progress Report of the <i>ad hoc</i> Study Group on IOC Development, Operations, Structure and Statutes (DOSS-2)
15	4	IOC Statement to the Seventh Session of the United Nations Commission on Sustainable Development

Resolution EC-XXXI.1

THE DEVELOPMENT OF AN INTERNATIONAL SCIENCE PROGRAMME ON THE GLOBAL ECOLOGY AND OCEANOGRAPHY OF HARMFUL ALGAL BLOOMS (GEOHAB)

The Executive Council,

1. **Recalling** Resolution XIX-1 of the Nineteenth Session of the IOC Assembly approving the development of a global science agenda on the ecology and oceanography of harmful algae,
2. **Noting** the Executive Summary and the Recommendations of the SCOR-IOC Workshop on the Global Ecology and Oceanography of Harmful Algal Blooms, held at Havreholm, Denmark, 12-17 October 1998,
3. **Acknowledging** the progress in formulating the goals and objectives of the proposed international co-operative science programme,
4. **Approves** the Recommendations of the SCOR-IOC Workshop to establish jointly with SCOR an international science programme on the ecology and oceanography of harmful algal blooms, GEOHAB, as a plan for co-ordinated scientific research and co-operation to develop in regions international capabilities for the assessment, prediction, and mitigation of harmful algal blooms;
5. **Instructs** the Executive Secretary IOC and invites SCOR to prepare terms of reference for, and establish, a joint GEOHAB Scientific Steering Committee, and to ensure that the Commission becomes a full partner in GEOHAB.

Financial implications:

US\$20,000 - Operation of the GEOHAB Scientific Steering Committee and associated GEOHAB planning activities. (Regular funds)

Resolution EC-XXXI.2

OCEAN SCIENCES IN RELATION TO LIVING RESOURCES (OSLR)

The Executive Council,

1. **Noting** that the last general review of the Ocean Sciences in relation to Living Resources Programme by the Guiding Group of Experts was in 1990,
2. **Recognizing** that there are new international programmes in ocean sciences, in particular marine biology, including Global Ocean Ecosystem Dynamics Programme and Large Marine Ecosystem Programme, each with strong emphasis on living marine resources,
3. **Recognizing** also the Global Ocean Observing System Programme, in particular the Living Marine Resources Module and its relation to OSLR,
4. **Considering** the increasing demands from a management and marine sciences perspective in regard to the sustainability and resilience of marine ecosystems and conservation of biodiversity,
5. **Instructs** the Executive Secretary IOC to convene a meeting of appropriate experts to review the OSLR Programme with the objectives of defining programmes that relate to the management of: (i) specifying the role the programme should play; (ii) examining its links to regional subsidiary bodies; (iii) further examining its links to other related programmes and

activities of IOC, such as GOOS, activities on ICAM, and GIPME; (iv) identifying the scientific research needed in new areas such as the introduction of alien species via ballast water, in order to support the management of marine ecosystems and conservation of biodiversity in relation to their carrying capacity, resiliency and monitoring parameters;

6. **Further instructs** the Executive Secretary to approach the FAO, ICES, PISCES and SCOR, with a request to support and participate in this work.

Financial implications: US\$8,000 (Regular Budget)

Resolution EC-XXXI.3

INTERNATIONAL TSUNAMI WARNING SYSTEM IN THE PACIFIC (ITSU) AND OTHER IDNDR-RELATED ACTIVITIES

The Executive Council,

A

1. **Having considered** the Summary Report and Recommendations of the Sixteenth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific (ICG/ITSU) held in Lima, Peru, 23-26 September 1997,
2. **Appreciating** the progress achieved by the Group in the implementation of the ITSU programme,
3. **Acknowledging** the contribution of the Group to the IDNDR objectives through activities targeted at strengthening the Tsunami Hazard Preparedness and Tsunami Hazard Reduction components,
4. **Expresses** its thanks to the Government of Peru for hosting ITSU-XVI;
5. **Accepts** the Summary Report of ITSU-XVI and approves the Recommendations of the ICG/ITSU Sixteenth Session;
6. **Reconfirms** the global importance of the IOC tsunami programme for saving lives and property;
7. **Requests** the Chairman of the ICG/ITSU to facilitate efforts in finalizing the Master Plan of a programme for the years after 2000, well in advance of the next ICG/ITSU Session planned for October 1999;
8. **Stresses** the importance of the International Tsunami Information Centre (ITIC) in implementing the tsunami programme in the Pacific and **requests** the Chairman ICG/ITSU jointly with the ITIC Director to spare no efforts in increasing the ITIC effectiveness;
9. **Instructs** the Executive Secretary IOC to establish effective communication between IOCARIBE Secretariat and the Caribbean Member States on tsunami related matters.

B

10. **Noting** the tendency to expand the tsunami programme to other geographical areas outside the Pacific, like the Caribbean Basin and the Mediterranean Sea,

11. **Recommends** that the experience gained by the ICG/ITSU in the Pacific should be freely shared with other regions planning to establish their regional Tsunami Warning Systems provided such support will not detract from the successful implementation of the Tsunami Warning System in the Pacific;
12. **Noting further** that the IOC IDNDR-related activities include today, not only the tsunami programme but also the storm surges proposal,
13. **Encourages** continuing close co-operation with other relevant organizations and agencies in meeting the IDNDR objectives and particularly in contributing to the IDNDR Programme Forum 1999 and the International IDNDR Conference on "Disaster Prevention, Land-Use Planning and Sustainable Development", Paris, France, 16-18 June 1999;
14. **Recognizing with concern** that the level of funding in support of the programme is still far from adequate in spite of the fact that the IDNDR-related activities are being extended considerably and the programme was given a high priority by the IOC Governing Bodies,
15. **Instructs** the Executive Secretary IOC to consider ways to strengthen support to the IDNDR-related activities and secure the necessary funding for the effective execution of the tsunami programme in the Pacific;
16. **Encourages** Member States, particularly those concerned with the tsunami and storm surges disasters, to contribute to the IOC Trust Fund in order to ensure the successful development of the IDNDR-related activities.

C

17. **Having considered** the project proposal on Storm Surges for the Northern Part of the Indian Ocean prepared by the Group of Experts of IOC, WMO and IHP of UNESCO as it is presented in Document IOC/EC-XXXI/7,
18. **Expressing** its appreciation to the IOC Secretariat for the leading role IOC has played in the project development,
19. **Acknowledging** with thanks the contribution of WMO and IHP of UNESCO in the project development,
20. **Noting** the kind offer of India to host in 1999 the IOCINDIO Workshop on Storm Surges and the meeting of governmental experts and organizations concerned with the storm surge project proposal,
21. **Noting with satisfaction** the decisions of the Intergovernmental Council of the Hydrological Programme of UNESCO and of the WMO Executive Council supporting the project proposal,
22. **Decides:**
 - (i) to support the project proposal on Storm Surges for the Northern Part of the Indian Ocean taking into account comments made by the IOC Member States, WMO, and those of the GOOS Coastal Module Panel;
 - (ii) to encourage close liaison between the organizations and Member States concerned in getting support from funding agencies for the project implementation;
23. **Instructs** the Executive Secretary IOC to:
 - (i) recommend national authorities of the Member States of the region to bring the project proposal to the attention of the international funding agencies such as the World Bank, UNDP, GEF and others;

- (ii) ensure IOC's leading role in organizing in 1999, a meeting of the representatives of Member States, international organizations and funding agencies in order to identify a plan of the project support and implementation, preferably in conjunction with the IOCINDIO Workshop on Storm Surges, and to allocate necessary funds for the meetings Implementation;
- (iii) seek to include knowledge and expertise available from the GOOS Coastal Module Panel, relevant regional bodies and other appropriate sources;
- (iv) appeal to Member States and international funding agencies to support the project implementation in fund and in-kind.

Financial Implications:

Tsunami Programme: US\$70,000 for 1999 (regular funds)

Storm Surges Proposal: US\$25,000-30,000 (regular funds)

Resolution EC-XXXI.4

**IOC SUPPORT OF EFFORTS TO REDUCE VANDALISM OF OCEANOGRAPHIC EQUIPMENT
AT SEA**

The Executive Council,

1. Recognizing

- (i) the importance of operational systems to the development of GOOS, which is highly dependent on establishing instrumented moorings for permanent observations of the oceans,
- (ii) that vandalism by vessels, in particular fishing vessels, has been a major threat to the viability of maintaining such arrays, since at some sites data and equipment return have been reduced to significantly less than 50%.

2. Emphasizing the great value of:

- (i) TAO and PIRATA for improving marine weather and surface wave forecasts, which facilitate efficient ship routing, provide early warning of natural hazards such as storms and hurricanes, and support search and rescue efforts at sea,
- (ii) TAO and PIRATA data for improving climate forecasts of El Niño, La Niña, and related phenomena which affect the lives of hundreds of millions of people around the globe through droughts, floods, fires, and their socio-economic impacts,

3. Appreciating the degree of financial commitment already made by those governments involved in setting up the TAO and PIRATA moored arrays that constitute important demonstration projects for GOOS,

4. Encourages Member States to protect moored drifting and other unattended equipment at sea;

5. Instructs the Executive Secretary IOC to prepare a proposal that the Director-General of UNESCO would present at the appropriate UN level which:

- (i) addresses the problems of the vandalization of oceanographic equipment by vessels, in particular by fishing vessels;

- (ii) encourages appropriate action by the competent international organizations, taking into account the relevant provisions of the UN Convention on the Law of the Sea (UNCLOS), as well as national legislation of Member States on unattended equipment in their respective EEZs and international waters.
6. **Further instructs** the Executive Secretary IOC to bring this item to the attention of the XXth session of the IOC Assembly.

Financial implications: none

Resolution EC-XXXI.5

MARINE SCIENCE AND OBSERVATION INPUTS TO INTEGRATED COASTAL AREA MANAGEMENT (ICAM)

The Executive Council,

1. **Recalling** that the IOC Assembly at its Nineteenth Session adopted Resolution XIX-5 establishing a harmonized and focused interdisciplinary coastal zone programme drawing upon GOOS, OSNLR and other IOC as well as UNESCO programmes, but distinct from, the existing IOC programmes, with separate funding,
2. **Having considered** the Report of the Expert Consultation on the Development of the IOC Programme on Marine Science and Observation Inputs to ICAM (Document IOC/EC-XXXI/14),
3. **Recognizing** the role of IOC as a mechanism able to deliver marine scientific inputs and observation required in the coastal zone,
4. **Emphasizing** the importance of strengthening co-operation and co-ordination with relevant UNESCO divisions dealing with the sustainable development of coastal zones, as well as the need of avoiding duplication of activities with coastal components of existing IOC programmes and activities,
5. **Welcoming** the objectives of the IOC/ICAM Programme that address coastal zone problems through activities of more co-operative, co-ordinated and interdisciplinary nature at all levels, and ensure good co-ordination among existing international efforts related to the coastal zone, in particular with the coastal module of GOOS,
6. **Expresses its satisfaction with** the various activities related to coastal zone activities carried out by the IOC during 1997-1998 in response to the decisions of the 19th session of the IOC Assembly;
7. **Decides** to pursue the establishment of the IOC/ICAM programme, and, following the recommendations of the Expert Consultation on the Development of the IOC Programme on Marine Science and Observation Inputs to ICAM, to structure the programme on the five following thematic areas:
 - (i) Inter-disciplinary Study of Coastal Processes for ICAM;
 - (ii) Marine Scientific and Technological Information Systems for ICAM;
 - (iii) Methodology Development in Support of ICAM;

- (iv) Monitoring Systems for ICAM;
 - (v) Training Education and Mutual Assistance (TEMA) in Marine Sciences for ICAM;
8. **Stresses** that IOC will implement the ICAM strategy mainly through IOC regional mechanisms, based on the strategy proposed by the Expert Consultation, taking into account the unique and special needs of each region.

Financial implications:

US\$190,000 already allocated for 1998-1999 biennium (regular funds)

US\$100,000 already allocated for 1998-1999 biennium (from regional programmes)

US\$10,000 to be raised from extra-budgetary sources.

Resolution EC-XXXI.6

**PAN AFRICAN CONFERENCE ON SUSTAINABLE INTEGRATED COASTAL MANAGEMENT
(PACSICOM) AND THE AFRICAN OCEAN DAYS (AOD'98)**

The Executive Council,

1. Recognizing:

- (i) that the PACSICOM process represents a unique window of opportunity for intergovernmental dialogue, as well as regional and international co-operation regarding Africa's marine environment,
- (ii) the high priority that African States, the Organization of African Unity (OAU), as well as the Director-General of UNESCO give to the PACSICOM process,

2. Commends the PACSICOM initiative (Maputo, Mozambique) as an original and epistemological framework for coupling science with sustainable integrated coastal area and ocean management in Africa;

3. Instructs the Executive Secretary IOC to:

- (i) strengthen IOC's intersectoral co-ordinating role for the PACSICOM process and approach the other UNESCO Sectors, as well as other donor agencies and United Nations agencies to assist in implementing the recommendations of the PACSICOM and African Ocean Days;
- (ii) assist African States to ensure that PACSICOM is an African driven programme by helping them to build up their capacity;
- (iii) assist African experts in drafting and implementing the pilot projects arising from PACSICOM and AOD'98 processes, with particular emphasis on the GOOS-Africa programme;
- (iv) mobilize support for PACSICOM and AOD'98 under the United Nations Special Initiative for Africa (UNSI) and the United Nations New Agenda for Development of Africa in 1990's (UNADAF);
- (v) facilitate the inclusion of PACSICOM recommendations in the plan of action arising from the ACOPS Meeting in Cape Town (December 1998);

4. Urges Member States and Donors to increase their involvement with PACSICOM through active participation in the IOC sponsored activities, and by initiating new co-operative project

with the IOC in the PACSICOM initiative, in particular at the regional and national levels, and by providing funding for these purposes.

Financial implications:

US\$100,000 already identified from Regular Programme funds

US\$400,00 to be raised from extra-budgetary contributions.

Resolution EC-XXXI.7

PRIORITY AFRICA

The Executive Council,

1. **Acknowledging** that Africa is a priority within UNESCO,
2. **Noting** that African populations cannot take enough advantage commensurate with the abundance of resources in Africa ocean and coastal waters, due to gaps in scientific knowledge, infrastructure, and technological capacity,
3. **Recalling** the United Nations Convention on the Law of the Sea (UNCLOS), the United Nations Conference on the Environment Development (UNCED), and the World Summit for Social Development;
4. **Being aware** that initiatives directed towards a better management of oceans and coastal resources in Africa can serve as a leading example to similar experiences in other regions of the world;
5. **Instructs** the Executive Secretary IOC to assist in the pursuit of the following measures:
 - (i) Establishing a privileged partnership with the Scientific Technical and Research Commission (STRC) of the Organization of African Unity (OAU), for ocean matters related to Africa;
 - (ii) facilitating the transfer and archive to African marine research institutions and universities, of relevant data related to African marine waters, now scattered and stored all over the world, including satellite and remote sensing information;
 - (iii) sensitizing donors to the need for:
 - (a) the acquisition by African marine research institutions of the modern technologies for data processing, analysis, interpretation and exchange;
 - (b) strengthening development of an African Network of National Marine and Coastal Data Centers; and to organize twinning partnerships with overseas institutions;
 - (c) the availability of well-equipped research vessels and ships of opportunity for routine measurements of oceanographic and meteorological parameters in African waters;
 - (d) reinforcing and extending the present network of tide gauges along African coasts;
 - (e) the training of African specialists to manage remote sensing and other oceanographic data and to increase the number of land receiving stations;

- (f) expediting the implementation of the recommendations of the IOCEA-V (Las Palmas, May 1995); and IOCINCWIO-IV (Mombasa, Kenya, May 1997), stressing that separate and sufficient funding be allocated to facilitate these matters;
- (g) stressing that separate and sufficient funding be allocated to facilitate these matters;

6. **Further instructs** the Executive Secretary IOC to:

- (i) reinforce the collaboration and co-operation between the two IOC Regional Committees in Africa; and
- (ii) establish within the Secretariat, a focal unit to co-ordinate the programmes devoted to Africa in collaboration with the decentralized UNESCO offices in the region.

Financial implications:

US\$200,000 for 1998-1999 - to be sought from external sources.

Resolution EC-XXXI.8

INTEGRATED GLOBAL OBSERVING STRATEGY (IGOS)

The Executive Council,

1. **Having considered** the proposed development of an Integrated Global Observing Strategy (IGOS) to link the efforts of the UN sponsors of the in situ global observing systems on the one hand and the space agencies through the Committee on Earth Observation Satellites (CEOS) on the other hand,
2. **Recognizing** that the Global Ocean Data Assimilation Experiment (GODAE), which is designed to demonstrate the practicality and feasibility of real time global ocean data assimilation and prediction, and which is a pilot project of the GOOS Climate Module, has been selected as a pilot project by the IGOS partners to demonstrate the value and necessity of an Integrated Global Observing Strategy,
3. **Considering** in addition the positive support given by the Fourth Conference of the Parties to the Framework Convention on Climate Change to the further development and integration of GCOS, GOOS and GTOS to improve the global observing system for climate so as to meet the needs of the Convention,
4. **Taking into account** that the IGOS will: (i) improve understanding for governments of global observing plans, by providing an overarching view; (ii) provide a framework for decisions on the continuity of observation of key variables; (iii) reduce unnecessary duplication; (iv) assist in improving resource allocation; and (v) assist in ensuring cooperation between the research and operational domains,
5. **Noting with satisfaction** the efforts being made towards integration by this means,
6. **Recommends** to the IOC Assembly that the IOC become a Partner in the proposed IGOS Partner's Forum, according to the Terms of the IGOS Partners' Agreement specified in the Annex, while ensuring that IOC maintains full responsibility for the activities under its mandate.

**Annex to Resolution EC-XXXI.8
Terms of the IGOS Partners' Agreement**

Terms of Reference

The IGOS Partnership will further the definition, development and implementation of an Integrated Global Observing Strategy. Towards this end, the Partners will:

1. exchange information on the Partners' relevant activities;
2. promote dialogue between the space agencies and in situ observation communities;
3. identify gaps and seek to address IGOS-related user requirements;
4. identify requirements to strengthen institutional capacity to make integrated global observations;
5. carry out specific activities to develop individual components of the strategy;
6. identify and suggest projects that complement and demonstrate the value of an IGOS; and
7. promote all aspects of strategy implementation, among national and international agencies, as well as different user groups.

Basis for co-operation

Co-operation between the Partners will reflect:

1. The principle of "best efforts" to maintain the commitment to the overall strategy and any specific purpose or project.
2. The principle of "no additional financial obligation" or exchange of funds except with the mutual consent of relevant Partners.
3. The principle of "synergy" among existing efforts, including optimal use of meetings and of resources. Two important meeting opportunities are the CEOS Plenary and meetings of the Sponsors' Group for the G3OS.
4. Organization and reporting responsibilities for IGOS Partnership meetings will rest with the hosting agency.

Partners

The IGOS Partnership will initially comprise the following partners:

1. Sponsors of the Global Observing Systems (ICSU, FAO, UNEP, UNESCO-IOC, WMO);
2. Global Observing Systems (GCOS, GOOS, GTOS) Program Offices;
3. Committee of Earth Observation Satellites (CEOS; comprising member space agencies contributing to an IGOS);
4. International Group of Funding Agencies (IGFA);
5. International Geosphere - Biosphere Programme (IGBP);
6. World Climate Research Programme (WCRP).

Other organizations prepared to contribute to an IGOS may be added as Partners.

Financial implications: None

Resolution EC-XXXI.9

INVENTORIES OF COASTAL MONITORING SYSTEMS

The Executive Council,

1. **Noting** the increased requirement for information about coastal monitoring systems from ICAM activities, and GOOS,
2. **Further noting** the undertaking of similar work in certain regions by the Land-Ocean Interaction in the Coastal Zone (LOICZ) programme of the International Geosphere-Biosphere Programme (IGBP), offers the prospect of sharing the workload and costs between LOICZ and IOC,
3. **Recognizing** that best use should be made of existing compilations by UNEP, ICES, and other regional organizations, Member States, and available information on Internet,
4. **Decides** to hire an external expert under the guidance of the GOOS Project Office to gather and compile the information, taking advantage of the readiness of such sources as IODE to contribute;
5. **Urges** Member States to respond positively to requests from the Secretariat in this regard and to work with the Executive Secretary IOC to identify the additional resources required to undertake this new activity.

Financial implications:
US\$35,000 (Trust Fund).

Resolution EC-XXXI.10

GLOBAL OCEAN OBSERVING SYSTEM (GOOS)

The Executive Council,

1. **Noting** that
 - (i) GOOS is rapidly gaining recognition as the main global focus for internationally integrated and co-ordinated ocean observing systems intended for operational use on an on-going basis,
 - (ii) GOOS provides a structured and focused basis for less developed nations to improve their capability to observe the oceans and to develop their expertise to gain access to a fund of international data and information, and to interpret and use it scientifically in conjunction with their own regional observations for their own benefit,
 - (iii) at its fourth session (Buenos Aires, November 1998), the Conference of the Parties to the United Nations Framework Convention on Climate Change (UN/FCCC) urged parties to actively support national oceanographic observing systems to ensure that

elements of GOOS for climate observation are implemented, and to assist developing states in building their capacity to participate in and benefit from GOOS development,

- (iv) a Resolution has been drafted, for presentation to the twentieth session of the IOC Assembly, concerning the intergovernmental agreement upon the concept and principles of GOOS,

2. Recognizing that

- (i) observing systems and technology are developing rapidly worldwide, and that there is urgency in the need to incorporate these within the common GOOS planning framework,
- (ii) in many contexts, including better prediction of climate variability and quantitative estimation of the extent of regional resultant extremes, the management of regional oceanic health, the knowledge and understanding of biological resources, the accurate modelling of coastal phenomena and the delivery of information for beneficial services and scientific products, there is a pressing need at national and regional levels for the components of GOOS to be implemented as soon as possible,

3. Acknowledging that

- (i) IOC carries prime responsibility at the intergovernmental level for guiding the planning and implementation of GOOS,
- (ii) GOOS typifies the international co-ordination of marine science and technology for the protection of the oceans and the delivery of benefit to nations, for which IOC was created, and that failure to succeed in this goal would raise questions as to its inherent effectiveness,

4. Being concerned that, although the opportunities for the implementation of GOOS are widening rapidly, the resources available to the IOC are seriously inadequate for the diverse planning and coordination tasks of this large programme,

5. Urges Member States

- (i) to aid in the implementation of GOOS as far as possible through the use of existing observing systems by actively planning and implementing national and regional programmes of systematic ocean observation, according to the framework outlined in the GOOS Strategic Plan (doc. IOC/INF-1091, January 1998);
- (ii) to reinforce the exchange of data to meet the needs of GOOS, recognizing the various policies on data exchange of relevant international and intergovernmental organizations;
- (iii) to actively support the building of capacity in developing countries, in particular to enable them to collect, exchange, archive and utilize data and information to meet local, regional and international needs;
- (iv) to strengthen international and intergovernmental programmes that assist countries to acquire and use ocean observation, by contributing to the IOC Trust Fund or by other means;
- (v) to create and maintain adequate national oceanographic observing systems, to ensure that the elements of the GOOS networks in support of ocean observations are implemented and, to the extent possible, support an increase in the number of ocean observations, particularly in remote locations, and to establish and maintain reference stations;

6. **Instructs** the Executive Secretary IOC to establish a small intersessional Working Group comprising representatives of Member States who have a broad knowledge of the IOC programme and budget, as well as familiarity with the development of GOOS, and entrusted to work by correspondence to prepare recommendations for submission to the twentieth session of the IOC Assembly, concerning
 - (i) appropriate sources and levels of funding for the GOOS Project Office for the next biennium, in the context of the overall IOC programme and budget;
 - (ii) the acquisition of extrabudgetary funds for the GOOS programme;
7. **Invites** the other organizations co-sponsoring GOOS, viz the World Meteorological Organization (WMO), the United Nations Environment Programme (UNEP) and the International Council for Science (ICSU), to give high priority to the planning and implementation of GOOS, and to reflect that priority in their budgets.

Financial implications: none

Resolution EC-XXXI.11

1998 INTERNATIONAL YEAR OF THE OCEAN

The Executive Council,

1. **Noting with satisfaction** the input made and the progress achieved by the IOC Member States in meeting the objectives of the International Year of the Ocean,
2. **Expressing** its gratitude to the government of Portugal for its special efforts in IYO,
3. **Acknowledging with appreciation** the work done by the IOC Secretariat in co-ordinating the IYO activities,
4. **Instructs** the Executive Secretary IOC to:
 - (i) continue efforts in increasing awareness of the need to protect the ocean and its resources;
 - (ii) submit an IOC contribution on the IYO to the Annual Report of the Secretary-General to the UN General Assembly, through the Division of Ocean Affairs and Law of the Sea (DOALOS) and to the Secretariat of the Commission on the Sustainable Development;
 - (iii) report on the IYO to the UNESCO General Conference in 1999 and to the Commission on the Sustainable Development and the Joint United Nations Information Council (JUNIC);
 - (iv) develop a plan of action for implementing the IYO follow-up activities, taking into account the recommendations contained in Document EC-XXXI/13 and the views expressed by the participants of the Thirty-first Session of the Executive Council and present the plan for consideration and adoption to the Twentieth Session of the IOC Assembly in 1999;
 - (v) produce a CD-ROM presenting the activities of Member States in the IYO, both as an archive and as a platform for future initiatives;

5. **Urges** the Member States to support efforts identified as the IYO follow-up activities and commit additional resources to the ocean;
6. **Requests** the IOC regional bodies, scientific and technical committees to take necessary measures for continuing the aims of the IYO targeted to the ocean's protection and safety.

Financial implications:

US\$150,000 (from this amount \$88,000 available from the Director-General for the educational kits publication; \$62,000 from Trust Fund and External sources).

Resolution EC-XXXI.12

IOC PROGRAMME AND BUDGET FOR 2000-2001 (DRAFT 30 C/5)

The Executive Council,

1. **Having been informed** of the views of the UNESCO Executive Board at its 155th session (Decision 4) in regard to the structure, formulation and budgetary framework for the 2000-2001 biennium (Draft UNESCO 30 C/5), within which emphasis is being given to a results-oriented approach,
2. **Having considered** the preliminary proposals regarding the IOC as contained within para 64 of Document 155 EX/5 Part II,
3. **Recalling** the unique role of the IOC as the marine science arm of UNESCO and as the competent intergovernmental body dealing with ocean and coastal area concerns, through the concerted action of IOC Member States,
4. **Noting** that the present draft formulation of the IOC programmes as set forth in Document 155 EX/5 Part II, in the absence of the appropriate elaboration of the budget and programme implications might lead to some level of confusion,
5. **Recognizing**, with due appreciation to all partners who have contributed to the achievements of the 1998 International Year of the Ocean, the exceptional efforts of the IOC and its Member States in mobilizing political and societal awareness of the role of the ocean as a major governing force in the earth systems,
6. **Being of the view** that the momentum thus generated needs to be further supported by UNESCO and its IOC through provision of appropriate advice and assistance to Member States with a view toward mobilizing the substantial extrabudgetary funding required for national, regional and global initiatives that contribute to common needs and aspirations,
7. **Decides** that the IOC Programme and Budget for 2000-2001 should be based upon these two major lines of action:
 - (i) Further developing marine science and its application on an integrated basis to reduce uncertainties in the oceans and coastal areas and elaborating methods and services to provide an accurate and objective basis for integrating the results with the requirements of sustainable development with particular regard to:
 - (a) capacity building and regional activities;
 - (b) Integrated Coastal Area Management (ICAM);
 - (c) implementation of the Global Ocean Observing System (GOOS);
 - (d) political and societal impact of such activities.

- (ii) Improving the understanding of, within the framework of the global marine, environmental and climate conventions, with particular regard to relevant capacity-building and observing system components:
 - (a) the characteristics of the oceans and coastal areas responsible for maintaining life-supporting systems;
 - (b) the factors influencing global climate change.
- 8. **Considers** that actions under the Intergovernmental Oceanographic Commission will seek to enhance its contribution towards improvement of knowledge and observations of the ocean; preservation of the life-support systems of the earth, provision of a suite of related environmental services; and reduction of scientific uncertainties of global change, all of which are required to develop and implement strategies for the sustainable use of the ocean and its resources,
- 9. **Further considers** that a major effort will be made to intensify the work of decentralized programmes of IOC undertaken through its subsidiary bodies and in cooperation with other UN bodies, as well as through activities undertaken together with MAB, IHP, IGCP and MOST, and in association with the project on environment and development in coastal regions and in small islands,
- 10. **Instructs** the Executive Secretary IOC to transmit to the Director-General the formulation for the IOC component of the UNESCO Draft 30 C/5 as found in paragraphs 7-9 above,
- 11. **Requests** that the Director General include within the Draft 30 C/5 proposals for at least the maintenance of the level of funding received by IOC in the 29 C/5 Programme and Budget and also consider an increase in financial support provided by UNESCO to the IOC to enable the Organization to respond more effectively to the needs of developing countries in their efforts to mobilize international funding so that their participation in ocean science and ocean services programmes and the associated observing systems can more effectively contribute to the protection and sustainable development of the ocean and coastal areas;
- 12. **Further instructs** the Executive Secretary IOC to present to the twentieth session of the IOC Assembly for its consideration and approval a detailed proposal for the IOC Programme and Budget for 2000-2001, including both programme implementation and staff requirements, together with anticipated extrabudgetary resources and taking into account the guidelines provided through DOSS;
- 13. **Urges** IOC Member States, through their national representatives, to actively support the IOC programme proposals when the Draft 30 C/5 is being considered by the UNESCO Executive Board and General Conference.

Financial implications: None

Resolution EC-XXXI.13

**JOINT TECHNICAL COMMISSION ON OCEANOGRAPHY AND MARINE METEOROLOGY
(J-COMM)**

The Executive Council,

1. Recalling :

- (i) that the World Meteorological Organisation (WMO) (EC-XLVIII) in June 1996, and the Executive Council of the IOC in October 1996 agreed that a study should be undertaken on possible closer collaboration between WMO and IOC with a view to possible co-sponsorship of the WMO's Commission for Marine Meteorology (CMM),
- (ii) that following a recommendation on the subject by CMM-XII (Havana, March 1997), the WMO Executive Council decided at its forty-ninth session that a comprehensive study should be undertaken on closer cooperation between CMM and the IOC, including the possibility of co-sponsorship of CMM by IOC, with the results to be presented to EC-L (June 1998), and that a parallel decision had subsequently been taken by the IOC Assembly in July 1997,

2. Noting :

- (i) with appreciation the consultants' study,
- (ii) that many areas of close cooperation already existed between WMO and IOC, including joint sponsorship of IGOS, the DBCP, GOOS, GCOS and the WCRP, as well as collaboration in much of the existing work of CMM,
- (iii) the decision of the WMO EC-L (Geneva, June 1998) on the subject (abridged final report, general summary, para. 6.4.6),

3. Recognizing:

- (i) the pressing need for a fully coordinated, joint mechanism for implementing the stated requirements for ocean and surface marine meteorological data to support the common GOOS/GCOS ocean climate module, as well as other developing requirements of GOOS,
- (ii) the expanding requirements of many other users for a comprehensive range of both meteorological and oceanographic data and products,
- (iii) the need to better coordinate and manage the existing range of related activities of WMO and IOC, to reduce duplication and overlap, enhance efficiencies and reduce costs to both organizations,
- (iv) the potential benefits to be gained from making better use of the diverse and extensive range of expertise and facilities available to both organizations at the intergovernmental level,
- (v) the benefits expected to flow to national meteorological services and operational oceanographic agencies from enhanced international interdisciplinary cooperation,
- (vi) the expected substantial cost savings from a rationalization of existing marine related bodies and activities, and from joint support of marine and ocean programme activities by WMO and IOC,

4. **Endorses** the proposal that a joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology (J-COMM) should be established, with status and responsibilities similar to an IOC Working Committee and a WMO Technical Commission, to replace the existing CMM and Joint Committee for IGOS and act as a reporting and coordinating mechanism for the full range of existing and future IOC and WMO operational marine programme activities. The new body would be supported to the extent possible and according to their respective rules of procedure in equal measure by WMO and IOC, with responsibilities to include those of the existing CMM and IGOS, as well as for coordinating and managing the implementation of an operational ocean observing system in support of GOOS and GCOS. The draft Terms of Reference recommended by the Council for J-COMM are given in the Annex to this Resolution;
5. **Instructs** the Executive Secretary IOC, in consultation with the Secretary-General of WMO, to prepare appropriate documentation, including a draft resolution to effect this recommendation, for consideration by the 20th IOC Assembly;
6. **Encourages** Member States to ensure adequate co-ordination between their oceanographic, environmental and meteorological communities, services and competent government areas.

Financial implications: None

Annex to resolution EC-XXXI.13

Draft Terms of Reference for the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (J-COMM)

Further develop the observing networks

Under the guidance of the relevant scientific and operational programmes of IOC and WMO to develop, maintain, coordinate and guide the operation of the global marine meteorological and oceanographic observing systems and supporting communications facilities of these organizations to meet the needs of the IOC and WMO Programmes and in particular of GOOS, GCOS and WWW. Evaluate on a continuing basis the efficiency of the overall observing system and suggest and coordinate changes designed to improve it.

Implement data management systems

Develop and implement in cooperation with CBS, IODE, ICSU, and other appropriate data management bodies, end to end data management systems to meet the real time operational needs of the present operational systems and the global observing systems; cooperate with these bodies in seeking commitments for operation of the necessary national compilation, quality control, and analysis centres to implement data flows necessary for users at time scales appropriate to their needs.

Deliver products and services

Provide guidance and assistance and encourage the national and international analysis centres, in cooperation with other appropriate bodies, to prepare and deliver the data products and services needed by the international science and operational programmes, Members of WMO, and Member States of IOC. Monitor the use of observations and derived products and suggest changes to improve their quality. Coordinate the safety-related marine meteorological and associated oceanographic services as an integral part of the Global Maritime Distress and Safety System of the International Convention for the Safety of Life at Sea (SOLAS).

Provide capacity building to Member States

Review and analyse the needs of Member States of IOC and Members of WMO for education and training, and for technology transfer and implementation support in the areas of responsibility of the Technical Commission. Provide the necessary technical publications, guidance material, and expert lecturers/trainers and operate workshops as required to meet the needs. Develop projects to enhance Members capacity to participate in and benefit from marine meteorological and oceanographic programmes of WMO and IOC.

Assist in the documentation and management of the data in international systems

Develop cooperative arrangements with the data management bodies of IOC, ICSU, and WMO, such as IODE, the Commission for Climatology, and the ICSU World Data Centres to provide for comprehensive data sets (comprising both real time and delayed mode data) with a high level of quality control, long term documentation and archival of the data, as required to meet the needs of secondary users of the data for future long term studies.

Resolution EC-XXXI.14

**PROGRESS REPORT OF THE AD HOC STUDY GROUP ON IOC DEVELOPMENT,
OPERATIONS, STRUCTURE AND STATUTES (DOSS-2)**

The Executive Council,

1. **Recalling** Resolution XIX-15 of the IOC Assembly in which the final report of the ad hoc Study Group and the recommendations of the Thirty-first Session of the Executive Council are to be provided to the Twentieth Session of the IOC Assembly in 1999,
2. **Recalling further** the instructions contained in Resolution XIX-15 for the ad hoc Study Group to address changes to the IOC Statutes,
3. **Having considered** the proposal for changes to the Statutes contained in the Progress Report of the ad hoc Study Group (Document IOC/EC-XXXI/6),
4. **Being aware** of the need for close study of the proposals by all Member States prior to the debate at the next IOC Assembly,
5. **Recommends** that these proposals be used as the basis for discussion at the Twentieth Session of the IOC Assembly with a view to preparing a recommendation on the Statutes for the Thirtieth Session of the General Conference of UNESCO;
6. **Instructs** the Executive Secretary IOC to transmit this Resolution and the DOSS-2 Progress Report immediately to all Member States of the Commission;
7. **Requests** Member States to submit in writing, any comments or concerns they may have on the proposals to the Executive Secretary IOC preferably before 31 March 1999 so that these can be distributed to all Member States;
8. **Further instructs** the Executive Secretary IOC to arrange for an agenda item on this issue to be placed before the Thirty-second Session of the Executive Council, so that the views of Member States can be considered and a process adopted to facilitate the discussion at the IOC Assembly.

Financial implications: none

Resolution EC-XXXI.15

**IOC STATEMENT TO THE SEVENTH SESSION OF THE UNITED NATIONS COMMISSION ON
SUSTAINABLE DEVELOPMENT**

The Executive Council,

1. **Recognizing** the importance of the Seventh Session of the UNCSD that will address the follow-up activities from UNCED and in particular Chapter 17 of Agenda 21,
2. **Noting that** this event offers an opportunity to continue the momentum generated by the International Year of the Ocean in 1998,
3. **Instructs the Executive Secretary IOC** to forward a statement from the Executive Council based on the attached note to the Seventh Session of the UNCSD and to all Member States of the IOC;
4. **Urges Member States** to make use of the attached note in their briefing to delegations participating in the UNCSD-VII.

Financial implications: None

Annex to Resolution EC-XXXI.15

NOTES FOR UNCSD STATEMENT

The oceans are a global commons and as such require an integrated approach by governments to issues relating to marine health, the sustainable uses of ocean resources, the stewardship of its diverse ecologies and the study and observation of its processes.

The Intergovernmental Oceanographic Commission of UNESCO is the United Nations organization dedicated to ocean science and services. It works to resolve sub-regional, regional and global ocean issues through the application of science and the collective efforts of its 126 Member States. The organization's capacity to increase the flow of information and data from the oceans, to improve the knowledge and understanding of its ecology and processes and to apply that knowledge to ocean issues, is limited more by a lack of governmental commitment, and resource constraints, than by its ability to contribute.

The IOC also recognizes the role it should play in the development of public awareness, education and capacity building.

The global environment continues in a state of flux. Changes in the oceans are observable, due to both natural and human influences. The oceans have always affected the process of human activity, but now are also aware of human effects on the oceans themselves particularly in coastal regions. Sustainable development of the oceans will only be possible if actions are taken on the basis of scientific understanding, reinforced by international cooperation and agreements.

Traditionally the gathering of oceanographic data has been a slow and arduous task. At the present time, however we have satellite systems and a variety of *in situ* instruments to collectively observe surface and sub-surface phenomena. We have the communications ability to collect these observations in real-time. We are at a point where we can put it all together, to begin to understand and predict the physical chemical and biological changes that take place in the world's ocean and apply this knowledge to our societal needs.

The implementation of UNCLOS, Chapter 17 of Agenda 21 and other relevant, universally-recognized, conventions and instruments related to ocean matters, pose problems and challenges which can only be faced through a concerted effort of States, competent international organizations and other non-governmental partners.

As a competent intergovernmental organization in the field of ocean and coastal areas scientific research, related services and capacity building, IOC is prepared and willing to contribute to such concerted effort. In this way, the Commission expects to assist in the continuing development of a consistent set of rules, guidelines, directives and criteria on ocean matters as a critical part of sustainable development.

These developments greatly enhance the direct use of marine scientific knowledge and operational marine information in near 'real time' in applications of environmental concern. They are also essential in the identification and forecasting of interseasonal climate variability. Further they provide the kind occurring in coastal zones vital to the preservation of the marine environment.

Sustaining these developments is the emergence of the marine observing system, the Global Ocean Observing System (GOOS) coordinated under the auspices of the IOC, WMO and ICSU. This will greatly multiply the value of the observations contributed by individual countries and programmes and will enable smaller and less developed countries to participate actively in the address of their particular concerns. GOOS and its associated observing programmes, products and experiments are already widely regarded as essential components in the effective application of science in a decision-making marine context. Their implementation is therefore being pursued as a high priority within IOC. The oceanographic community and the meteorological community have demonstrated this new capability in the equatorial Pacific where real-time ocean observations are fed into climate models to produce El Niño forecasts. We need governments to recognize the benefits of having these types of predictions in other geographic areas and for other applications.

Capacity building is a prerequisite for better, sustainable ocean governance. This common understanding is reflected in a great number of international resolutions and recommendations. There remains a big deficit of required contributions from developed countries to contribute to ocean related capacity building. An improvement cannot be reached by only appealing to developed countries to intensify their assistance. The governments of developing countries themselves must present clearly defined requirements concerning ocean matters as an issue of political priority to supporting countries and to donor institutions.

The ocean issues are national, regional and global. Sustained utilisation of the marine and coastal resources for socio-economic benefits of society requires global approach for scientific knowledge, regional/global approaches for programme formulation, and national/regional approaches for programme implementation. This calls for identified agencies at national, regional and global levels with defined roles and responsibilities for successful application of scientific knowledge and developments in the Ocean sector. The mechanisms of interaction, linkages, and implementation responsibilities of agencies at all three levels will have to be consolidated and accepted by all concerned. Programme oriented approaches with defined targets, milestone, action plan, schedule, budget and management system needs to be adopted.

Rivers and coastal areas are at the receiving end of chemicals, sediment, sewage, and garbage, largely as a result of land-based activities. Managing these problems requires actions within the entire watershed, especially for those within island state. Therefore, the current problem is how to manage the apparently conflicting activities and uses of the coastal zone and its marine environment. Here, the decision-making process must rely on the science and technology, what IOC and other bodies can provide, imbued with input from the Human Sciences. This will mean hard decisions for the long-term management of human uses of the coastal zone, decisions that will test the democratic process and the social responsibility of scientists.

ANNEX III

ADDRESSES

A. Opening Address by Mr. Geoffrey L. Holland, Chairman, Intergovernmental oceanographic Commission (IOC)

Representative of the Director General,

Mr. Executive Secretary

Members of Delegations

Representatives of Governmental and Non-governmental Organizations

Ladies and gentlemen

Welcome to the Thirty-First session of our Executive Council. It is an Executive Council meeting that will represent a milestone in the history of the Commission. It is our only governing body session that will take place in this International Year of the Ocean and I shall touch on the plans to celebrate this event later. The International Year of the Ocean has focussed attention on the importance of ocean issues and, in that context, I will cover some of the major external events that could affect the Commission as we go forward into the next millennium. This session will be considering the report of the DOSS-2 committee with its important recommendations for changes to our Statutes and Rules of Procedure and this session will have to deal with the constant problem of staff shortage, financial constraints and increasing workloads.

We shall be hearing from the new Executive Secretary, Patricio Bernal, whom I welcome here, on behalf of you all, at this, his first governing body meeting in his new post. Dr. Bernal is well known to this ocean community and it gives me great pleasure to see him here on the platform. We shall also have the opportunity to bid farewell to Gunnar Kullenberg, who will be delivering the Revelle lecture this evening. His lecture will be followed by a small ceremony of appreciation which I hope you will all be able to attend.

Firstly let me return to the International Year of the Ocean, an idea that was first suggested by the delegate of Portugal to the Seventeenth Session of the Assembly in 1993, transmitted to and endorsed by the UNESCO General Conference and then approved by the UN General Assembly before finally coming to pass in 1998. The year is drawing to a close, and it has been quite a year.

Next Monday, November 23rd, has been set aside to focus on this event. It will open with the formal debate in the morning. We shall receive a report from Dr. Oliouine in the Secretariat, of the extensive efforts performed in Paris. It has not been easy for the Secretariat to coordinate the year's activities because little resources were made available for this task, however I have been most impressed with what has been achieved and I believe you will be as well. I look forward to hearing from delegations of the many national activities that have taken place. An exhibition will be staged to demonstrate the range of national and international activities taking place around the world. Local schools will be involved in the celebration. A Press Panel and software demonstrations will be followed by a reception. A Youth Forum will be held in the afternoon, with full interpretation, to allow the next generation to make their own statements of what actions are needed for the world ocean. You will recall a letter I sent out some months ago requesting delegations to include a youth representative to this meeting. I suggested in my letter that, if resources could not be found to bring a young national representative to Paris, delegations could possibly find a representative from within the families of Embassy staff or otherwise resident in the city. I repeat this suggestion, because it is important for us to listen to the voice of the future and I would like to see the Forum well attended.

We shall all be asked over the next months what has been achieved by the International Year of the Ocean. It is an important question and all too easily dismissed with accounts of events, ceremonies, conferences, posters and T-shirts. The real success of the year will be judged on the legacy of its activities over the next decade and beyond. The success of promoting public awareness in the oceans will be apparent when public support manifests itself in political actions. The focus of many activities on education and youth will only yield its full benefit in the long-term production of marine scientists, informed politicians and managers capable of understanding ocean issues. The International Year of the Ocean encouraged action on national marine policies. I know many countries, including my own, that have established or initiated ocean policies and legislative actions to further the management and preservation of the ocean and its resources.

In the international arena, there have been opportunities created through the International Year of the Ocean. The IOC itself has promoted a non-legal charter that has now been signed by over 50 countries, and we still may approach the target of 100 countries. The Ocean Charter sets out the principles of preserving the ocean environment and sustaining its resources through cooperative and collective action. Although a non-legal document, the affirmation of these principles by so many countries, is a powerful demonstration of support for ocean programs and policies. Throughout the year there have been many ocean meetings, some of these have been scientific conferences and symposia and other have been meetings dealing with political and social ocean issues. Many international declarations have been made on behalf of the oceans that may have profound effects on the work of our Commission. I will highlight two of the major repetitive messages. The 33 nations gathered at the Summit of the Sea in St. John's, on the eve of the year urged the United Nations to establish a global level mechanism for an overall and regular review of the marine environment. The Summit of the Sea Challenge also urged governments to strengthen and support funding for ocean research and development. In Stockholm, last January, over thirty countries, including 19 Ministers and Deputy Ministers, issued a Stockholm Action Strategy. That strategy invited governments and international organizations to "examine mechanisms and processes needed to improve the dialogue amongst governments, policymakers, and civil society as well as existing organizations dealing with ocean issues. They also urged the support and encouragement of regional and global marine research and monitoring programs. In August, the Independent World Commission on the Oceans made its report public at a special session held on the Lisbon site of the international world exhibition OceanExpo'98. They concluded that "The discussion of ocean affairs within existing fora of the UN system be strengthened and supplemented by a comprehensive review of the mandates and programmes of all UN bodies and agencies competent in ocean affairs". On ocean science and technology they also concluded that "Greater emphasis be given to initiatives aimed at enlarging the access of developing countries to scientific information and technologies, especially in sub-regional and regional settings..". In a few weeks there will be an important Pacem in Maribus Conference in Halifax, Canada, attended by the Secretary General of the UN. The draft declaration includes a statement urging governments to support a proposal that The UN General Assembly establish a Committee of the Whole to review ocean-related questions in an integrated manner. The declaration also suggests that ocean governance needs mechanisms that can consider the closely integrated problems of ocean space, including science, systematic observation and data exchange.

These repetitive statements concerning the need for a new process within the United Nations system to deal with oceans and the continuing emphasis on data and knowledge, will, in my opinion, lead to important changes that will affect the IOC over the next decades.

The Statements made by the participants at these international meetings had many other important observations to make and I commend you to read the full articles. However, in my opinion, the two common and significant themes, firstly on the need for action at a high level to review and coordinate global ocean issues and secondly on the repeated need for more ocean science, observation and technological transfer, will have a tremendous effect on our organization. The IOC will have to be ready to respond to new challenges and demands. The debate is likely to start as early as the UNCSD meetings on the ocean, taking place this Spring and followed through at the UN

General Assembly. Back in 1993, when we recommended an international year of the ocean, we didn't realize the extent of the debate it would encourage.

During this meeting we shall be considering the report of the DOSS-2 Study Group, including changes to our Statutes and Rules of procedure. The Study Group has covered the tasks assigned to it by the last Assembly and prepared its conclusions for your consideration. This Executive Council is charged with considering the report and making recommendations to the Assembly. The Assembly will then forward its decision to the General Conference of UNESCO for final approval.

In this and other matters under consideration at this session, the Executive Council acts as a decision-making executive of the Assembly. As your chairman, I am going to make every effort to focus the debate on each agenda item on the decision required. The Executive Council should not conduct its work like a mini-Assembly. At an Assembly it is important to hear about the context of the subject area under discussion, of the related national programs and activities, and the interests and priorities of member States, because the Assembly formulates the strategies and policies for the Commission. It is the duty of the Executive Council to carry out those policies and to take any necessary decisions according to those policies in the intervening period. I will be reminding the plenary of this point throughout the conduct of the meeting.

In addition to the International Year of the Ocean and the DOSS-2 report, the meeting will have many other important decisions to consider on the scientific and observational aspects of the IOC program. We have much to do and I look forward to a fruitful and productive meeting.

B. Opening Speech by Mr Patricio Bernal
Executive Secretary, International Oceanographic Commission (IOC)

Thank you, Mr Chairman,
Thank you for your kind words of welcome.

On behalf of the Director-General, Mr Federico Mayor, the Directorate, UNESCO and IOC Secretariats, I would like to extend to all of you a very warm welcome to the 31st session of the IOC Executive Council.

It is for the first time that the Executive Council takes place in the room of the UNESCO Executive Board. This symbolizes the importance that IOC has for the Organization in terms of taking care of the agenda of science, technology and sustainable management of the Ocean.

The United Nations as a system embodies the concept of international community and within this system UNESCO is the forum for creating the basis of the culture of peace. It is a sad fact that in the last two years close to 82% of the operation budget of the United Nations was spent in peace-keeping operations. And it is important to realize that what we do within UNESCO and within IOC has considerable bearing on the future of humanity and of the world.

IOC is the only intergovernmental organization dedicated exclusively to the oceans as a whole. This is a role that no other organization has as a mandate. Therefore, it is incumbent upon us, Member States and the Secretariat, to undertake this task and lead it to a successful accomplishment.

During the almost 40 years of existence of the Commission the world has changed significantly and the role of IOC has also changed following these global changes. I would like to stress here that we have moved from the first efforts centered on the management of science for the oceans to a new paradigm of directly contributing to the sustainable management of the oceans

based on scientific knowledge. This is a change of paradigm and a change in the strength and character of our mission that we need to cope with. This change has not been arbitrarily imposed on us or spontaneously created by our Member States. It is a change on the emphasis that societies are giving to us, it is a change of emphasis in what the peoples of the world are expecting from science and technology and from the UN system.

Moving from the management of science programmes to support the management of the oceans as a whole, and to do it within the sustainable development paradigm, is a major change in emphasis and a major challenge for all of us. It is therefore very important that we use the opportunity of this Executive Council to search for new avenues of improving our performance as an organization in fulfilling our goals. We are an organization which relies very heavily on the commitment of its Member States to fulfill its duty. We are a small Secretariat and we can fulfill the role of coordinating activities, but major actions and programme are executed by the commitment of Member States. Therefore, it is incumbent upon Member States to offer us the new avenues of how to address these new responsibilities. As a Secretariat we have the duty to follow your instructions and to deliver on resolutions and guidelines provided to us by our governing bodies. But our capacity to deliver will always depend on contributions that Member States will be willing to make to the execution of the programme.

I would like to reiterate a very warm welcome to this House, to this 31st session of the Executive Council which takes place during the International Year of the Ocean. We will devote substantial amount of discussion time to the review of this important event. I think we should derive some lessons of this effort, which was an effort to address society, to raise awareness worldwide on the importance of the oceans. But we have some other permanent duties that we have to keep taking care of beyond this very important awareness-raising exercise and we have to be very sober in order to evaluate how much we have accomplished during this International Year of the Ocean.

Welcome to Paris. I hope the weather will stay sunny as it is now, on the first day of the session, and the rain will be held back for several days. I wish you a very pleasant stay in the city and I wish all of us a very successful Executive Council.

Thank you.

**C. An overview of international co-operation in Marine Research and Ocean Observations:
some perspectives with reflections on the role of IOC
by G. Kullenberg**

ABSTRACT

We know that without a healthy ocean there is no healthy life on Earth. It is the Ocean that makes this Planet Earth so special. The Ocean also binds us all together and is the great integrator. Why, then do we treat the ocean issues and ocean governance in such a fragmented and sectorialized way?

This, together with our still limited knowledge about the ocean, is the ocean challenge to our society. This is also a major reason to have an International Year of the Ocean to raise awareness and commitments to deal with the issues and implement international agreements reached under the Law of the Sea and UNCED processes.

Following reference to UNCLOS and UNCED agreements as constituting together on international environmental law, the on-going international scientific co-operation and their results were recalled. These have laid the foundation for oceanography to become operational, and for developing GOOS. About 10 years after the initiation of GOOS, much progress has been made. It is now very essential to keep GOOS together as a whole. International co-operation in ocean

research is a great success. However, despite this, no integrated overview of what we know about the ocean where the gaps are, and our ability to use the scientific knowledge has been prepared. This is surely needed soonest and IOC, together with ICSU, should take the lead for doing this.

There are many opportunities associated with the ocean and in particular, the EEZ concept to push for greater equity and sharing of knowledge than is now the case. These aspects are highlighted in the report of the Independent World Commission on the Oceans.

There is a strong need for co-operative research also in the new province of the nation constituted by the EEZ. The capacity in many countries to carry out ocean observations and use them properly must be increased if the benefits of EEZ are to support sustainable development of IOC/EC-XXXI/3 these nations. Solidarity is required and IOC has also a role to play here. The coastal zone as a resource in its own right must be pursued.

Impacts of uses, pollution, aquaculture must be further studied and quantified; the natural hazards as well as food safety associated with aquaculture, sanitation, freshwater contamination, constitute increasingly serious national security issues. The global change problems are also generating risks and uncertainties of great concern for the coastal areas, and in particular, many small islands and low lying states.

In this context, we may ask if the global change research is addressing the right priorities. Climate change is a key issue, but there may be a need to analyse the situation in a comprehensive fashion. A basic factor is population dynamics. It appears that the hypothesis of Malthus, that a society increases its members regardless of environmental constraints, is true. This being the case and human society being an integral part of the whole system, then economical indicators may be sought to identify a priority framework.

An analysis along these lines leads to identifying that the basic processes that regulate environmental dynamics are based on the principle of biological regulation of the environment. Thus research priorities should address biosphere dynamics, with related matters. Estimates of consumption of biosphere resources and biogeochemical cycles point in the same direction. The role of biological diversity is important. Simulation modelling and adequate observations are required.

The importance of the ocean is brought out even more in this context. The biological diversity in the ocean is much larger than in freshwater or the terrestrial environment. Many new discoveries of biological diversity in the ocean have also been made. These include the ecological system, new biological kingdom, discovered associated with the deep sea hydrothermal units. Considerable research is now also going on as regards the associated bacteria and in bio-medical and pharmaceutical processes.

This leads to the conclusion that there is a need to formulate now the large co-operative ocean research programmes for the early part of the next millennium.

In parallel, education about the ocean must be pursued more vigorously than now. Communication between sectors and the different legal instruments and agreements must be increased, as regards ocean issues in any case. The IOC has a role to play as part of and with UNESCO.

For the IOC to fulfill its role, the Member States must fully acknowledge the IOC in public, and the IOC must pursue its co-operation with partners inside and outside the United Nations system. The IOC should pursue its role as a joint specialized mechanism. I am sure that Roger Neville would have wished this line of action to be pursued by an international mechanism that he was himself involved in creating.

D. Youth Forum Statement and Ocean Day Programme

OCEAN DAY PROGRAMME

November 23, 1998

9:00 AM to 10:30 AM	Executive Council Session begins (Room10) UNCED / IYO / Experiences gained during the IYO will be under consideration
10:30 AM	Coffee Break
10:45 AM to 11:30 AM	Ocean Day Launch Inauguration of the exhibition (ribbon cutting) Director General or IOC Chairman
11:30 AM	Press Briefing - Panel: ADG / Executive Secretary IOC Chairman - Questions from the Press
1:00PM to 3:00 PM	Reception and lunch Break
3:00 PM to 4:30 PM	Ocean Panel (Room 3) Youth Forum (Room 6)
4:00 PM to 4:30PM	Youth Tour of UNESCO / Preparation of Youth Ocean Statement
4:45 PM to 6:30 PM	Executive Council meeting resumes Youth presentation to Executive Council Ocean Panel results Debate

Youth Forum Statement

A committee of young people from different parts of the world met on Monday, 23 November 1998, in Paris, at UNESCO Headquarters. The major issues debated at the Youth Forum and approved by all the participants are the following:

- use education as a medium to heighten regional and global awareness of the importance of the oceans. This education should be integrated into the regular school curriculum at both primary and secondary school levels. This education curricula should be coupled with periodic interventions by specialists;
- there should be an equitable balance between theoretical and practical approach in education curricula since awareness is the continuation of entertainment, education and environmental actions. In order to implement these recommendations there should be a focus on education and training;

- the role of the media is integral in assisting the carrying out of these aims and objectives;
- the IOC should be used to exert pressure on governments and decision-makers for financial commitments, co-ordinated action on programme implementation and public awareness campaign;
- to request continuity in youth awareness by extending the youth linkages beyond the present forum and to strengthen links between the present participants;
- this would continue the work that began during this Year of the Ocean by many organizations and allow us to co-operate and share ideas all through the world.

ANNEX IV

LIST OF WORKING DOCUMENTS¹

IOC/EC-XXXI/1	Agenda
IOC/EC-XXXI/1 Add	Timetable
IOC/EC-XXXI/2	Annotated Agenda
IOC/EC-XXXI/3	Summary Report
IOC/EC-XXXI/4	List of Documents (this document)
IOC/EC-XXXI/5	List of Participants
IOC/EC-XXXI/6	Progress Report of DOSS-2
IOC/EC-XXXI/7	Project Proposal on Storm Surges for the Northern Part of the Indian Ocean
IOC/EC-XXXI/8	Integrated Global Observing Strategy
IOC/EC-XXXI/9	Role of IOC in International Ocean Assessments
IOC/EC-XXXI/10	Joint Commission on Oceanography and Marine Meteorology
IOC/EC-XXXI/11	Change to GLOSS Group of Experts Terms of Reference
IOC/EC-XXXI/12	Implication to IOC of Requests for Inventories of Coastal Monitoring Systems
IOC/EC-XXXI/13	Experiences from the 1998 International Year of the Ocean
IOC/EC-XXXI/14	Expert Consultation on the Development of IOC Programme on Marine Science and Observation Inputs to ICAM
IOC/EC-XXXI/15	Executive Summary of the IOC-SCOR GEOHAB Workshop
IOC/EC-XXXI/16	IOC Programme & Budget - Adjustments to current biennium budget 1998-99
IOC/EC-XXXI/17	IOC Programme & Budget - Projections in connection with 30C/5

REPORTS OF IOC SUBSIDIARY BODIES REQUIRING ACTION

IOC/ITSU-XVI/3	Summary Report of the 16 th Session of the ICG/ITSU, Lima, Peru, 23-26 September 1997
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¹ This list is for reference only. No stocks of these documents are maintained, except for the Summary Report.

INFORMATION AND OTHER REFERENCE DOCUMENTS

SC/MD/216	Summary report of the Nineteenth Session of the IOC Assembly
IOC Annual Report No.4	IOC Annual Report, 1997
IOC/INF-1091	Strategic Plan and Principles for the Global Ocean Observing System(GOOS)
IOC/INF-1102	Summary Report of the IODE Officers Meeting, Goa, India, 10-13 February 1998
IOC/INF-1103	Presentation on GOOS
IOC/INF-1104	Information and Guidelines for Participants in the Thirty-first Session of the IOC Executive Council
IOC/INF-1110	Progress Report of GIPME
IOC/INF.1112	Background elements, concepts, definitions, principles and pilot implementation of recent capacity-building actions within the TEMA programme
IOC/TEMA-CB-II/3	A Strategy and framework plan for TEMA-Capacity Building. Summary Report of the Second Meeting of the TEMA Group of Experts for Capacity Building, Bremen, Germany, May 1997.
IOC Workshop Report 138	Taller Gestión de Sistemas Oceanográficos del Pacífico Oriental" (Concepción, Chile, 9-16 de abril de 1996)
IOC Workshop Report 139	Sistemas Oceanográficos del Atlántico Sudoccidental - Taller TEMA (FURG, Rio Grande, Rio Grande do Sul, Brasil, 3 al 11 de noviembre de 1997)
IOC Workshop Report 151	Taller Pluridisciplinario TEMA sobre Redes del Gran Caribe en Gestión Integrada de Areas Costeras (Cartagena de Indias, Colombia, 7-12 septiembre 1998)
IOC/Technical Series No.50	GLOSS Implementation Plan, 1997
IOC/GSC-I/6	Report by the Director of the GOOS Project Office on the functions and ongoing Activities of the GPO
IOC-XIX/2 Annex 4	Proposal on the Draft Programme and Budget 1998-1999

ANNEX V

LIST OF PARTICIPANTS

I. OFFICERS OF THE COMMISSION

Chairman

Mr. Geoffrey L. Holland
Special Advisor, Oceans
Dept. of Fisheries & Oceans
15th Floor, 200 Kent Street
Ottawa, Ont. K1A 0E6
CANADA
Tel: (1 613) 990 02 98
Fax: (1 613) 990 55 10
E-mail: gholland@resudox.net

Third Vice-Chairman

Prof. Victor G. Neimann
Deputy Head
Dept. of Oceanology
Russian Academy of Sciences
32a, Leninski prospect
Moscow 117334
RUSSIAN FEDERATION
Tel: (7 095) 938 14 63
Fax: (7 095) 938 18 59/938 18 44

First Vice-Chairman

Lic. Guillermo García Montero
Presidente, Comité Oceanográfico Nacional
Ministerio de Ciencia, Tecnología y Medio
Ambiente
Calle 60 y 1ª, Miramar
Ciudad Habana
CUBA
Tel: (53 7) 24 99 87
Fax: (53 7) 24 99 87/24 14 42
E-mail: ggarcia@unepnet.inf.cu

Fourth Vice-Chairman

Dr. Ezekiel Okemwa
Chairman IOCINCWIO
Director, Kenya Marine & Fisheries Research
Institute (KMFRI)
P.O. Box 81651
Mombasa
KENYA
Tel: (254 11) 47 51 57
Fax: (254 11) 47 22 15
E-mail: kmfri@users.africaonline.co.ke

Second Vice-Chairman

Dr. A.E. Muthunayagam
Secretary, Dept. of Ocean Development (DOD)
Government of India
Block 12, CGO Complex, Lodi Road
New Delhi - 110003
INDIA
Tel: (91 11) 436 08 74
Fax: (91 11) 436 26 44
E-mail: aem@dod12.ernet.in/did@alpha.nic.in

**II. MEMBER STATES OF THE IOC
EXECUTIVE COUNCIL/ETATS
MEMBRES DU CONSEIL EXECUTIF DE
LA COI/ESTADOS MIEMBROS DEL
CONSEJO EJECUTIVO DE LA COI**

Algeria/Algérie/Algeria

Head of Delegation

Mr. Mohamed-Adel Samet
Counselor
Permanent Delegation of Algeria to UNESCO
1, rue Miollis
75732 Paris Cedex 15
Tel: (33 1) 45 68 29 65

Argentina/Argentine/Argentina

Head of Delegation

Señora Ministro María Susana Pátaro
Delegado Permanente Adjunta
Delegación Permanente de la República Argentina
ante la UNESCO
1, rue Miollis
75732 Paris Cedex 15
Tel: (33 1) 45 68 34 38
Fax: (33 1) 43 06 60 35

Alternate

Capt. Fragata Javier Armando Valladares
Servicio de Hidrografía Naval
Av. Montes de Oca, 2124
1271 Buenos Aires
Tel: (54 1) 301 30 91
Fax: (54 1) 301 29 18
E-mail: valladar@ara.mil.ar

Representatives

Mr. Ariel Walter Gonzalez
Delegación Permanente de la República Argentina
ante la UNESCO
1, rue Miollis
75732 Paris Cedex 15
Tel: (33 1) 45 68 34 38
Fax: (33 1) 43 06 60 35
E-mail: aw.gonzalez@unesco.org

Mrs. Rosa Delia Gomez Duran
Ministerio de Relaciones Exteriores (DICOL)
Reconquista 1088, Piso 12
1003 Buenos Aires
Tel: (54 1) 310 84 16
E-mail: gor@mrecic.pov.ar

Australia/Australie/Australia

Head of Delegation

Dr. Angus D. McEwan
Science Adviser
Bureau of Meteorology
111, MacQuarie St.
Hobart, Tasmania 7001
Tel: (61 3) 62 21 20 90
Fax: (61 3) 62 21 20 89
E-mail: a.mcewan@bom.gov.au

Alternates

Dr. Geoff Bruce Love
Deputy-Director
Bureau of Meteorology
150, Lonsdale St.
Melbourne, VIC 3001
Tel: (61 3) 966 94 21
E-mail: g.love@bom.gov.au

Dr. Russell Reichelt
Director, Australian Institute of Marine Science
Private Mail Bag 3
Townsville, QLD 4810
Tel: (61 7) 4753 4221
Fax: (61 7) 4753 43 86
E-mail: r.reichelt@aims.gov.au

Adviser

Ms. Carolyn Irving
Permanent Delegation of Australia to UNESCO
Australian Embassy
4, rue Jean Rey
75015 Paris
Tel: (33 1) 40 59 34 10
E-mail: carolyn.irving@dfat.gov.au

Belgium/Belgique/Bélgica

Head of Delegation

Mr. Rudy Herman
Senior Researcher
Ministry of the Flemish Community
Technology & Innovation Administration
Boudewijn laan, 30
B-1010 Brussels
Tel: (32 2) 553 60 01
Fax: (32 2) 553 59 81
E-mail: rudy.herman@vlaanderen.be

Representative

Mr. Frank Monterey
Programme Manager, OSTC
8, rue de la Science
1000 Brussels
Tel: (32 2) 238 35 42
Fax: (32 2) 230 59 12

Brazil/Brésil/Brasil

Head of Delegation

Vice-Adm. Marcos Augusto Leal de Azevedo
Director, Diretoria de Hidrografia e Navegação
Rua Barão de Jaceguay, s/n
24048-900 Niterói, RJ
Tel: (55 21) 717 04 23
Fax: (55 21) 620 26 26
E-mail: 01@dhn.mar.mil.br

Representatives

Mrs. Marília Giovanetti de Albuquerque
Head, Marine Sciences Division
Ministry of Science & Technology
Esplanada dos Ministérios, Bloco E, sala 291
70067-900 Brasília, D.F.
Tel: (55 61) 317 71 15
Fax: (55 61) 226 12 57
E-mail: marilia@mct.gov.br

Com. Armando Arthur Rodrigues Leitão
Diretoria de Hidrografia e Navegação
Ponta da Armação
Rua Barão de Jaceguay, s/n
24048-900 Niterói, RJ
Tel: (55 21) 620 26 26 ext. 3088
Fax: (55 21) 719 49 89
E-mail: 04coi@dhn.mar.mil.br

Mr. Ricardo A. Bastos
Permanent Delegation of Brazil to UNESCO
1, rue Miollis
75015 Paris
Tel: (33 1) 45 68 29 00
Fax: (33 1) 47 83 28 40

Canada

Head of Delegation

Dr. Jean Piuze
Directeur Regional, Oceans
Region Laurentienne, Pêches et Océans, Canada
Institut Maurice Lamontagne
850, route de la Mer
C.P. 1000, Mont-Joli, Québec G5H 3Z4
Tel: (1 418) 775 07 03

Fax: (1 418) 775 05 42
E-mail: piuzej@dfo-mpo.gc.ca

Alternates

Mr. Geoffrey L. Holland
Chairman IOC/Special Advisor Oceans
Science Sector, DFO
Dept. of Fisheries & Oceans
15th Floor, 200, Kent Street
Ottawa, Ont. K1A 0E6
Tel: (1 613) 990 02 98
Fax: (1 613) 990 55 10
E-mail: hollandg@dfo-mpo.gc.ca

Dr. Savi Narayanan
Director, Marine Environment Data Service
Dept. of Fisheries & Oceans, W082, 12th Floor
200, Kent St., Ottawa, Ontario K1A 0E6
Tel: (1 613) 990 02 65
Fax: (1 613) 990 46 58
E-mail: narayanan@meds-dfo.ca

Mr. Dick Stoddart
Dept. of Fisheries & Oceans
200, Kent St., Room 12-5024
Ottawa, Ontario K1A 0E6
Tel: (1 613) 990 03 02
Fax: (1 613) 954 08 07
E-mail: stoddartr@dfo-mpo.gc.ca

Mr. Lennox O'Riley Hinds
Senior Adviser
Oceans, Marine Affairs & Fisheries Policy Branch
Canadian International Development Agency
200, Promenade du Portage
Hull, Québec K1A 0G4
Tel: (1 819) 997 04 83
Fax: (1 819) 953 33 48
E-mail: lennox_hinds@acdI-cida.gc.ca

Advisers

Mrs. Caroline Bookless
IYO Project Leader
311, Atlantis Av.
Ottawa, Ontario K2A 1X7
Tel: (1 613) 798 11 97
Fax: (1 613) 990 55 10
E-mail: seabrokie@yahoo.com

Miss. Gisele Trubey
Chargée de Programme Commission Canadienne
pour l'UNESCO
C.P. 1042, 350, rue Albert
Ottawa, Ontario
Tel: (1 613) 566 44 14, ext. 55 17
Fax: (1 613) 566 44 05
E-mail: gisele.trubey@canadacouncil.ca

Chile/Chili/Chile

Head of Delegation

Capt. Navío Rafael Mac-Kay
Director, Oceanographic Service of the Navy
Errazuriz 232 - Playa Ancha
Valparaíso
Tel: (56 32) 26 65 02
Fax: (56 32) 26 65 42
E-mail: shoa@shoa.cl

Alternate

Dr. Rodrigo Núñez
Head, Dept. of Oceanography
Errazuriz 232 - Playa Ancha
Valparaíso
Tel: (56 32) 26 66 70
Fax: (56 32) 26 65 42
E-mail: rnunez@shoa.cl

Representative

Mr. Samuel Fernandez-Illanes
Deputy Permanent Delegate
Permanent Delegation of Chile to UNESCO
1, rue Miollis
Paris 75015
Tel: (33 1) 45 68 29 50
Fax: (33 1) 47 34 16 51

China/Chine/China

Head of Delegation

Mr. Haiqing Li
Deputy Director-General
Dept. of International Co-operation
State Oceanic Administration
1, Fuxingmenwai Av.
Beijing 100860
Tel: (86 10) 68 04 26 75
Fax: (86 10) 68 03 07 99
E-mail: depicsoa@public.east.cn.net

Alternate

Mr. Xiaoming Li
Deputy Director-General
Dept. of Marine Environmental Protection
State Oceanic Administration
1, Fuxingmenwai Av.
Beijing 100860
Tel: (86 10) 68 03 22 11
Fax: (86 10) 68 03 07 99

Representatives

Ms. Wen Wen
Programme Officer
Dept. of International Co-operation
State Oceanic Administration
1, Fuxingmenwai Av.
Beijing 100860
Tel: (86 10) 68 01 97 91
Fax: (86 10) 68 03 07 99
E-mail: soadio@public.east.cn.net

Mr. Jun Liu
Permanent Delegation of China to UNESCO
1, rue Miollis
75732 Paris Cedex 15
Tel: (33 1) 45 68 34 56
Fax: (33 1) 47 34 16 51

Colombia/Colombie/Colombia

Head of Delegation

Dr. Pablo Gabriel Obregon Santodomingo
Embajador Delegado Permanente de Colombia
ante la UNESCO
1, rue Miollis
75015 Paris
Tel: (33 1) 45 68 28 56
Fax: (33 1) 43 06 66 09

Representatives

Cap. Fragata Orlando Malaver Calderón
Secretario General
Comisión Colombiana de Oceanografía
Calle 41, No. 46-20 CAN
Santafé de Bogotá
Tel: (57 1) 222 04 36
Fax: (57 1) 222 04 16
E-mail: cromano@col.ciencias.gov.co

Mr. Marco Llinas
First Secretary
Permanent Delegation of Colombia to UNESCO
1, rue Miollis
75015 Paris
Tel: (33 1) 45 68 28 56
Fax: (33 1) 43 06 66 09

Costa Rica

Head of Delegation

Dr. Manuel M. Murillo
Director, Oficina de Asuntos Internacionales y
Cooperación Externa
Universidad de Costa Rica
Cuidad Universitaria Rodrigo Facio
San Pedro de Montes de Oca
San Jose
Tel: (506) 207 50 80
Fax: (506) 225 58 22
E-mail: mmurillo@cariari.ucr.ac.cr
Oaiucr@cariari.ucr.ac.cr

Alternates

Mr. Laureano Alban
Ambassador & Permanent Delegate
Permanent Delegation of Costa Rica to UNESCO
1, rue Miollis
Paris 75015
Tel: (33 1) 45 68 25 71
Fax: (33 1) 42 73 16 45

Sra. Iris Leiva de Billault
Delegada Alterna
Delegación Permanente de Costa Rica ante la
UNESCO
1, rue Miollis
75732 Paris Cedex 15
Tel: (33 1) 45 68 25 71
Fax: (33 1) 42 73 16 45

Sra. Gabriela Castillo García
Delegación Permanente de Costa Rica ante la
UNESCO
(same address as above)
Tel: (33 1) 45 68 25 71
Fax: (33 1) 42 73 16 45

Cuba

Head of Delegation

Mr. Guillermo Garcia Montero
First Vice-Chairman IOC
Presidente, Comité Oceanográfico Nacional
Ministerio de Ciencia, Tecnología y Medio
Ambiente
Calle 60 y 1ª, Miramar
Ciudad Habana
Tel: (53 7) 24 99 87
Fax: (53 7) 24 99 87
E-mail: ggarcia@unepnet.inf.cu

Egypt/Egypte/Egipto

Head of Delegation

Prof. Dr. Khamis Abd el-Hamid Hussein
Fishery Division
National Institute of Oceanography & Fisheries -
NIOF - Alexandria Branch
101, Qasr El-Ainy St.
Cairo
Tel: (20 2) 594 13 41

France/France/Francia

Head of Delegation

M. Philippe Barré
Cooperation Scientifique Multilatéral
Ministère des Affaires Etrangères - DGRCS
244, Boulevard St. Germain
75007 Paris
Tel: (33 1) 43 17 80 22
Fax: (33 1) 43 17 80 25
E-mail: philippe.barre@diplomatie.fr

Representatives

M. Elie Jarmache
Director, Relations Internationales, IFREMER
155, rue Jean-Jacques Rousseau
92138 Issy-les-Moulineaux
Tel: (33 1) 46 48 21 81
Fax: (33 1) 46 28 22 48
E-mail: eli.jarmache@ifremer.fr

M. François Gérard
Chef du Département Réseau - DGO/RE
Météo France
1, quai Branly
B.P. 340
75340 Paris Cedex 07
Tel: (33 1) 45 56 70 24
Fax: (33 1) 45 56 70 05
E-mail: francois.gerard@meteo.fr

M. Jean-Paul Rebert
Chargé de Mission, ORSTOM/IRD
213, rue La Fayette
75480 Paris Cedex 10
Tel: (33 1) 48 03 76 83
E-mail: rebert@orstom.fr

Mlle. Florence Cormon
Délégation Permanente de la France auprès de
l'UNESCO
1, rue Miollis
75015 Paris
Tel: (33 1) 45 68 35 47
Fax: (33 1) 47 34 55 05
E-mail: dl.france@unesco.org

Mme. Catherine Larget
ORSTOM/IRD
213, rue La Fayette
75480 - Paris Cedex 10
Tel: (33 1) 48 03 75 52
Fax: (33 1) 48 03 75 13
E-mail: larget@paris.orstom.fr

M. Jean-Paul Martin
Conseiller Technique
Commission Nationale Française pour l'UNESCO
34/36, rue La Pérouse
75775 Paris Cedex 16
Tel: (33 1) 43 17 66 35
Fax: (33 1) 43 17 67 73
E-mail: jean-paul.martin@diplomatie.fr

Dr. Catherine Maillard
Coordinateur National pour IODE
IFREMER/SISMER, Centre de Brest
B.P. 70, 29280 Plouzane
Tel: (33 2) 98 22 42 79
Fax: (33 2) 98 22 46 44
E-mail: catherine.maillard@ifremer.fr

Advisers

M. François Schindele
CEA/DAM, DASE/LDG
B.P. 12
91680 Bruyère Le Chatel
Tel: (33 1) 69 26 78 12
Fax: (33 1) 69 26 70 00
E-mail: schindel@ldg.bruyeres.cea.fr

M. Patrick Gentien
S.R.S./IFREMER, Centre de Brest
B.P. 70
29280 Plouzane
Tel: (33-2) 98 22 43 24
E-mail: pgentien@ifremer.fr

Dr. Yves Henocque
Project Leader
B.P. 330
83507 La Seyne-sur-Mer Cedex
Tel: (33 4) 94 30 49 07

Germany/Allemagne/Alemania

Head of Delegation

Prof. Dr. Peter Ehlers
President, Bundesamt für Seeschifffahrt und
Hydrographie
Postfach 30 12 20
Bernhard-Nocht-Str. 78
D-20359 Hamburg
Tel: (49 40) 31 90 10 00
Fax: (49 40) 31 90 10 04

Alternate

Prof. Dieter P. Kohnke
Director, Bundesamt für Seeschifffahrt und
Hydrographie
Postfach 30 12 20
D-20305 Hamburg
Tel: (49 40) 31 90 34 00
Fax: (49 40) 31 90 50 00
E-mail: kohnke@bsh.d400.de

Representative

Mr. Christoph Derix
Ambassador & Permanent Delegate
Permanent Delegation of Germany to UNESCO
1, rue Miollis
Paris 75015
Tel: (33 1) 45 68 25 36
Fax: (33 1) 45 67 57 48

Greece/Grèce/Grecia

Head of Delegation

Dr. George Chronis
Director, Institute of Oceanography
National Centre for Marine Research
Aghios Kosmas, Hellinikon
16604 Athens
Tel: (30 1) 982 02 14
Fax: (30 1) 983 30 95
E-mail: gchronis@edp.ncmr.ariadne-t.gr

Alternate

Dr. Efstathios Balopoulos
Research Director
Head, Hellenic National Oceanographic Data
Centre
Institute of Oceanography
National Centre for Marine Research
Aghios Kosmas, Hellinikon 16604
Athens
Tel: (30 1) 981 57 03
Fax: (30 1) 983 30 95
E-mail: efstathios.balopoulos@hnodc.ncmr.gr

Representatives

Mr. Alexander Theocharis
Associate Researcher, Institute of Oceanography
National Centre for Marine Research
Aghios Kosmas, Hellinikon 16604
Athens
Tel: (30 1) 981 57 03
Fax: (30 1) 983 30 95
E-mail: alekos@nhreas.ncmr.gr

Dr. Nikolaos Friligos
Research Director
National Centre for Marine Research
Aghios Kosmas, Hellinikon 16604
Athens
Tel: (30 1) 965 35 21
Fax: (30 1) 965 35 22
E-mail: friligos@erato.fl.ariadne-t.gr

Advisers

Rear Admiral Alexandros Maratos
Director, Hydrographic Service
Greek Navy
Holargos
Tel: (30-1) 644 29 66

Dr. Emmanuel Gounaris
Minister Plenipotentiary, Expert Law of the Sea
Ministry of Foreign Affairs
Academixs 3, D1 Direction
Athens 10745
Tel: (30 1) 363 47 21
Fax: (30 1) 362 57 25

India/Inde/India

Head of Delegation

Dr. A.E. Muthunayagam
Second Vice-Chairman IOC
Secretary, Dept. of Ocean Development
Government of India
Mahasagar Bhawan, Block 12
CGO Complex, Lodi Road
New Delhi - 110003
Tel: (91 11) 436 26 44/08 74
Fax: (91 11) 436 03 36
E-mail: aem@dod12.ernet.in/dodsec@alpha.nic.in

Alternate

Mr. Shri Chiranjiv Singh
Ambassador & Permanent Delegate
Permanent Delegation of India to UNESCO
1, rue Miollis
75732 Paris Cedex 15
Tel: (33 1) 45 68 29 88
Fax: (33 1) 47 3451 88

Representative

Mr. B.N. Krishna Murthy
Adviser, Dept. of Ocean Development
Government of India
CGO Complex, Block 12, Lodhi Rd.
New Delhi 110003
Tel: (91 11) 436 29 64
Fax: (91 11) 436 26 44/03 36
E-mail: bnk@dod12.ernet.in

Adviser

Dr. Chimalapati Satyanarayana Murty
Scientist 'F', National Institute of Oceanography
Dona Paula, Goa 403004
Tel: (91 832) 22 62 53
Fax: (91 832) 22 33 40
E-mail: csmurty@csnio.goa

Indonesia/Indonésie/Indonesia

Head of Delegation

H.E. Mr. Soedarso Djojonegoro
Ambassador & Permanent Delegate
Permanent Delegation of Indonesia to UNESCO
1, rue Miollis
75732 Paris Cedex 15
Tel: (33 1) 45 68 29 72
Fax: (33 1) 45 66 02 37
E-mail: soedarso@worldnet.fr

Alternate

Dr. Anugerah Nontji
Deputy-Chairman for Natural Sciences
Indonesian Institute of Sciences (LIPI)
Jalan Jenderal Gatot Subroto, 10
Jakarta Selatan 12710
Tel: (62 21) 525 23 62
Fax: (62 21) 520 23 62

Representatives

Mr. Imam Santoso
Deputy Permanent Delegate
Permanent Delegation of Indonesia to UNESCO
1, rue Miollis
75732 Paris Cedex 15
Tel: (33 1) 45 68 29 72
Fax: (33 1) 45 66 02 37

Mr. Achmad M. Zaini
Permanent Delegation of Indonesia to UNESCO
(same address as above)

Prof. Dr. Aprilani Soegiarto
Indonesian Institute of Sciences
Permanent Delegation of Indonesia to UNESCO
(same address as above)

Mr. Nicolas P. Ello
Head, Hydro-Oceanographic Office of the
Indonesian Navy
Permanent Delegation of Indonesia to UNESCO
(same address as above)

Israel

Head of Delegation

Dr. Yuval Cohen
Director-General
Israel Oceanographic & Limnological Research
P.O. Box 8030
Haifa 31080
Tel: (972 4) 851 52 02
Fax: (972 4) 851 19 11
E-mail: yuval@ocean.org.il

Italy/Italie/Italia

Head of Delegation

Prof. Carlo Morelli
Università degli Studi di Trieste
Dipartimento di Ingegneria Navale, del Mare e per
l'Ambiente
27, via Berlam
34126 Trieste
Tel: (39 40) 42 13 92
Fax: (39 40) 676 34 97
E-mail: morelli@minsum1.univ.trieste.it

Jamaica/Jamaïque/Jamaica

Head of Delegation

Dr. Marcel A. Anderson
Scientist/Environmentalist
Towers, 3rd Floor/UNESCO
25, Dominica Drive
Kingston 5
Tel: (876) 968 4048
Fax: (876) 929 0857
E-mail: manderson@jpsco.com

Alternate

Ms. Sybil Campbell
Ambassador & Permanent Delegate
Permanent Delegation of Jamaica to UNESCO
1, rue Miollis
75732 Paris Cedex 15
Tel: (33 1) 45 68 32 23
Fax: (33 1) 43 06 84 51

Japan/Japon/Japón

Head of Delegation

Prof. Keisuke Taira
Director, Ocean Research Institute
University of Tokyo
Minamidai 1-15-1, Nakano-ku
Tokyo 164-8639
Tel: (81 3) 5351 6417

Fax: (81 3) 5351 6418
E-mail: taira@ori.u-tokyo.ac.jp

Alternate

Prof. Makoto Terazaki
Director, Centre for International Co-operation
University of Tokyo
Minamidai 1-15-1, Nakano-ku
Tokyo 164-8639
Tel: (81 3) 5351 6528
Fax: (81 3) 5351 6530
E-mail: terazaki@ori.u-tokyo.ac.jp

Representatives

Mr. Daisuke Machida
First Secretary
Permanent Delegation of Japan to UNESCO
1, rue Miollis
75015 Paris
Tel: (33 1) 45 68 35 28
Fax: (33 1) 47 34 46 70

Mr. Takao Noda
Unit Chief
International Scientific Affairs Division
Ministry of Education, Science, Sports & Culture
Kasumigasaki 3-2-2, Chiyoda-ku
Tokyo 100-0013
Tel: (83 3) 3581 4211

Kenya

Head of Delegation

Dr. Ezekiel Okemwa
Fourth Vice-Chairman IOC
Director, Kenya Marine & Fisheries Research
Institute
P.O. Box 81651
Mombasa
Tel: (254 11) 47 51 57
Fax: (254 11) 47 51 57
E-mail: eokemwa@recoscix.com

Alternates

Mr. Nzeki Jones
Educational Counselor
Embassy of Kenya
3, rue Freycinet
Paris 75016
Tel: (33 1) 56 62 25 25
Fax: (33 1) 47 20 44 41

Mexico

Head of Delegation

Mr. Marco Polo Bernal
Director, Unidad de Educación en Ciencia y
Tecnología del Mar
Secretaría de Educación Pública
Dr. Jimenez, 47, Col. Doctores
CPO 6720 Mexico D.F.
Tel: (52 5) 761 37 83
Fax: (52 5) 578 56 43
E-mail: vecytm@sep.gob.mx

Alternate

Mr. Francisco Brizuela Venegas
Biologist, Departamento de Vinculación de la
Unidad de Educación en Ciencia y Tecnología del
Mar
Secretaría de Educación Pública
Dr. Jimenez, 47, Col. Doctores
CP 6720 Mexico D.F.
Tel: (52 5) 578 57 47, Ext. 136
Tel: (52 5) 578 17 51, Ext. 136
Fax: (52 5) 578 56 43
E-mail: vecytm@sep.gob.mx

Adviser

Mr. Carlos Enriquez-Verdura
Delegación Permanente de México ante la
UNESCO
1, rue Miollis
75732 Paris Cedex 15
Tel: (33 1) 45 68 33 55
Fax: (33 1) 47 34 92 45

Nigeria

Head of Delegation

Dr. Thomas Olatunde Ajayi
Director, Nigerian Institute for Oceanography &
Marine Research
PMB 12729, Victoria Island
Lagos
Tel: (234 1) 261 75 30
Fax: (234 1) 261 95 17
E-mail: niomr@linkserve.com.ng

Representative

Dr. Umar M. Ahmed
Deputy-Permanent Delegate
Permanent Delegation of Nigeria to UNESCO
1, rue Miollis
75732 Paris Cedex 15
Tel: (33 1) 45 68 27 27
Fax: (33 1) 45 67 59 41

Peru/Pérou/Perú

Head of Delegation

Capt. Navío Héctor Soldi
Executive Officer
Peruvian Hydrographic Office
Dirección de Hidrografía y Navegación
Casilla Postal 80
Callao
Tel: (51 1) 429 98 68
Fax: (51 1) 465 29 95
E-mail: hsoldi@hidronav.marina.mil.pe

Alternates

Mr. Italo Huertas
Naval Officer
Peruvian Hydrographic Office
Av. Gamarra #500
Chucuito - Callao
Casilla Postal 80
Tel: (51 1) 429 72 90
Fax: (51 1) 465 29 95
E-mail: ihuertas@hidronav.marina.mil.pe

Mr. Alberto Carrion
Permanent Delegation of Peru to UNESCO
1, rue Miollis
Paris 75015
Tel: (33 1) 45 68 29 31/32
Fax: (33 1) 40 65 09 38

Representatives

Sr. Alfredo Picasso de Oyague
Consejero para asuntos de Cooperación Científica
y Tecnológica
Delegación Permanente del Perú ante la UNESCO
B.P. 338.16
75767 Paris Cedex 16
Tel: (33 1) 45 27 63 42
Fax: (33 1) 45 27 63 42
E-mail: apicasso@club-internet.fr

Mr. Carlos Vasquez
Permanent Delegation of Peru to UNESCO
1, rue Miollis
Paris 75015
Tel: (33 1) 45 68 29 31/32
Fax: (33 1) 40 65 09 38

Philippines/Philippines/Filipinas

Head of Delegation

Prof. Miguel D. Fortes
Chairman, National Committee on Marine
Sciences (NCMS)
UNESCO National Commission of the Philippines
2330 Roxas Blvd., Pasay City
Metro Manila
Tel: (63 2) 922 39 59
Fax: (63 2) 831 88 73/924 76 78
E-mail: fortesm@msi01.upd.edu.ph

Representatives

Dr. Rolu P. Encarnación
Chief, Weather Services
Philippines Atmospheric Geophysical &
Astronomical Administration (PAGASA)
1424, Quezon Av., Diliman, Quezon City
Metro- Manila 1100
Tel: (63 2) 926 50 60
Fax: (63 2) 922 78 13

Mr. José A. Ordoñez
Chief, Fisheries Resources Research Division
Bureau of Fisheries & Aquatic Resources
Arcadia Building, 860 Quezon Av.
Quezon City, Metro Manila
Tel: (632) 372 50 43
Fax: (632) 372 50 43
E-mail: jordonez@vlink.net.ph

Adviser

Mrs. Deanna Ongpin-Recto
First Secretary
Senior Foreign Affairs Adviser
Permanent Delegation of the Philippines to
UNESCO
1, rue Miollis
75732 Paris Cedex 15
Tel: (33 1) 45 68 29 80
Fax: (33 1) 45 67 07 97

Portugal

Head of Delegation

Prof. Mário Ruivo
Chairman, Portuguese Committee for IOC
Av. Infante Santo, nº 42 - 4º andar
1350 Lisbon
Tel: (351 1) 390 43 30
Fax: (351 1) 395 22 12

Alternate

Mr. Zorge Ritto
Permanent Delegate
Permanent Delegation of Portugal to UNESCO
1, rue Miollis
Paris 75015
Tel: (33 1) 45 68 30 55/56
Fax: (33 1) 45 67 82 93

**Republic of Korea/République de Corée
/República de Corea**

Head of Delegation

Mr. Jung-Hee Yoo
Counselor, Permanent Delegation of the Republic
of Korea to UNESCO
1, rue Miollis
75732 Paris Cedex 15
Tel: (33 1) 45 68 31 54
Fax: (33 1) 40 56 38 88

Representatives

Dr. Sang-Kyung Byun
Researcher, Korea Ocean Research &
Development Institute (KORDI)
Ansan, P.O. Box 29, Ansan
Seoul 425-600
Tel: (82 345) 600 6127
Fax: (82 345) 408 5829
E-mail: skbyun@sari.kordi.re.kr

Mr. Dong-min Jin
Head, International Co-operation Section
Korea Ocean Research & Development Institute
(KORDI)
1260 Sa-dong, Ansan City
Kyung-gi Province
Tel: (82 345) 460 6070
Fax: (82 345) 406 6925
E-mail: dmjin@sari.kordi.re.kr

**Russian Federation/Fédération de Russie
/Federación de Rusia**

Head of Delegation

Dr. Vasily N. Zhivago
Head, Division of the Earth & Ocean Sciences
Ministry for Science & Technologies
11, Tversaya Str.
Moscow 103905
Tel: (7 095) 229 03 64
Fax: (7 095) 925 96 09
E-mail: ??@intern.minntp.msk.su

Alternate

Admr. Anatoliy A. Komaritsyn
Chief, Head of Dept. of Navigation &
Oceanography
Chief Hydrographic Service of the Russian
Federation Navy
Full Member of the International Academy of
Informatization
8,11 Liniya B-34
St. Petersburg 199034
Tel: (7 812) 213 8109
Fax: (7 812) 213 72 60

Advisers

Prof. Victor G. Neimann
Third Vice-Chairman IOC
Adviser, Russian Academy of Sciences
37, Nakhimovsky Prosp.
Moscow 117334
Tel: (7 095) 135 13 87
Fax: (7 095) 938 18 59

Mr. Valery Blatov
Counselor
8, rue de Prony
Paris 75017
Tel: (33 1) 42 12 84 34
Fax: (33 1) 42 67 51 99

Prof. Anatoly L. Kolodkin
Deputy-Director
Sojuzmorniproject Institute
Ministry of Transport of the Russian Federation
3a, B. Koptersky pr.
125319 Moscow
Tel: (7 095) 151 75 88
Fax: (7 095) 152 09 16

South Africa/Afrique du Sud/Africa del Sur

Head of Delegation

Dr. David E. Pollock
Sea Fisheries Research Institute
Private Bag X2, Rogge Bay
Cape Town 8012
Tel: (27 21) 402 3112
Fax: (27 21) 217 406
E-mail: dpollock@sfri.sfri.wcape.gov.za

Alternates

Ms. Natalie Africa
Permanent Delegation of South Africa to UNESCO
Embassy of South Africa
59, Quai d'Orsay
75007 Paris
Tel: (33 1) 53 59 23 23

Fax: (33 1) 53 59 23 09

Mr. Devandhran Moodley
Third Secretary
Permanent Delegation of South Africa to UNESCO
Embassy of South Africa
59, Quai d'Orsay
75007 Paris
Tel: (33 1) 53 59 23 23
Fax: (33 1) 53 59 23 33

Spain/Espagne/España

Head of Delegation

Mr. Antonio Dicenta
Oceanographe, Director Relaciones
Internacionales
Instituto Español de Oceanografía
Ada. del Brasil, 31
28020 Madrid
Tel: (34 1) 597 44 43
Fax: (34 1) 597 47 70

Representative

Mr. Carlos Palomo
Jefe, Departamento Geología Mariña
Instituto Español de Oceanografía
c/ Corazón de María, 8
28002 Madrid
Tel: (34 1) 347 36 19
Fax: (34 1) 413 55 97
E-mail: carlos.palomo@???ieo.es

Adviser

Dr. Angeles Aguilera
Instituto Espanol de Oceanografia
Subida Aradio Faro s/n
Vigo 36201, Pontevedra
Tel: (34 986) 46 21 11
E-mail: angeles.aguilera@vi.ieo.es

Sweden/Suède/Suecia

Head of Delegation

Mr. Hans Dahlin
Principal Oceanographer
Swedish Meteorological & Hydrological Institute
(SMHI)
SE 601 76 Norrköping
Tel: (46 11) 495 83 05
Fax: (46 11) 15 83 50
E-mail: hdahlin@smhi.se

Alternate

Mr. Stig Carlberg
Manager, Oceanography
Swedish Meteorological & Hydrological Institute
Nya Varvet 31
SE-426 71 V. Frolunda
Tel: (46 31) 751 89 76
Fax: (46 31) 751 89 80

Thailand/Thailande/Tailandia

Head of Delegation

Mr. Narumit Hinshiranan
Minister/Counselor
Royal Thai Embassy
8, rue Greuze
75016 Paris
Tel: (33 1) 56 26 50 50
Fax: (33 1) 56 26 04 46
E-mail: thaipar@micronet.fr

Alternate

Mrs. Wanna Sudjit
First Secretary
Royal Thai Embassy
8, rue Greuze
75016 Paris
Tel: (33 1) 56 26 50 50
Fax: (33 1) 56 26 04 46

Ukraine/Ukraine/Ucrania

Head of Delegation

Prof. Valery N. Eremeev
Director, Marine Hydrophysical Institute
Ukrainian National Academy of Sciences
2, Kapitanskaya St.
Sebastopol 335000
Tel: (380 692) 52 04 52
Fax: (380 692) 44 42 53
E-mail: eremeev@mhi.sebastopol.ua

Alternate

Mr. Volodymyr Khrystych
First Secretary
Permanent Delegation of Ukraine to UNESCO
1, rue Miollis
Paris 75015
Tel: (33 1) 45 68 26 61
Fax: (33 1) 42 73 31 52

Representative

Mr. Vadym Kovalevski
Ministry of Foreign Affairs
National Commission of Ukraine for UNESCO
1, Mychailivska sq.
Kyiv
Tel: (38 44) 212 82 20
Fax: (38 44) 229 59 26

**United Kingdom of Great Britain & Northern
Ireland/Royaume-Uni de Grande Bretagne et
d'Irlande du Nord/Reino Unido de Gran Bretaña
e Irlanda del Norte**

Head of Delegation

Dr. David T. Pugh
Southampton Oceanography Centre
Empress Dock (Dock Gate 4)
European Way
Southampton SO14 3ZH
Tel: (44 1703) 59 66 11
Fax: (44 1703) 59 63 95
E-mail: d.pugh@soc.soton.ac.uk

Alternate

Prof. Alasdair McIntyre
University of Aberdeen
Dept. of Zoology
63, Hamilton Place
Aberdeen, Scotland AB24 2TZ
Tel: (44 1224) 64 50 33
Fax: (44 1224) 62 06 56

Representatives

Dr. Howard Cattle
Head, Ocean Applications
Room 245 - Meteorological Office
London Rd., Bracknell
Berkshire RG12 2SZ
Tel: (44 1344) 85 62 09
Fax: (44 1344) 85 44 99

Prof. Michael B. Collins
School of Ocean & Earth Science
Southampton Oceanography Centre
University of South Hampton
European Way, Southampton SO14 3ZH
Tel: (44 1703) 59 27 86
Fax: (44 1703) 59 30 59
E-mail: michael.b.collins@soc.soton.ac.uk

Adviser

Dr. Geoffrey Haley
Permanent Delegation of the United Kingdom to
UNESCO
1, rue Miollis
75732 Paris Cedex 15
Tel: (33 1) 45 68 27 84
Fax: (33 1) 47 83 27 77
E-mail: hj-izon@dfid.gtnet.gov.uk

**United States of America/Etats-Unis d'Amérique
/Estados Unidos de América**

Head of Delegation

Dr. W. Stanley Wilson
Deputy- Chief Scientist, NOAA
Dept. of Commerce, HCHB Room 5224
14th Constitution Av. NW
Washington, DC 20230
Tel: (1 202) 482 33 86
Fax: (1 202) 482 52 31
E-mail: stan.wilson@noaa.gov

Alternate

Ms. Dorothy Bergamashi
Senior Advisor for Marine Science Policy
US Dept. of State, OES/OA, Room 5805
Washington, DC 20520
Tel: (1 202) 647 02 36
Fax: (1 202) 647 1106
E-mail: d.bergama@state.gov

Advisers

Dr. Ned Cyr
NOAA/NMFS, Office of Science & Technology
1315, East-West Highway
Silver Spring, MD20910
Tel: (1 301) 713 2363
Fax: (1 301) 713 1875
E-mail: ned.cyr@noaa.gov

Ms. Muriel Cole
Office of the Chief Scientist, NOAA
Dept. of Commerce
14th, St. & Constitution Av., NW
Washington, DC 20230
Tel: (1 202) 482 2049
Fax: (1 202) 482 52 31
E-mail: muriel.cole@noaa.gov

Mr. William McIlhenny
US Observer to UNESCO
United States Embassy
2, av. Gabriel
75382 Paris Cedex 08
Tel: (33 1) 43 12 20 29
Fax: (33 1) 42 66 97 83

**III. OBSERVERS FROM NON-MEMBER
STATES OF THE IOC EXECUTIVE
COUNCIL/OBSERVATEURS D'ETATS
NON-MEMBRES DU CONSEIL
EXECUTIF DE LA COI/
OBSERVADORES DE PAISES NO
MIEMBROS DEL CONSEJO EJECUTIVO
DE LA COI**

**Dominican Republic/République
dominicaine/República Dominicana**

Mrs. Laura Faxas
Ambasssador/Delegado Permanente
Delegación Permanente de la República
Dominicana ante la UENSCO
1, rue Miollis
75732 Paris Cedex 15
Tel: (33 1) 45 68 27 10
Fax: (33 1) 42 73 24 66

**Democratic People's Republic of Korea /
République Populaire Démocratique de Corée/
República Popular Democrática de Corea**

Head of Delegation

Mr. Jae Hon Kim
Deputy Permanent Delegate
Permanent Delegation of the Democratic People's
Republic of Korea to UNESCO
1, rue Miollis
75732 Paris Cedex 15
Tel: (33-1) 45 68 25 64
Fax: (33-1) 45 68 25 63

Alternate

Mr. Sok Chol Han
First Secretary
Permanent Delegation of the Democratic People's
Republic of Korea to UNESCO
1, rue Miollis
75732 Paris Cedex 15
Tel: (33-1) 45 68 25 64
Fax: (33-1) 45 68 25 63

El Salvador/Salavador

Head of Delegation

Mrs. Nanette Viaud Desroches
Counselor
Permanent Delegation of El Salvador to UNESCO
1, rue Miollis
Paris 75015
Tel: (33 1) 45 68 34 19
Fax: (33 1) 47 34 41 86

Georgia/Georgie/Georgia

Head of Delegation

Prof. Irakli Khomeriki
Faculty of Geography, Tbilisi State University
Chairman, Georgian National Oceanographic
Committee, Commission for UNESCO
Ministry of Foreign Affairs
Chitadze str. 6
380028 Tbilisi
Tel: (995 32) 29 01 49
Fax: (995 32) 23 22 93

Honduras

Head of Delegation

Ms. Sonia Mendieta de Badaroux
Ambassador & Permanent Delegate
Permanent Delegation of Honduras to UNESCO
1, rue Miollis
Paris 75015
Tel: (33 1) 45 68 30 65
Fax: (33 1) 47 57 55 03
E-mail: dl.honduras@unesco.org

**Iran, Islamic Republic of/Iran, République
Islamique d'Irân, República Islámica del**

Head of Delegation

Prof. Dr. Hossein Zomorrodian
President, Iranian National Center for
Oceanography
51, Bozorgmehr Av.
P.O. Box 14155-4781
14168 Tehran
Tel: (98 21) 641 65 56
Fax: (98 21) 641 99 78
E-mail: inco@istn.iroost.com

Alternate

Mr. Mehrdad Maleki
Senior Expert
International Specialized Agencies Dept. (MFA)
Ministry of Foreign Affairs
30 Tir Ave. Koshk Mesry St.
Building No. 3
Tehran
Tel: (98 21) 321 26 92
Fax: (98 21) 67 41 76

Advisers

Mr. Reza Bayegan
Permanent Delegation of Iran to UNESCO
1, rue Miollis
Paris 75015

Tel: (33 1) 45 68 33 00
Fax: (33 1) 42 73 17 91

Mr. Javad Safaei
Counselor
Permanent Delegation of Iran to UNESCO
1, rue Miollis
Paris 75015
Tel: (33 1) 45 68 30 94
Fax: (33 1) 42 73 17 91

Lebanon/Liban/Líbano

Head of Delegation

Ms. Joanna Azzi
Diplomatic Attaché
Permanent Delegation of Lebanon to UNESCO
Embassy of Lebanon
380, rue de Vaugirard
75015 Paris
Tel: (33 1) 55 76 97 52

**Libyan Arab Jamahiriya/Jamahiriya Arabe
Libyenne/Jamahiriya Arabe Libia**

Head of Delegation

Mr. Atig Huni
Director, Marine Biology Research Centre
P.O. Box 30830
Tajura
Tel: (218 21) 369 00 02/3
Fax: (218 21) 369 00 02

Representatives

Dr. Bashir Ahmed Faris
Director-General
Environmental Protection Centre
P.O. Box 2734
Tripoli
Tel: (218 21) 333 53 71

Mr. Abdalla Saleh
Attaché
Ministry of Foreign Affairs
Tel: (218 21) 333 53 71

Dr. Fathi Younés Elkreksi
Programme Specialist
Libyan National Commission of UNESCO
P.O. Box 1091
Tripoli
Tel: (218 21) 360 91 78

Madagascar

Head of Delegation

Mrs. Ravaomalala Rasoanaivo
Deputy-Permanent Delegate
Permanent Delegation of Madagascar to UNESCO
40, rue du Général Foy
75008 Paris
Tel: (33 1) 42 93 34 77
Fax: (33 1) 45 22 22 89

Adviser

Miss. Hanta Simon
Counselor
Permanent Delegation of Madagascar to UNESCO
40, rue du Général Foy
75008 Paris
Tel: (33 1) 42 93 34 77
Fax: (33 1) 45 22 22 89

Malaysia/Malaisie/Malasia

Head Delegation

Mr. Mukhtar Boerhannoeddin
Deputy-Permanent Delegate
Permanent Delegation of Malaysia to UNESCO
1, rue Miollis
75732 Paris Cedex 15
Tel: (33 1) 45 68 34 77
Fax: (33 1) 42 73 33 52

Malta/Malte/Malta

Head of Delegation

Mr. Vincent Camilleri
Ambassador & Permanent Delegate
Permanent Delegation of Malta to UNESCO
92, av. des Champs Elysées
75008 Paris
Tel: (33 1) 56 59 75 10
Fax: (33 1) 45 62 00 36

Alternate

Mr. Pierre Clive Agius
Deputy-Permanent Delegate
Permanent Delegation of Malta to UNESCO
92, av. des Champs Elysées
75008 Paris
Tel: (33 1) 56 59 75 90
Fax: (33 1) 45 62 00 36

Mauritius/Maurice/Mauricio

Head of Delegation

Mr. Nadrajen Chedumbarum
First Secretary
Embassy of Mauritius
127, rue de Tocqueville
75017 Paris
Tel: (33 1) 42 27 66 70
Fax: (33 1) 40 53 02 91

Morocco/Maroc/Marruecos

Mr. Adel Ghallab
Conseiller
Délégation du Maroc auprès de l'UNESCO
1, rue Miollis
75732 Paris 15
Tel: (33 1) 45 68 34 27

Netherlands/Pays-Bas/Países Bajos

Head of Delegation

Dr. Jan H. Stel
Earth & Live Science Council
Laan van Nieuw Ost Indië 131
P.O. Box 93120, NL 2509 AC
The Hague
Tel: (31 70) 344 07 80
Fax: (31 70) 383 21 73
E-mail: stel@nwo.nl

Norway/Norvège/Noruega

Head of Delegation

Prof. Ulf Lie
Centre for Studies of Environment & Resources
University of Bergen
Høyteknologisenderet
N-5020 Bergen
Tel: (47 5) 558 42 41
Fax: (47 5) 558 96 87
E-mail: ulf.lie@smr.uib.no

Panama/Panamá

Head of Delegation

Mrs. Irma Natalia Royo Ruíz
Counselor
Permanent Delegation of Panama to UNESCO
1, rue Miollis
75732 Paris Cedex 15
Tel: (33 1) 45 68 32 93
Fax: (33 1) 43 06 02 51

Saint Lucia/Sainte Lucie/

Head of Delegation

Mrs. Vera Lacoëuilhe
First Secretary
Permanent Delegation of St. Lucia to UNESCO
1, rue Miollis
Paris 75015
Tel: (33 1) 45 68 25 30

Senegal/Sénégal

Head of Delegation

Mr. Keba Birane Cisse
Délégué Permanent
Délégation Permanente du Sénégal auprès de
l'UNESCO
1, rue Miollis
75743 Paris Cedex 15
Tel: (33 1) 45 68 33 92
Fax: (33 1) 43 06 10 55

Turkey/Turquie/Turquía

Head of Delegation

Eng. Capt. Hüseyin Yüce
Head, Dept. of Navigation, Hydrography &
Oceanography
81647 Çubuklu
Istanbul
Tel: (90 216) 331 17 98
Fax: (90 216) 331 05 25
E-mail: huseyin.yuce@shodb.mil.tr

Alternate

Prof. Dr. Ilkay Salihoğlu
METU - Institute of Marine Sciences
P.O. Box 28
33731 Erdemli
İçel
Tel:
Fax (90 324) 521 23 27

Representative

Dr. Erol Izdar
Director, Piri Reis Foundation for Marine Research
Ataturk CAD 178/7
Izmir 35212
Tel: (90 232) 421 70 93
Fax: (90 232) 463 63 68

**United Arab Emirates/Emirats Arabes Unis
/Emiratos Arabes Unidos**

Head of Delegation

Mr. Mohamed Alzarouni
Director, Marine Research Centre
UAA Ministry of Agriculture & Fisheries
MRC Umm Al Quwain
P.O. Box 21
Tel: (971 6) 65 58 81
Fax: (971 6) 65 55 81

**United Republic of Tanzania/République-Unie
de Tanzanie/República Unida de Tanzania**

Head of Delegation

Prof. Mohammed S. Sheya
Minister Plenipotentiary
Deputy-Permanent Delegate
Delegation of the United Republic of Tanzania to
UNESCO
13, av. Raymond Poincaré
75116 Paris
Tel: (33 1) 53 70 63 66/67
Fax: (33 1) 47 55 05 46
E-mail: tanzanie@infonie.fr

Uruguay/

Head of Delegation

Mr. Guillermo Ramis
Jefe, Servicio Oceanografico de la Armada
Ca Purro 980
Montevideo
Tel: (59 82) 309 38 61
Fax: (59 82) 309 92 20
E-mail: sohma@adinet.com.uy

Alternate

Ms. Marielle Crosta
Delegación Permanente del Uruguay ante la
UNESCO
1, rue Miollis
75732 Paris Cedex 15
Tel: (33 1) 45 68 34 70
Fax: (33 1) 42 73 31 52

Venezuela/

Head of Delegation

Dr. Francisco Kerdel-Vegas
Ambassador & Permanent Delegate
Permanent Delegation of Venezuela to UNESCO
1, rue Miollis
75732 Paris Cedex 15
Tel: (33 1) 45 68 25 32
Fax: (33 1) 47 34 28 93

Alternate

Dr. Cristiane Engelbrecht
Second Secretary
Permanent Delegation of Venezuela to UNESCO
1, rue Miollis
75732 Paris Cedex 15
Tel: (33 1) 45 68 25 32
Fax: (33 1) 47 34 28 93
E-mail: venezuela.dl4@unesco.org

**IV. REPRESENTATIVES AND OBSERVERS
OF ORGANIZATIONS /
REPRESENTANTS ET OBSERVATEURS
D'ORGANISATIONS /
REPRESENTANTES Y
OBSERVADORES DE
ORGANIZACIONES**

**A. IOC ADVISORY BODIES/ORGANISMES
CONSULTATIFS DE LA COI/ORGANOS
CONSULTIVOS DE LA COI**

**Scientific Committee on Oceanic Research
(SCOR)**

Mrs. Elizabeth Gross
Executive Director, SCOR
Dept. of Earth & Planetary Sciences
Johns Hopkins University
Baltimore, MD 21218
USA
Tel: (1 410) 516 4070
Fax: (1 410) 516 4019
E-mail: scor@jhu.edu

**B. ICSPRO AGENCIES/ORGANISATIONS FAISANT
PARTIE DU CIPRO/ORGANIZACIONES QUE
FORMAN PARTE DEL ICSPRO**

Black Sea Regional Committee (BSRC)

Mr. Mikhail Ganchev
Director, National Oceanographic Centre
bul. Tzarigzadsko Shossee 125, bl.5
1113 Sofia
BULGARIA
Tel: (359 2) 71 80 77/ 75 02 23

Fax: (359 2) 71 80 77

**IOC Consultative Group on Ocean Mapping
(CGOM)**

Dr. Günter Giermann
Chairman IOC/IGOM
Offenbachstr. 32
D-53173 Bonn-bad
GERMANY
Tel: (49 228) 354 47 94
Fax: (49 228) 354 47 94

International Maritime Organization (IMO)

Mr. O.N. Khalimonov
Director, Marine Environment Division, IMO
4, Albert Embankment
London SE1 7SR
UNITED KINGDOM
Tel: (44 171) 587 31 13
Fax: (44 171) 587 32 61
E-mail: info@imo.org

Mr. Manfred Nauke
Deputy-Director/Chief
Office for the London Convention 1972
Marine Environment Division, IMO
4, Albert Embankment
London SE1 7SR
UNITED KINGDOM
Tel: (44 171) 587 31 24
Fax: (44 171) 587 32 58
E-mail: info@imo.org

**International Co-ordination Group for the
Tsunami Warning Centre in the Pacific
(ICG/ITSU)**

Mr. Hugo M. Gorziglia
ICG/ITSU Chairman/Hydrographer
Errázuriz 232, Playa Ancha
Casilla 324
Valparaíso
CHILI
Tel: (56 32) 26 65 06
Fax: (56 32) 26 65 42
E-mail: hgorziglia@shoa.cl

**United Nations Educational, Scientific &
Cultural Organization (UNESCO)**

Mr. Gilbert Glaser
Assistant Director-General
Co-ordinator - Environment Programmes
1, rue Miollis
75732 Paris Cedex 15
Tel: (33 1) 45 68 40 53
Fax: (33 1) 45 68 58 30
E-mail: g.glaser@unesco.org

Mr. Miguel A. Enriquez-Berciano
Director, BPE/FLD
7, place de Fontenoy
Paris 75007
Tel: (33 1) 45 68 07 97

Mrs. Claudine Kahany
Liaison Officer, BRX/RIO
(same address as above)
Tel: (33 1) 45 68 17 87

Mr. Vladimir Kouchnirenko
Liaison Officer, BRX/RIO
(same address as above)
Tel: (33 1) 45 68 17 76

World Meteorological Organization (WMO)

Mr. R.C. Landis
Director, World Weather Watch Dept., WMO
41, av. Giuseppe-Motta
C.P. 2300
CH - 1211 Genève 2
SWITZERLAND
Tel: (41 22) 730 82 21
Fax: (44 22) 733 02 42
E-mail: landis@www.wmo.ch

Mr. Peter Dexter
Chief, Ocean Affairs Division, WMO
41, av. Giuseppe-Motta
C.P. 2300
CH - 1211 Genève 2
SWITZERLAND
Tel: (41 22) 730 8237
Fax: (41 22) 733 022/734 0954
E-mail: dexter@www.wmo.ch

Mr. Johannes Guddal
President, Commission for Marine Meteorology
Norwegian Meteorological Institute, Region West
Allegt. 70,
5057 Bergen
NORWAY
Tel: (47) 55 23 66 26
Fax: (47) 55 23 76 03

C. OTHER ORGANIZATIONS/AUTRES ORGANISATIONS/OTRAS ORGANIZACIONES

Comisión Permanente del Pacífico Sur (CPPS)

Dr. Fabian Valdivieso
Secretary-General, CPPS
Coruna N 31-83
Quito
ECUADOR
Tel: (593 2) 55 89 73
Fax: (593 2) 55 89 78
E-mail: fvaldivi@ecuamex.net.ec

Mr. Manuel Flores
Secretario Científico, CPPS
Av. Coruna N° 31-83 y Whympers
Quito
ECUADOR
Tel: (593 2) 56 27 86
Fax: (593 2) 55 89 78
Homepage: <http://www.cpps.org>

The Cousteau Society

Mr. Gregoire Koubanis
Responsable Scientifique
7, rue Amiral d'Estaing
Paris 75016
Tel: (33 1) 53 67 77 77
Fax: (33 1) 53 67 77 71

Daniel Jouvance Institute

Mrs. Françoise Stephan-Heintzé
Relations Exterleures
103, quai du President Roosevelt
92130 Issy-les-Moulineaux
FRANCE
Tel: (33 1) 41 08 95 93
Fax: (33 1) 41 08 58 91

European Space Agency (ESA)

Mr. J. Johannessen
Head, Ocean & Sea Ice Unit
Earth Sciences Division, ESA/ESTEC
Postbus 299, NL 2200 AG Noordwijk
NETHERLANDS
Tel: (31 71) 565 59 59
Fax: (31 71) 565 56 75
E-mail: jjohanne@jw.estec.esa.nl

International Council for Scientific Unions (ICSU)

Mr. Jean-François Stuyck-Taillandier
Executive-Director, ICSU
51, bd. de Montmorency
75016 Paris
Tel: (33 1) 45 25 03 29

Mme. Véronique Marie Plocq Fichelet
Executive-Director
Scientific Committee on Problems of the
Environment, ICSU
51, bd. de Montmorency
75016 Paris
Tel: (33 1) 45 25 04 98
Fax: (33 1) 42 88 14 66
E-mail: scope@paris7.jussieu.fr

International Ocean Institute (IOI)

Dr. Gunnar Kullenberg
Executive-Director, IOI
P.O. Box 3
Gzira GZR 01
MALTA
Tel: (356) 34 65 28/34 65 29
Fax: (356) 34 65 02
E-mail: ioimla@kemmnet.net.mt

Journée Européenne de Plongée Enfants (JEPE)

Mr. Jena-Jacques Gauthier
President, JEPE
5, rue G. Rives
66000 - Perpignan
15, rue de la Libération
95806 Enghien
FRANCE
Tel: (33 1) 34 12 88 18
Fax: (33 1) 34 12 18 46

Mrs. Paule Camdoras
5, rue G. Rives
66000 - Perpignan
15, rue de la Libération
95806 Enghien
FRANCE
Tel: (33 1) 34 12 88 18
Fax: (33 1) 34 12 18 46

NAUSICAA - Centre National de la Mer

Mr. Philippe Vallette
General Manager
Boulevard St. Beuve, B.P. 189
62203 Boulogne-sur-Mer Cedex
FRANCE
Tel: (33 3) 21 30 99 99
Fax: (33 3) 21 30 93 94
E-mail: nausicaa@netinfo.fr

Organization of African Unity (OAU)

Dr. MBaye NDoye
Assistant Executive-Secretary, OAU
Oceanography & Fisheries
Scientific, Technical & Research Commission
P.M.B. 2359
Lagos
NIGERIA
Tel: (234 1) 263 34 30
Fax: (234 1) 263 60 93
E-mail: oaustocl@rcl.nig.com

South Pacific Applied Geoscience Commission (SOPAC)

Mr. Alfred Thomas Simpson
Director, SOPAC
P.M.B. G.P.O.
Suva
FIJI
Tel: (679) 381 3 77
Fax: (679) 37 00 40/38 44 61
E-mail: alf@sopac.org.fj

V. SECRETARIAT/SECRETARIAT/ SECRETARIA

Tel: (33 1) 45 68 10 00/45 68 39 83
Fax: (33 1) 45 68 58 10
Tlx: 20446 PARIS
Cbl.: UNESCO PARIS/740057 IOCS UC
E-mail:@unesco.org

Executive Secretary
Dr. Patricio Bernal

Deputy Executive Secretary
Dr. Iouri Oliounine

Senior Assistant Secretaries
Ms. Natalie Philippon-Tulloch
Mr. Collin Summerhayes
Mr. Umit Unluata

Technical Assistant Secretaries
Mr. Arthur Alexiou
Mr. Henrik Enevoldsen (IOC/HAB Centre, Copenhagen, Denmark)
Mr. Peter Pissierssens
Mr. Yves Tréglos
Mr. Shigeki Mitsumoto (IOC/WESTPAC Secretariat, Bangkok, Thailand)

Seconded Experts
Mr. William Erb (Senior Adviser)
Ms. Cécile Grignon-Logerot
Mr. Dimitri Travin
Ms. Janice Trotte
Mr. Hong-Rhyong Yoo

Associate Experts
Mr. Maarten Kuijper (IOC/WESTPAC Secretariat, Bangkok, Thailand)
Ms. Rimi Nakano

Documentalist
Ms. Nicole Guillemain-Goupy

IOC Consultants
Mr. Stefan Andersson
Mr. Justin Ahanhanzo
Mr. Julian Barbière
Ms. Diénaba Beye
Mr. George Grice
Mr. Victor Scarabino

Mr. Rafael Steer-Ruiz (*IOCARIBE Secretariat,
Cartagena, Colombia*)

**VI. IOC SUBSIDIARY BODIES/ORGANES
SUBSIDIAIRES DE LA COI/ORGANOS
SUBSIDIARIOS DE LA COI**

**Joint IOC-UNEP-IMO Committee for the Global
Investigation of Pollution in the Marine
Environment (GIPME)**

Dr. Michael Bowers
Chairman, GIPME
Grand Querly
47350 Montignac Tourinerie
FRANCE
Tel: (33 5) 53 83 81 02
E-mail: bowers@supercity.ns.ca

**IOC Regional Committee for the Central Eastern
Atlantic (IOCEA)**

Mr. Ndiaga Gueye
Chairman, IOCEA
Directeur de l'Océanographie et des Pêches
Maritimes
1, rue Joris, B.P. 289
Dakar
SENEGAL
Tel: (221) 21 27 75
Fax: (221) 821 47 58
E-mail: ngueye@sonatel.senet.net

World Climate Research Programme (WCRP)

Mr. Hartmut Grassel
41, av. Guiseppe Motta
1211 Geneva 2
SWITZERLAND
Tel: (41 22) 730 82 46
Fax: (41 22) 734 03 52
E-mail: grassel-h@gateway.wmo.ch

ANNEX VI

BALANCED DEVELOPMENT OF THE GLOBAL OCEAN OBSERVING SYSTEM (GOOS) by the Director of the GOOS Project Office, Colin Summerhayes

One of IOC's four main objectives is "To ensure effective planning, establishment and coordination of an operational Global Ocean Observing System to provide the information needed for oceanic and atmospheric forecasting, for ocean and coastal zone management by coastal nations, and for global environmental change research."

GOOS is a response to the demands of UNCED's Agenda 21. It is designed to provide descriptions of the present state of the sea and its contents, and forecasts of these as far ahead as possible, for a wide range of users, and to meet the needs of the Framework Convention on Climate Change, by underpinning forecasts of changes in climate. It is not solely operational, but includes work to convert research understanding into operational tools. If it is designed and managed well, GOOS should provide IOC and its partners (WMO, UNEP and ICSU) with the ability to convert research results into useful products to meet societal needs.

GOOS is being designed by 4 design panels: Coastal; Living Marine Resources (LMR); Health of the Ocean (HOTO); and Climate (Ocean Observing Panel for Climate: OOPC). There is now a good balance of activity across these sectors. This presentation focuses on developments by the Coastal Panel of GOOS, which is meeting twice a year with the aim of publishing a strategic plan and implementation plan in 12 months from now.

The focus of The Coastal Panel of GOOS (or C-GOOS) is: to determine the major issues and needs identified by the user community; and to address those issues and meet those needs, by designing an integrated, multi-disciplinary, coastal observing system for detecting and predicting change in coastal ecosystems and environments. The issues include such things as: Eutrophication due to nutrient enrichment, Toxic contamination, Habitat Loss, Saltwater Intrusion, Flooding and storm surges, Harmful algal blooms, Sea Level Rise, and Safe Navigation.

The design starts from the issues, then moves to the predictions necessary to satisfy these issues; the models necessary to make the predictions; the observations needed to feed the models, and the observing system needed to provide the observations. At the heart of the design will be a Global Coastal Network comprising a minimal set of core measurements that should be made in situ on a global basis. The design will also include:

- a global view of coastal systems, based on remote sensing from satellites;
- a regional picture, from specific operations like the Mediterranean Forecasting System;
- areas of local detail, from pilot projects like the S.E. Asia HAB forecasting project;
- site specific information from particular time series stations or transects across straits.

The Global Network will be kept minimal, simple and cheap to ensure that developing countries do not find our recommendations a barrier to entry. It must be global to answer certain questions (like: are HABs increasing, or seagrasses declining?), and to calibrate remotely sensed data like those on ocean colour. The Global Network will link people and laboratories, providing them with interpretive power that they could not develop locally.

A first task is to determine what physical variables can be easily measured to meet user's needs immediately. The second task is to determine the biological and chemical measurements needed to meet users' needs. A third task is finding out what is there, by making an inventory of present systems, together with LOICZ. Aside from LOICZ, C-GOOS is working closely with other programmes like the IOC's GLOSS, ICAM, IODE, GIPME, OSLR and HAB programmes; with other GOOS bodies; and with UNEP's Regional Seas programme.

C-GOOS will differ from most present observing systems in having modelling and forecasting as part of its mandate, as well as the collection of data; in being holistic, integrated and interdisciplinary, rather than narrow and sectoral; and in being designed to deliver useful products for both decision makers and the scientific community. In due course it will be expanded to include national systems that meet the GOOS Principles.

C-GOOS is developing several pilot projects addressing issues of concern to users. The pilot projects will be nested in the Global Network to demonstrate how C-GOOS will work in practice. A technology demonstrator project is being considered to address improving remote sensing algorithms for the use of colour as a tool in coastal management. To ensure the proper issues are addressed C-GOOS is holding Coastal GOOS Users' Workshops.

Elements of a coastal GOOS are also being designed by the HOTO Panel, including pilot projects for: the Red Sea; southeast and northeast Asia; the Black Sea; and the Caribbean. One pilot has been initiated, in Brazil (RAMP: Rapid Assessment of Marine Pollution), to provide equipment and training for easy-to-use, cheap technologies to measure chemical and biological markers to assess environmental impacts and improve environmental management.

GOOS will provide an important part of the observing systems for ICAM needed by coastal zone managers. This was accepted at the PACSICOM meeting in Maputo, where a GOOS-AFRICA Committee was created to help develop GOOS in African coastal seas.

In many respects Coastal GOOS is already being implemented in the form of (i) GLOSS; (ii) the GCRMN; (iii) NEAR-GOOS; and (iv) the coastal seas programmes of EuroGOOS (e.g. Baltic GOOS, or BOOS). In addition, all IOC Member States have coastal observing systems of some kind, many of which may in due course become contributions to C-GOOS. Although many of the elements are there, we lack, and are actively working towards, coordination, design guidance; and practical demonstration. C-GOOS will be taking lessons from GOOS and EuroGOOS in developing a generic design that can be applied to many coastal seas.

New regional GOOS programmes with a coastal focus include MedGOOS, PacificGOOS, Black-Sea-GOOS, and CaribbeanGOOS. A MedGOOS workshop is planned for Rabat, 9-12 June 1999, to address the benefits and costs of implementing GOOS in the Mediterranean Sea. A PacificGOOS workshop is planned for Noumea, in October 1999, to initiate planning for long term monitoring and observing in the region's coastal seas. The Black Sea regional committee is proposing to launch Black Sea GOOS in 1999. The Intra-American Seas Initiative meeting in Miami in October 1998 proposed developing Caribbean GOOS to maximise the efficiency of observations for understanding complex processes in the region. This will be addressed at the IOCARIBE meeting in April 1999, in association with a Caribbean GOOS Capacity Building Workshop.

During the past year a major achievement was the creation of the GOOS Initial Observing System, which unites the main global observing sub-systems supported by the IOC, WMO and (in the case of coral reefs) the IUCN. It includes SOOP, VOS, GLOSS, GCRMN, GTSP, DBCP, TAO, NOAA operational satellites, and WMO's GTS. This is the nucleus on which GOOS will grow in the future. The managers of these systems, including a representative of IODE, now form an Implementation Advisory Group, to make the GOOS Initial Observing System work. Creation of this group anticipates the creation of J-COMM, which will provide the essential integrated infrastructure for cost effective GOOS operations.

The past year has also seen creation of the PIRATA array of buoys in the tropical Atlantic, led by Brazil, to monitor ocean change in relation to climate change for Africa and South America. In addition, the TAO array of buoys in the tropical Pacific, that underpins El Niño forecasts, has proved its worth by providing even more accurate forecasts. In both areas the vandalization of buoys is a serious problem which the EC may wish to consider.

The main GOOS pilot project continues to be GODAE, the Global Ocean Data Assimilation Experiment, designed to demonstrate the power of integrating satellite and *in situ* data, the power of model assimilation, and the value of a global system capable of working in real-time. GODAE is needed for open ocean analyses and forecasts, and to establish boundary forcing for regional models

to improve forecasting in coastal systems. It will use 3000 profiling floats rising from 2000m to the surface every 14 days, each one collecting 100 CTD profiles over a 4 year period, for a total of 300,000 profiles that together provide full global coverage of the ocean interior for the first time. Added to satellite data from the ocean surface these profiles will underpin models of ocean behaviour and of climate. Funding is mostly from space agencies, including NOAA, and supports a GODAE Office in Melbourne.

In early November 1998, GOOS received additional intergovernmental support. The Fourth Conference of the Parties to the Framework Convention on Climate Change agreed there is an URGENT need to improve the quality, coverage and management of the global ocean observing system, and especially to support an increase in the number of ocean observations, particularly in remote locations. This underlines the need for GODAE. The COP also urged Parties to help to build capacity in developing countries, to enable them to participate in and benefit from GOOS. The IOC now has an opportunity to meet this challenge. In doing so we will need to be sure that the resources are matched to the challenge.

Thanks in no small part to the efforts of the new GOOS Steering Committee, whose emphasis is on implementation, the GOOS design has now emerged for application by Member States, in the form of "The GOOS Strategic Plan", and "The GOOS 1998, a Prospectus for GOOS". The GOOS 1998 is a comprehensive statement on the sound scientific and technological basis for doing GOOS at this time. It describes GOOS components, along with examples of how the GOOS concept is already working in some places. It explains the real and potential value of GOOS to Member States, to encourage them to participate in and make commitments to GOOS development and implementation, and to do the capacity building necessary to enable all Member States to contribute to and benefit from GOOS. Member States should find this document useful for gaining a full understanding of the present dimension of ocean observing and its evolution into GOOS.

To help to build the capacity of developing countries, the GSC has created a GOOS Capacity Building Panel, and is finalizing a GOOS capacity building strategy which will make full use of TEMA. GOOS Capacity Building workshops in Malta and Fiji led to the start of new GOOS regional projects, which Member States are asked to help to sustain.

Despite successes, there are some potential obstacles to progress. Since the GOOS budget was approved at the last Assembly, the GPO has been required to take on several new activities: (i) Coastal GOOS (2 meetings/year); (ii) LMR GOOS; (iii) TAO-IP; (iv) GOSSP; (v) J-DIMP; (vi) Implementation Advisory Group; and (vii) assistance for new regional GOOS groups. To meet the requirement, the GPO is attracting additional resources on a case by case basis. However, both the staff and the budget are stretched. The GPO gratefully acknowledges the assistance provided by means of secondments from the USA, Japan and Brazil, but help from other member states in secondments and finance is needed if the momentum is to continue.

In summary, GOOS is rapidly moving from planning to implementation. The demand for and momentum of GOOS are rapidly increasing. The balance now covers the full spectrum of user interests. Member States are encouraged to implement GOOS as soon as possible, and to help to build the capacity of developing nations. It is hoped that the Executive Council will: (i) endorse the plans for coastal GOOS; (ii) endorse the promotion of GODAE as a means to obtain full global coverage of the upper ocean for the first time; (iii) endorse commitment to the recommendations of COP4; and (iv) endorse the need for Member States to resource the GOOS Project Office so that it can do what is required.

ANNEX VII

LIST OF ACRONYMS

ACOPS	Advisory Committee on the Protection of the Sea
AOD	African Ocean Days
CD-ROM	Compact Disc with Read-Only Memory
CEOS	Committee on Earth Observation Satellites
CGOM	IOC Consultive Group on Ocean Mapping
CLIVAR	Climate Variability and Predictability (WCRP)
CMM	Commission of Marine Meteorology (WMO)
COMM	Commission for Oceanography and Marine Meteorology
CPPS	Permanent Commission for the South Pacific
CSI	Coastal Regions and Small Islands Unit (UNESCO)
DBCP	Data Buoy Co-operation Panel (WMO-IOC)
DOSS	Development, Operations, Structures and Statutes (IOC)
ECOSOC	Economic and Social Council (UN)
FAO	Food and Agriculture Organization (UN)
FER	European Federation of Networks
G3OS	Global Observing system (GCOS-GOOS-GTOS)
GCOS	Global Climate Observing System
GEOHAB	Global Ecology and Oceanography of Harmful Algal Blooms
GESAMP	Group of Experts on the Scientific Aspects of Marine Environment Protection (IMO-FAO-UNESCO/IOC-WMO-WHO-IAEA-UN-UNEP)
GLOBEC	Global Ocean Ecosystems Dynamics (SCOR-IOC)
GLOSS	Global Sea-Level Observing System
GODAE	Global Ocean Data Assimilation Experiment (GOOS)
GOOS	Global Ocean Observing System
GTOS	Global Terrestrial Observing System
GTSP	Global Temperature-Salinity Pilot Project/Profile Programme
HAB	Harmful Algal Blooms
ICAM	Integrated Coastal Area Management
ICES	International Council for the Exploration of the Sea
ICSU	International Council for Science [previously: International Council of Scientific Unions]
IDNDR	International Decade for Natural disaster Reduction
IGBP	International Geosphere-Biosphere Programme (ICSU)
IGOS	Integrated Global Observing Strategy
IGOSS	Integrated Global Ocean Services System
IHP	International Hydrological Programme (UNESCO)
IMO	International Meteorological Organization (predecessor of WMO)
IOC	Intergovernmental Oceanographic Commission
IOCCG	International Ocean Colour Coordinating Group
IOCEA	IOC Regional Committee for the Central Eastern Atlantic
IOCINDIO	IOC Regional Committee for the Central Indian Ocean
IODE	International Oceanographic Data and Information Exchange (IOC)
IOI	International Ocean Institute
IPCC	Intergovernmental Panel on Climate Change (WMO-UNEP)
ITSU	International Co-ordination Group for the Tsunami Warning system in the Pacific (IOC)
IYO	International Year of the Ocean
JGOFS	Joint Global Ocean Flux Study (IGBP)
LOICZ	Land-Ocean Interaction in the Coastal Zone (IGBP)
MOST	Management of Social Transformations
NEAR-GOOS	North-East Asian Regional GOOS
NOAA	National Oceanic and Atmospheric Administration (USA)
OOPC	Ocean Observing Panel for Climate

OSNLR	Ocean Science and Non-Living Resources
PACSICOM	Pan-African Conference on Sustainable Integrated Coastal Management
SCOPE	Scientific Committee on Problems of the Environment (ICSU)
SCOR	Scientific Committee on Oceanic Research (ICSU)
SOOP	Ship-of-Opportunity Programme
SOPAC	South Pacific Applied Geoscience Commission
TAO	Tropical Atmosphere Ocean Array
TEMA	Training, Education and Mutual Assistance programme
UNCED	United Nations Conference on Environment and Development (Brazil, 1992)
UNCLOS	United Nations Convention of the Law of the Sea
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNGA	United Nations General Assembly
WCRP	World Climate Research Programme
WESTPAC	IOC Sub-Commission for the Western Pacific
WMO	World Meteorological Organization (UN)
WOCE	World Ocean Circulation Experiment (WCRP)
WSC	World Science Conference