Intergovernmental Oceanographic Commission
Reports of Governing and Major Subsidiary Bodies

Thirty-seventh Session of the Executive Council

Paris, 23–29 June 2004

UNESCO

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1. OPENING

1 David Pugh, Chairman IOC, opened the 37th Session of the IOC Executive Council at 10.10 hours on Wednesday 23 June 2004. He informed the Council that the Director-General of UNESCO was unable to welcome the participants in person, owing to other engagements, but that he would address the Council on Friday 25 June. The Chairman invited the Director-General's representative, Walter Erdelen, Assistant Director-General, Natural Science Sector, to address the Council. The ADG welcomed the participants and expressed the wish and hope that the Council would have a successful session. The list of participants is given in Annex VII.

2 The Chairman then invited Jagdish Koonjul, Ambassador of Mauritius to the United Nations, Vice-Chairman of the UN Economic and Social Council, and Chairman of the Alliance of Small Island States, to address the Council. Mr Koonjul stressed the importance of the oceans to small island States, given their very high ratio of ocean space to land area; hence the great importance of the oceans to the economic survival, at least, and the sustainable development, at best, of such islands. From this followed a considerable interest in the development of the Global Ocean Observing System, provided that it was accompanied by the necessary training for participation and in the necessary data management. Mr Koonjul then reported on the developments since the Barbados Conference on Small Island Developing States and the preparations for a Barbados+10 conference to be held in Mauritius in January 2005 to review the results of the Barbados Programme of Action. The Group of 77 also adopted a strategy paper on international support for Small Island Developing States in ocean observations and coastal-sea development, as well as help in predicting and dealing with such natural disasters as tsunamis. The Alliance of Small Island Developing States is therefore looking to the IOC to support the efforts of the Alliance in this endeavour. Mr Koonjul's statement is given in Annex III-A.

3 The Chairman then asked the participants to stand in silence for one minute as a mark of respect for Christian Le Provost (France) who passed away on 29 February this year. The Executive Secretary presented a short hommage to Christian Le Provost, mentioning in particular his dedication to the Global Sea Level Observing System (GLOSS) and the Global Ocean Data Assimilation Experiment (GODAE), as well as his high status as an oceanographer and, in particular, as a tide modeller. Madame Denise Provost, accompanied by her son, accepted an IOC Certificate of Appreciation on her husband's behalf. François Gerard, of the French Delegation, expressed the debt owed by the French oceanographic community to Le Provost, for his contribution to oceanography and, in particular, to the development of MERCATOR, one of the key French contributions to global ocean monitoring and modelling.

4 The Director-General of UNESCO expressed his pleasure in having the opportunity to address the Executive Council.

5 Recently, on World Environment Day, UNESCO reaffirmed its commitment to sustainable development in general and to the sustainable development and protection of the ocean environment in particular.

6 The Director-General called on the IOC to put the Johannesburg Plan of Implementation at the top of its agenda, in order to enable UNESCO and its IOC to respond appropriately to this crucial endeavour.

7 The international community in general and the United Nations in particular need to respond in a coordinated manner to the aspirations of Small Island Developing States (SIDS) for sustainable development. In this respect, the Director-General welcomed Mr Jagdish Koonjul, Chairman of the Alliance of Small Islands developing States (AOSIS).

8 UNESCO and IOC have contributed to the follow-up of the First Earth Observation Summit (EOS I) and the work of the ad hoc intergovernmental Group on Earth Observations (GEO) as a follow-up of the Summit. EOS decided the development of a 10-Year Plan of Implementation (2005–2014) for the Global Earth Observation System of Systems (GEOSS). At EOS II, IOC stated that the organization set up to oversee the further implementation of the 10-Year Plan should integrate the pre-existing observing systems such as the World Weather Watch (WWW) of WMO and those under the auspices of the UN system, such as GOOS, the Global Climate Observing System (GCOS) and the Global Terrestrial Observing System (GTOS).

9 The Director-General said that building the Global Earth Observation System of Systems is a major contribution to the Johannesburg Plan of Implementation and that it would be highly desirable that the UN system find a way to formally endorse the agreed 10-Year Plan of Implementation and recognize the work of GEOSS. A successor mechanism to the Intergovernmental ad hoc Group on Earth Observations (GEO) will be defined prior to EOS III in a special GEO meeting to be held 27–28 September 2004 in Brussels.

10 The Director-General informed the Council that he had received very positive feedback from outside UNESCO about the role and activities of IOC in different international fora and from representatives of Member States, and that he was proud of the good work of IOC in making ocean sciences and services relevant to the sustainable development of the world's oceans and coastal areas. He called on the IOC Member States to keep up the good work. The Director-General's statement is given in Annex III-B.

2. ORGANIZATION OF THE SESSION

2.1 ADOPTION OF THE AGENDA

11 The Executive Secretary introduced this item. Agenda items decided by the IOC Assembly and Executive Council were included with the exception of an item on the ITSU evaluation, for reasons explained under section 4.3.1 of the present report. He invited comments on the Provisional Agenda.

12 The USA requested that agenda item 3.2 be expanded to include discussions of the outcome of the Earth Observation Summit, the working of the Intergovernmental ad hoc Group on Earth Observations (GEO) and the design of a 10-Year Implementation Plan for a Global Earth Observation System of Systems (GEOSS). There was no objection to this proposal.

13 **The Executive Council adopted** the Revised Provisional Agenda as is (Annex I).

2.2 DESIGNATION OF THE RAPPORTEUR

14 Following the proposal of India, the Executive Council designated Lt. Cdr. John A. McFarlane as the Rapporteur for the present session to assist the Chairman and the Executive Secretary in the preparation of the Draft Summary Report.

2.3 ESTABLISHMENT OF INTRASESSIONAL COMMITTEES

15 The Executive Council established two intrasessional committees. For the Resolutions Committee, whose membership is open-ended, the Chairman proposed the following Member States as a basis: Brazil, Canada, Chile, China, Colombia, France, the Russian Federation, the United Kingdom and the United States of America. Japan, Mexico and the Republic of Korea

expressed their wish also to participate. China was asked to chair the Committee and accepted. The membership of the Financial Committee is also open-ended, and the Chairman invited Member States to indicate to him their wish to participate. The Vice-Chairman charged with following financial affairs, J. Valladares (Argentina), chaired this Committee.

16 In view of the impending convening in Mauritius of the 10-year review of the Barbados Plan of Implementation on SIDS, Cuba proposed that an intrasessional committee be formed to address the possibility of the Council's consideration and eventual adoption of a Draft Resolution on support to Small Island Developing States. The Chairman invited the delegate of Cuba to accept the Chairmanship of such a committee and the interested Member States to inform him and the delegate of Cuba of their wish to participate. Jamaica and Canada announced in plenary their wish to participate.

2.4 INTRODUCTION OF TIMETABLE AND DOCUMENTATION

17 The Executive Secretary introduced this item. The Assembly, at its 22nd Session, instructed the Executive Secretary to revise the guidelines on the preparation of documents and reports for meetings of IOC governing bodies, primary subsidiary bodies and other IOC intergovernmental meetings. The revised guidelines were before the Executive Council (document IOC/INF-1194 prov.) for information and comment, prior to their final editing for publication.

18 The Executive Secretary invited the Executive Council to adopt the Revised Provisional Timetable taking into account: (i) the adopted Agenda; (ii) the time required by the invited speakers; (iii) the timely preparation of the Draft Summary Report in all the Commission's working languages; and (iv) the need to take full advantage of the UNESCO interpretation services. An information session was scheduled during the plenary working time, also to take advantage of the interpretation services, but is not reported herein. Seven keynote speakers were invited to keep the Executive Council abreast of new developments in IOC programmes and the latest advances in the Commission’s fields of activity. The speakers and themes were:

- Pierre Bahurel, Director of MERCATOR–OCEAN: GODAE in the Heart of Its Intensive Demonstration Phase (2003−2005)
- John R. Delaney, University of Washington: The Neptune Ocean Observatory: an Interactive Network of Remotely Operated Submarine Laboratories in the North-east Pacific
- John Gould, Director of the Argo Project: From WOCE—the Catalyst—to Argo—the Future
- Ms Tundi Agardy, Executive Director of Sound Seas: Coral Reef Targeted Research and Capacity-Building Project
- Neil Kenyon, Co-ordinator of Training Through Research: the IOC–TTR Programme on Ocean Margins within the Theme of Geosphere–Biosphere Interaction
- Roger Harris, Plymouth Marine Laboratory: Regime Shifts, Marine Ecosystems and Indicators
- William Burnett, Chair of the IOC–IHP–SCOR–IAEA Working Group on Submarine Groundwater Discharge: Assessment and Management Implications of Submarine Groundwater Discharge into the Coastal

Brief summaries of these talks, with curiculum vitae of each speaker, are in Annex V.

19 The Executive Secretary announced that the Honorable Conrad C. Lautenbacher, Jr., Under Secretary of Commerce for Oceans and Atmosphere (NOAA, USA), and one of the four co-chairs of the Intergovernmental ad hoc Groups on Earth Observation, would address the Executive Council under agenda item 3.2 (Report of the Executive Secretary on the Earth Observation Summit), in the afternoon of Monday 28 June.

20 The List of Documents is given in Annex VI and the List of Acronyms in Annex VIII.

2.5 ROGER REVELLE MEMORIAL LECTURE

21 The Executive Secretary reminded the Council that the Revelle Memorial Lectures were initiated in 1992. The IOC has since decided to mint a medal in honour of Roger Revelle, with a view to awarding the medal to future Revelle Memorial Lecturers, starting with this year's lecturer, Daniel M. Pauly, Professor and Director of the Fisheries Centre (Canada). The Executive Secretary reminded the Council of some of the important achievements of Roger Revelle, as a deep-sea geologist, as a former Director of the Scripps Institution of Oceanography, and as a broad-minded international marine scientist who played an important role in the establishment of the IOC and in the organization of the International Indian Ocean Expedition. Mrs Mary Ellen Revelle Paci, daughter of Roger Revelle, expressed her thanks to the IOC for this initiative and for offering her family the first IOC Roger Revelle medal. The Executive Secretary then introduced this year's lecturer.

22 Daniel Pauly spoke on Upper Trophic Level Changes in Ocean-basin Ecosystems. There is a strong bias in the marine biological and oceanography community towards what are called "bottom-up" processes, owing to: (i) the ease of sampling indicators of such processes (SST, photosynthetic pigments etc.), and therefore to generate time-series and synoptic maps; (ii) the challenges of representing "top-down" processes at large geographic scales, until recently addressed by risky extrapolations from local data sets, and/or uncritical use of output from national or international fishery regulation agencies. The development, in the last fifteen years, of food-web modelling built on mass-balance assumptions, notably as implemented with the widely used Ecopath and Ecosim software, in combination with geographical information systems, has made it possible recently, however, to test a variety of hypotheses on the behaviour of the upper trophic levels, and to separate, in quantitative terms, the relative impacts of top-down and bottom-up processes on marine ecosystems. Results from such analyses are now enabling marine biologists to understand the major role played by top predators in structuring marine food webs and, therefore, to evaluate the ecological impact of marine fisheries, which have, in recent decades, massively reduced the biomasses of these top predators. A summary of the lecture, with curiculum vitae of the lecturer, is in Annex IV.

3. DEVELOPMENTS SINCE THE 22nd SESSION OF THE IOC ASSEMBLY

23 The Chairman first briefly reported on his activities during the intersessional period. He represented the IOC at the Chairs of the UNESCO Science Programmes in September 2003, when a joint statement to the UNESCO General Assembly had been prepared. In May 2004 he attended the meeting of the World Commission on the Ethics of Scientific Knowledge and Technology (COMEST). COMEST is working on issues of environment, and the precautionary principle, both of interest for ocean applications. In October he attended a discussion on NEPAD in London, together with the Executive Secretary. In March he attended and chaired the Expert Group in New York to develop a plan for the Global Marine Assessment, and presented the report of this Group to the Informal Consultative Process at the UN in New York in June 2004. This is a substantive item on the Executive Council agenda. The new group of Officers met in

Winchester, UK, in January 2004 to discuss IOC plans and strategies, and again prior to this Executive Council. A meeting of the Chairs of the major IOC Subsidiary Bodies was held the previous day, to exchange information on plans and priorities, and to improve co-operation among them. Discussions included issues for the IOC Medium-Term Strategy, which would be developed for presentation and discussion at the IOC Assembly in 2005.

24 The Chairman informed the participants that the IOC Officers would guide the working groups on the agenda items according to their assigned responsibilities, in order to allow smooth management of the session.

3.1 REPORT OF THE EXECUTIVE SECRETARY ON PROGRAMME IMPLEMENTATION

25 The Executive Secretary introduced his Report on Programme Implementation, the Progress Report on Budget Execution, and the Report on Implementation of IOC Governing Body Resolutions.

26 He highlighted three major developments that had taken place in the intersessional period: (i) the continuous support of IOC to NEPAD; (ii) the launching of the ad hoc Group on Earth Observations (GEO); and (iii) the establishment of the United Nations Network on Ocean and Coasts (UN–Oceans). He also reported on recent developments in the Oceans and Climate Programme, the Coastal Erosion Projects in Africa, the latest developments in the crosscutting project on Application of Remote Sensing for Integrated Management of Ecosystems and Water Resources in Africa; he also noted the recent publication of the Geological/Geophysical Atlas of the Pacific Ocean and a new GEF Targeted Research Project on Coral Reefs, in partnership with the University of Queensland, Australia.

27 He added to the information available in the documentation new developments related to the IOC−SCOR Symposium on Biogeochemical and Ecosystem Impacts of Increasing Oceanic CO_2, and the renewal of the Government of Flanders' (Kingdom of Belgium) support to IOC.

28 The Executive Secretary reported orally on the main issues discussed and the conclusions of the 5th meeting of the Informal Open-ended Consultative Process on Oceans and the Law of the Sea, New York, 7−11 June 2004.

29 The Executive Secretary provided updated information on Budget execution for the biennium 2002−2003 and on the structure of the Budget 2004−2005.

30 The Chairman invited the Executive Secretary to briefly introduce item 5.1 (Draft Programme and Budget 2006−2007).

31 The Executive Secretary informed the Council that the Executive Board of UNESCO, at its 170th and 171st sessions (Paris, 28 September–14 October 2004 and 12–28 April 2005, respectively), will consider the preparation of the Draft Programme and Budget for 2006−2007 (referred to as Draft 33 C/5), both as regards its main lines of emphasis and budget, as well as its presentation. To ensure that appropriate guidance is exchanged in a timely manner between the Governing Bodies of IOC and of UNESCO on Programme and Budget matters for 2006−2007, the Executive Council was invited to identify the Main Lines of Action for the Programme and Budget for the biennium 2006−2007 as an input to the preparation of document 33 C/5. The IOC Secretariat, with technical assistance from the Bureau of Strategic Planning of UNESCO, prepared a Results Structure for the IOC Draft Programme 2006−2007.

32 The Executive Secretary then introduced Hans d'Orville, Head of the Bureau of Strategic Planning of UNESCO, who explained to the Executive Council the entire planning cycle of UNESCO with regard to the preparation and approval of the Organization's programme and budget (33 C/5) for the next biennium. He also gave a brief overview of the discussion that took place at the most recent session of the UNESCO Executive Board on the matters within the IOC mandate. Mr D'Orville stressed the importance of the UNESCO decentralization policy, noting that IOC did not decentralize funds in the same way as the other programmes, and therefore, reporting on this issue needed to be harmonized in order to make the IOC regional activities visible to UNESCO Governing Bodies.

33 With regard to decentralization, **the Executive Council agreed** that further effort is required to better coordinate UNESCO and IOC's policies in regions. In particular, **the Executive Council stressed** the need for UNESCO to be consistent in its recognition of the importance of IOC and allocate appropriate funding.

34 The Chairman reminded Member States of the key role played by national representatives to UNESCO Governing Bodies when discussing the Draft 33 C/5, and called on delegates to work with their national delegations to the Executive Board to ensure that the IOC is allocated the appropriate portion of the UNESCO budget.

35 The Chairman invited delegates to participate in the work of the open-ended intrasessional Financial Committee chaired by Vice-Chairman J. Valladares.

36 The Chairman of the Intrasessional Working Group on Support to Small Island Developing States, Guillermo García Montero, recalled the statement of the Chairman of the Alliance of Small Island Developing States, H.E. Ambassador J. Koonjul, to the present session of the Executive Council at its opening. H.E. Ambassador Koonjul said that *"… SIDS would expect the IOC to send a strong message that it stands prepared to support SIDS in the relevant areas, not as an observer, but as a key player willing to take initiatives to build appropriate partnerships and to coordinate support from other agencies and more importantly to assist them in the use of scientific knowledge and capacity for management decisions and policy-making by facilitating access to such knowledge through international cooperation."*

37 Subsequently, the Chairman of the Intrasessional Working Group presented the results of its work: it agreed a Draft Resolution and Declaration, for consideration in plenary.

38 **The Executive Council adopted** Resolution EC-XXXVII.1.

39 Peru asked the Executive Secretary to provide information on the finalization of the memorandum of understanding between the IOC and the Permanent Commission for the South Pacific (CPPS). The Executive Secretary responded that, after receiving the endorsement of the Assembly in 2003, he proceeded to the signing of the agreement. The delegate of Peru made the following declaration:

"It is normal that this Council be informed of the various actions and agreements reached in recent months to strengthen the relations between the IOC and regional bodies, such as the Comisión Permanente del Pacífico Sur (CPPS), with which, the Commission has developed important programmes, such as the Regional Study of the El Niño Phenomenon.

In 1974, the CPPS drew international attention to the El Niño Phenomen, which, at that time, was recognized and supported by various ECOSOC Resolutions. In 1984, the IOC established a

Cooperation Agreement with CPPS which has recently been updated by a Memorandum of Understanding signed on 30 September 2003.

This MoU recognizes, among other things, that the CPPS has, within its field of competence, the promotion of research programmes on marine climate and climate change, including: The Regional Study of the El Niño Phenomenon (ERFEN); the programme of annual regional cruises in the oceanographic exploration of the south-eastern Pacífic; and the Boletín de Alerta Climático (Climate Warning Bulletin) for this region.

IOC and CPPS have agreed to increase their cooperation in the field of oceanographic and meteorological research on the marine climate of the south-eastern Pacífic, particularly its variations, such as the El Niño and La Niña phenomena, and to strengthen the oceanographic research capacity of the member countries of the CPPS, the standardization of the analytical methods, and the interpretation of the results and their effective promulgation.

The IOC–CPPS Memorandum of Understanding is very important for the countries of the region, and especially Peru, since it allows Peru to strengthen its research capacity and to attract new financing to allow it to continue to contribute to the international community through reports on the observation of the ocean and the atmosphere, using equipment and sensors set up by the following Peruvian institutions participating in the Multisectoral Committee on the Study of the El Niño Phenomenon: the Dirección de Hidrografía y Navegación (DHN), the Instituto Geofísico del Perú (IGP), the Servicio Nacional de Meteorología e Hidrología (SENAMHI), the Instituto del Mar del Perú (IMARPE), the Instituto Nacional de Recursos Naturales (INRENA), and the Instituto Nacional de Defensa Civil (INDECI).

Since the Report on Programme Execution contains no direct reference to the Memorandum of Understanding cited above, Peru wishes to support the suggestion of the Executive Secretary that the Summary Report of the present session appropriately reflect the information that the Executive Secretary has provided here, as well as the expression of Peru's appreciation."

3.2 REPORT OF THE EXECUTIVE SECRETARY ON THE EARTH OBSERVATION SUMMIT

40 The Executive Secretary introduced this item. He recalled the fundamental IOC interest in the development of a comprehensive Earth observing system, in the widest sense, and the establishment of operational oceanography in relation to the Plan of Implementation approved at the World Summit on Sustainable Development (Johannesburg, 2002) which called on countries to "*Promote the systematic observation of the Earth's atmosphere, land and oceans by improving monitoring stations, increasing the use of satellites and appropriate integration of these observations to produce high-quality data that could be disseminated for the use of all countries, in particular developing countries*" [para. 38g]. Hence the IOC had been deeply involved in the follow-up of the first Earth Observation Summit (EOS).

41 The Executive Secretary reported on the first (Washington, DC, 30 July–2 August 2003) and the second (Tokyo, 25 April 2004) Earth Observation Summits and their follow-up through the Intergovernmental ad hoc Group on Earth Observations (GEO). The first Summit initiated the development of a conceptual framework and implementation plan for building a comprehensive, coordinated and sustained Global Earth Observation System of Systems (GEOSS). GEO was charged with establishing a 10-Year Implementation Plan for the creation of GEOSS, based on existing observing systems, in time for the third Earth Observation Summit, in February 2005. The second Summit adopted a Framework Document describing the principal

benefits of Earth observations to a broad range of user communities and the fundamental elements to be included in the 10-Year Implementation Plan.

42 The Executive Secretary drew the attention of the Executive Council to the IOC's contribution to this process. Since the first Summit, the IOC had actively participated in GEO, in view of the value of existing observing systems, such as GOOS, as key components of GEOSS. The IOC encouraged its Member States to play an active part in EOS/GEO, so as to ensure that the oceanographic component is both comprehensive and global.

43 The Executive Secretary emphasized the importance of this initiative as a critical opportunity to define firm resources for operational observation of the ocean, at the national and international levels, with support at a high political level. He drew the attention of the Executive Council to the cooperation among the UN agencies that have mandates relevant to Earth observing systems, such as the Food and Agriculture Organization of the United Nations (FAO), the United Nations Educational, Scientific and Cultural Organization (UNESCO), including IOC, the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO). Their joint statement at the second Earth Observation Summit affirmed their strong commitment to the GEOSS 10-Year Implementation Plan, within their respective mandates, with a view to assisting developing countries, providing equitable access to data and information, and reducing inequalities in social, economic and environmental conditions.

44 **The Executive Council welcomed** the report of the Executive Secretary on the activities he had undertaken during the intersessional period engaging the IOC in the EOS first, and then in the work of GEO, **and instructed** him to continue with this very important work.

45 The Under Secretary of Commerce (USA) and Administrator of the National Oceanic and Atmospheric Administration (NOAA), Vice Admiral C. Lautenbacher, spoke on the Earth Observation Summit and its follow-up through the Intergovernmental ad hoc Group on Earth Observations (GEO), of which he is a Co-Chair. He pointed out that the support of intergovernmental organizations, such as the IOC, is vital to the success of GEO, and urged IOC to bring ideas to GEO as the Implementation Plan is developed.

46 Vice Admiral Lautenbacher then explained the promising aspects of GEOSS, its user-focus and the political support generated by the potential for near-term and long-term benefits to all nations. He emphasized the goal of GEOSS: an Earth information system with an interdisciplinary focus, providing the foundation for sound decision-making regarding sustainable development and the wise use of our natural resources, derived from socio-economic needs. He again stressed that the GEOSS should be a comprehensive, coordinated, and sustained global system of systems.

47 He then presented the nine beneficiary areas for development of the 10-Year Implementation Plan as follows: (1) disasters; (2) human health; (3) energy resources; (4) climate variability and change; (5) water-resource management; (6) weather; (7) ecosystems; (8) agriculture and combating desertification; (9) biodiversity. As an exemplary technical issue of Earth observation and information that would be directly related to the areas listed above, Vice Admiral Lautenbacher presented the global sea-level-rise issue. He informed the Executive Council that this issue was submitted as a discussion paper to the G8 Science Ministers meeting in the USA, just before the EOS II in Tokyo in April (2004), to discuss progress on the Science and Technology Action Plan from the G8 meeting in Evian (2003). He noted that the wide range of uncertainty in the projected rate of sea-level rise, due to inadequate observations, could be reduced through strengthened international cooperation in the sustained collection of high-quality observations as the basis for sound decision-making.

48 Vice Admiral Lautenbacher gave a briefing on the 2004 Science and Technology for Sustainability Action Plan and Progress Report which was released at the G8 meeting this year in early June on Sea Island, Georgia, USA. This report noted the two Earth Observation Summits and the work of GEO, and the Science Ministers will continue their discussions on these projects at another meeting later this year. He emphasized the valuable opportunity to identify the priority requirements for near- and long-term observations in a comprehensive system of systems, and to bring these specifics to the attention of Ministers.

49 Vice Admiral Lautenbacher also stressed the importance of capacity-building under GEO and expressed his appreciation of the IOC Strategy for Capacity-Building which gives priority to operational oceanography, in general, and to GOOS implementation, in particular.

50 Vice Admiral Lautenbacher then expressed his appreciation of the joint statement of UN organizations, including FAO, UNEP, UNESCO and its IOC, and WMO, at the Second Summit, declaring their support for GEO *"for the potential it offers to reduce hunger, alleviate poverty, improve health and a variety of other benefits that many of the member countries find lacking."* He affirmed that the GEO has a firm basis for reaching this goal by building on the on-going or completed work of IOC. The full text of Admiral Lautenbacher's address is contained in Annex III-C.

51 **The Executive Council expressed** its appreciation to Vice Admiral Lautenbacher for his presentation, and congratulated him on the successful work of GEO so far. **It recognized** the importance of the users' perspective in the whole process relating to GEOSS, as well as of the political commitment to high-level support. **It also recognized** the potential benefit of GEOSS, which will play an important role in filling the present gaps in Earth observation, particularly of the ocean in the southern hemisphere.

52 **The Executive Council also noted** that the involvement of developing countries in GEO, with the associated capacity-building, is essential to ensure the global sharing of the benefits to be derived from GEOSS, through widespread ownership. **It urged** the GEO to continue its efforts to set up the strategy for a future mechanism for GEO, and **emphasized** the essential roles of the UN organizations and their existing earth observing systems in GEOSS.

53 **The Executive Council stressed** that the GOOS should be recognized clearly in the GEOSS Implementation Plan as a key component of Earth observation, and that existing implementation plans and the GEOSS 10-Year Implementation Plan should be mutually consistent.

54 The Representative of WMO informed the Executive Council of Resolution 13.4 (EC-LVI) adopted by the 56th Executive Council of WMO on this matter, affirming its support for the concept of GEOSS. He stressed in particular the potential value of GEOSS to both WMO and IOC, as organizations responsible for major earth observing system components, such as WWW, GAW, GOOS and GCOS; the importance of harmonizing the implementation plans of these systems with those of GEOSS; and the importance also of ongoing and enhanced cooperation between WMO and IOC with regard to GEOSS, in areas such as the application of their data-exchange policies and the development of integrated data-management mechanisms.

55 **The IOC Executive Council agreed** that this WMO Resolution clearly showed the way forward for concerned international organizations.

56 **The Executive Council adopted** Resolution EC-XXXVII.2.

4. PROGRAMME MATTERS REQUIRING DECISIONS BY THE EXECUTIVE COUNCIL

4.1 GENERAL POLICY ISSUES

4.1.1 Feasibility of Establishing a Regular Process for the Assessment of the State of the Marine Environment

57 The Chairman and the Executive Secretary introduced this item. In 1999, the Commission on Sustainable Development proposed the establishment of a regular global assessment of the marine environment (GMA) to provide accurate and full information to decision-makers on the numerous threats thereto.

58 As follow-up to UNEP Governing Council decision 21/13, two intergovernmental meetings were convened, one in Reykjavik to consider the feasibility of a GMA and another in Bremen to consider the operational modalities for it. The World Summit on Sustainable Development in 2002 recommended the establishment of the GMA under the United Nations (subsequently endorsed by the General Assembly). The UN Secretary-General then prepared proposals on the modalities for GMA. The IOC Assembly, at its 22nd Session, instructed the IOC Executive Secretary to arrange an appropriate contribution of IOC to this process and to seek extra-budgetary resources, including the financial and human-resource implications of IOC's leading the assessment programme.

59 An inter-agency consultative meeting was convened in Paris in September 2003 to facilitate the integration of various proposals on modalities for GMA.

60 The UN General Assembly, at its 58th Session, requested the Secretary-General to take steps to establish the regular process by 2004. This involved an intergovernmental meeting in 2004, and a group of experts meeting in 2004, at which, IOC was represented by its Chairman, who was subsequently elected Chair of the group of experts; he presented the report of the Group of Experts to an International Workshop held in conjunction with the fifth meeting of the ICP.

61 The Chairman informed the Executive Council of the Group of Experts' recommendations on the scope, framework and funding of the GMA, and outlined a possible two-year start-up phase prior to initiating the regular process; he emphasized the need for a centralized and identifiable secretariat within the UN system. He conveyed the Group’s opinion that a successful GMA will require appropriate skills and structures, such as observation and information systems, and an estimated cost of US$20 million per five-year cycle.

62 At the International Workshop on a Regular Process for Global Reporting and Assessment of the State of the Marine Environment (New York, 8–10 June 2004, in conjunction with the 5th Meeting of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea), there was substantial discussion on its mandate, scope, organization and funding with a broad acceptance for the mandate from WSSD to establish a comprehensive GMA. However, significant disagreement emerged as to whether living marine resources should be encompassed by the GMA. Because of this, the summary subsequently made by the Co-Chairmen of ICP, stating that GMA must be comprehensive in scope and include all aspects of the marine environment, including the assessment of the living marine resources and socio-economic aspects, was left in brackets, as were pieces of text on several other related issues.

63 Since the ICP recommendations to the 59th Session of the UN General Assembly will not include the GMA, but only the Co-Chairmen's summary of the meeting, the process will not be established in 2004 as requested in the Johannesburg Plan of Implementation, pending further negotiations in the autumn of 2004, and the proposed intergovernmental meeting to formally establish GMA in 2004 has been suspended until a full consensus is reached.

64 Portugal stressed the need for greater attention to the identification of regions in this context, so as to allow comparison with previous IOC regional activities: Portugal wished to bring GESAMP back to its original role as an advisory body to UN organizations. To this end, the Portuguese Government is prepared to discuss such a possibility further with the IOC Executive Secretary. The delegate recalled that, at the 22nd Session of the Assembly, Portugal expressed its willingness to assist IOC—possibly jointly with UNEP—in establishing a Technical Secretariat for GMA, if welcomed by all the parties concerned.

65 Germany indicated its hesitation with regard to establishing a separate secretariat, since this would generate more work and increase bureaucracy. In order to enable IOC to take a leading role in GMA, Germany is prepared to support IOC by the secondment of a staff member.

66 The Representative of the International Ocean Institute (IOI) informed the Executive Council that his institution was ready to work hand in hand with IOC to promote GMA through the IOI network, website and publications.

67 **The Executive Council commended** the IOC Chairman and the Executive Secretary for their follow-up of the GMA initiative.

68 **The Executive Council stressed** the view that enhanced capacity is needed world-wide for GMA, and that an ecosystem approach underpinning the assessment would be essential to it. GMA should therefore include large marine ecosystems, living marine resources, the deep sea and coastal seas. It should also be related to climate change and, in this respect, should collaborate with the Intergovernmental Panel on Climate Change (IPCC).

69 **The Executive Council accepted** that IOC should continue to play a leading role in the GMA initiative, but should pay special attention to the nature of the IOC commitments, modalities and means with respect to the GMA. **It stressed** the view that the creation of new bureaucracy should be avoided.

70 **The Executive Council considered** that a review of existing assessments ("assessment of assessments"), including regional ones, would be an appropriate first step for GMA.

71 **The Executive Council instructed** the Executive Secretary to continue to follow up the GMA initiative in accordance with Resolution XXII-2, taking into account the points stressed in that Resolution.

4.1.2 Prioritized Follow-up of Key Recommendations of the External Evaluation

72 The Executive Secretary introduced this item. Since the publication of the External Evaluation Report in 2000, the Assembly and the Executive Council have requested the Executive Secretary to report regularly on follow-up actions and implementation. At its 35th Session, the Executive Council decided moreover that the follow-up of actions should be prioritized.

73 Following the guidance of the Executive Council, the follow-up has referred only to pending key recommendations.

74 The most salient issue arising from the report is the establishment of the UN–Oceans network in response to the UN General Assembly Resolution A/57/141 on the establishment of an effective, transparent and regular interagency co-ordination mechanism on oceans and coastal issues within the United Nations system. This is a major achievement in which IOC has played a key role and has been called on to continue to be actively involved. The Executive Secretary informed the Council that the Terms of Reference of the UN–Oceans network are in the last page of the Executive Secretary's Report (doc. IOC/EC-XXXVII/2 Annex 1).

75 **The Executive Council welcomed** the progress in following up the Evaluation Report and **instructed** the Executive Secretary to actively pursue cooperation with and within the UN coordination mechanism.

4.1.3 Memorandum of Understanding ICES–IOC

76 The Executive Secretary introduced this item. The present MoU was an update of the existing ICES−IOC MoU signed in 1983. Since then, both organizations have undergone significant changes. The IOC Assembly, at its 22nd Session, considered the ICES proposal and, by Resolution XXII-9, instructed the IOC Executive Secretary to submit the new Memorandum of Understanding for approval by the IOC Executive Council at its 37th Session.

77 The Chairman of ICES was not able to attend the present session of the Executive Council. However, an invitation had been extended to the IOC Chairman to attend the ICES Annual Science Conference in 2004 and ICES suggested that the MoU be signed at the Conference and that the Chairman address the ICES officers at the same time.

78 **The Executive Council approved** the ICES−IOC Memorandum of Understanding and **authorized** the Chairman of IOC (or his representative) to sign the MoU, with the Chairman of ICES.

79 **The Executive Council awarded** Dr Roy Green (Australia), an IOC Certificate of Appreciation for his service to the Intergovernmental Oceanographic Commission over the past sixteen years and in particular his significant role in establishing the IOC Regional Programme Office in Perth, Australia.

80 In reply, Dr Roy Green expressed his thanks and highlighted the enjoyment and many personal friendships his work in IOC had brought him.

4.1.4 Memorandum of Understanding UNEP–IOC

81 The Representative of UNEP, Ellik Adler, introduced this item. The IOC Assembly, at its 22nd Session, decided that a draft Memorandum of Understanding between UNEP and IOC on the relationship between, respectively, the Regional Seas Programme (RSP) and the Global Ocean Observing System (GOOS) was too detailed and did not sufficiently address the relationships between the RSPs, GOOS, the GOOS Regional Alliances (GRAs) and the IOC Regional Committees and Sub-Commissions. The Assembly considered that a simpler and clearer message was required. The Assembly therefore invited Member States to suggest improvements to the draft text, and to send them to the Executive Secretary before the end of October 2003. It instructed the Executive Secretary to produce a final draft of the Memorandum, taking these suggestions into account, for approval at all levels of management in the two organizations, and to submit a revised draft to the IOC Executive Council, at its 37th Session, for final approval.

82 The Representative of UNEP presented an overview of the revised MoU and informed the Executive Council that comments by Member States and the legal departments of UNEP and UNESCO had also been taken into consideration.

83 **The Executive Council approved** the UNEP−IOC Memorandum of Understanding and **authorized** the Chairman of IOC (or his representative) to sign it, provided the following modifications are made:

Article 3 paragraph 5, first sentence be modified from: *"To ensure that the partnership develops optimally in the spirit of this MoU, UNEP and UNESCO/IOC will maintain close working relationship in the framework of RSP and GOOS and each Party undertakes to support the other and seek ways to make the most effective use of cooperation in pursuit of its mission."*

to:

"To ensure that the partnership develops optimally in the spirit of this MoU, UNEP and UNESCO/IOC will maintain a close working relationship on both the international and regional levels in the framework of RSP and GOOS and each Party undertakes to support the other and seek ways to make the most effective use of cooperation in pursuit of its mission."

Article 5 on Arbitration be removed.

84 In the spirit of this MoU, **the Executive Council stressed** that IOC and UNEP should promote the cooperation between their regional and national counterparts using the modalities mentioned in the MoU.

4.1.5 Joint SCAR–SCOR–IOC Coordination of Southern Ocean Studies

85 The Executive Director of the Scientific Committee on Antarctic Research (SCAR), Colin Summerhayes, introduced this item. International studies of the Southern Ocean have traditionally been carried out by interested organizations more or less independently of each other and in a weakly co-ordinated manner, with the resulting duplication of effort and gaps in coverage (of geographical areas, scientific topics etc.).

86 At its 33rd Session (June 2000), the IOC Executive Council instructed the Executive Secretary to investigate the interest of partner organizations in co-ordinating basic research in the Southern Ocean. The Executive Secretary contacted the relevant organizations and several key members of the research community specializing in the Southern Ocean, and found support for such a co-ordinating mechanism. As a result, the IOC Assembly, at its 21st Session (July 2001), agreed that suitable ways and means should be considered by which the IOC and its partners, SCAR and SCOR, could co-ordinate basic research in the Southern Ocean.

87 Document IOC/EC-XXXVII/2 Annex 5 recommended the establishment of a SCAR−SCOR−IOC Co-ordinating Group on Inter-disciplinary Southern Ocean Science (ISOS) to facilitate co-ordination of the various disciplinary research groups currently active in the Southern Ocean.

88 Several Member States expressed doubts about the current need for such a mechanism and expressed their concern that the proposal did not sufficiently describe appropriate linkages between the proposed Coordination Group and the Antarctic Treaty.

89 In the light of the debate, the Chairman suggested that the implied formality of the proposed Coordination Group is premature and a less formal mechanism for co-operation

amongst SCAR, SCOR and IOC should be sought. He reassured SCAR and SCOR that the Commission would continue to work closely with them in developing Antarctic marine science as well as oceanography in general.

90 **The Executive Council instructed** the IOC Executive Secretary to determine the need for IOC involvement in the coordination of activities in the Southern Ocean, especially in the context of the upcoming International Polar Year, bearing in mind IOC's legitimate concern with the Southern Ocean, as a component of the world ocean and its commitment to develop a system of long-term observations in the Southern Ocean.

4.1.6 IOC Participation in the International Polar Year 2007–2008

91 The Director of the British Antarctic Survey (BAS) and Chairman of ICSU's International Polar Year (IPY) Planning Group, Chris Rapley, introduced this item. International Polar Years have proved very successful mechanisms for stimulating international collaboration and effort to gain new insight into global processes. The IPY 2007−2008 proposal (see www.ipy.org) has been approved by the ICSU Executive Board and by the 14th Congress of the WMO, and is awaiting approval by the ICSU Assembly. An ICSU−WMO Joint Organizing Committee is expected to be established in October 2004. ICSU envisages the IPY as involving several partner organizations with strong interest in polar oceanography. It also envisages the IPY as an intensive international campaign of co-ordinated polar observations and analysis, with researchers from many nations working together to explore, and thus increase our understanding of, the polar regions and their roles in the earth system. The IPY 2007−2008 is expected to: address compelling scientific issues; enable science programmes that otherwise might not be implemented; attract and develop the next generation of polar scientists; and engage the public. The IPY Planning Group has proposed focusing research under three overarching themes: (i) exploration of new scientific frontiers; (ii) understanding change at the poles; and (iii) decoding polar processes.

92 The Chairman of the IPY Planning Group invited the Executive Council to consider how IOC could be involved and, if so, how to provide input to the IPY.

93 For IOC, the IPY provides an opportunity to establish the polar elements of the ocean and sea-ice observing systems that would last beyond the IPY. Moreover, the IPY will contribute to all the Main Lines of Action for the 2006−2007 biennium and beyond, including the marine environment, climate, sustainable development, and implementation of data policy.

94 Several Member States indicated their intention to support and to take an active part in the IPY.

95 **The Executive Council agreed** that the IOC should contribute to the IPY through:

(i) GOOS and its operational observing system components (implementation bodies, instrument networks), by, for example, enhancing or extending surface-buoy deployments under DBCP and the Argo programme; GLOSS; coordinated hydrographic surveys, including carbon and biological measurements;

(ii) research in the framework of the IOC-co-sponsored WCRP (e.g. CLIVAR, CliC), and initiatives such as GLOBEC that could contribute usefully to the IPY;

(iii) the joint development, by IODE and JCOMM, of mechanisms to recover and provide access to past and present polar ocean data;

(iv) the generation of comprehensive and integrated ocean data sets for polar regions in the context of GOOS, GCOS and the emerging GEOSS;

(v) identification of the contributions and the participation of IOC Member States to relevant short-term process experiments.

96 **The Executive Council thanked** the Chairman of the IPY Planning Group for his informative presentation, and **adopted** Resolution EC-XXXVII.3.

4.1.7 International Year of Planet Earth 2005–2007

97 The Secretary of the International Geoscience Programme (IGCP), Robert Missotten, of the UNESCO Division of Earth Sciences, introduced this item. UNESCO's Science Sector is engaged in the development of a UN-wide International Year of Planet Earth 2005–2007 (IYPE).

98 The high point of the IYPE will be during 2006; its primary objectives in the realm of solid-earth studies, including those of the sea bed, are described in Document IOC/EC-XXXVII/2 Annex 7.

99 **The Executive Council endorsed** the proposal for an International Year of Planet Earth 2005–2007; **urged** governments of IOC Member States to participate in this endeavour to find out more about the solid surface of Earth; and **instructed** the Executive Secretary to ensure that IOC regional and other relevant subsidiary bodies take the proposal into consideration in the planning and implementation of their programmes.

4.2 OCEAN SCIENCES SECTION

4.2.1 The New GESAMP

100 The Head of the Ocean Sciences Section, Ümit Ünlüata, introduced this item together with Rene Coenen of the International Maritime Organization which provides the Administrative Secretariat for the Joint Group of Experts on the Scientific Aspects of Marine Environment Protection (GESAMP).

101 As a joint interagency scientific advisory body on marine pollution and marine environmental protection, sponsored by IMO, FAO, UNESCO/IOC, WMO, WHO, IAEA, UNEP and UN/DOALOS, established in 1969, GESAMP needs to be updated to meet more effectively the requirements of its sponsoring organizations. For example, the International Maritime Organization uses GESAMP as a part of their consulting mechanism in the Advisory Committee on Hazardous Substances. The Food and Agriculture Organization of the United Nations uses GESAMP as a source of advice in areas in which FAO's in-house expertise is limited. However, other organizations have some difficulties in accommodating GESAMP's evolution as a more independent body acting with little supervision or guidance from the sponsoring organizations, especially on policy and governance issues.

102 In 2001, GESAMP's eight sponsoring organizations commissioned an independent evaluation which concluded that GESAMP should be continued as an agreed source of independent scientific advice on marine environmental protection to the UN system, but with substantive changes to its organization, work methods and management. The resulting discussions among GESAMP experts, the members of the Technical Secretariat representing the sponsoring organizations, and a variety of interested external parties, have led to the drafting of a strategic vision for a New GESAMP (IOC/INF-1196).

103 There are alternative views on how to implement the evaluation's recommendations. Some propose that GESAMP should renew and widen its links with the scientific community at large—including social, human, and economic sciences—and thus should establish direct communication with governments and major user groups. Others call for a clear subsidiary role of GESAMP *vis-à-vis* its sponsoring intergovernmental organizations, leaving the latter to maintain links with governments and to define periodically the mandate of GESAMP and the scope of the tasks requested of GESAMP as a scientific advisory body.

104 The activities and accomplishments of GESAMP are summarized in document IOC/INF-1197. The Executive Summary of the strategic document for the New GESAMP is provided in document IOC/EC-XXXVII/2 Annex 8.

105 The new GESAMP mechanism and an accompanying Memorandum of Understanding amongst the co-sponsors, contained in the above-mentioned documentation, are subject to the approval of each sponsoring organization. Mr Coenen stressed that the existence of GESAMP now depends crucially on its participation in the GMA, for the current sponsors do not think the GESAMP mechanism should continue if it is not directly linked to the GMA.

106 The Chairwoman of I-GOOS pointed out that GESAMP reports used by Regional GOOS Alliances for Coastal GOOS are providing relevant advice, and hoped that this collaboration could be continued.

107 The Chairman of SCOR indicated that he had been closely involved in the GESAMP evaluation. SCOR strongly supports the New GESAMP proposal with increased involvement with governments on the topics addressed, as well as on the nomination of experts. New GESAMP will provide enhanced advice for the protection of the marine environment.

108 The Director of the Marine Environment Laboratory of IAEA informed the plenary that IAEA had offered to host the GESAMP Secretariat.

109 **The Executive Council thanked** Mr Coenen for his presentation.

110 **The Executive Council expressed** general support for GESAMP and **welcomed** moves to reinvigorate it.

111 **The Executive Council also welcomed** the concept of a pool of GESAMP experts to be drawn on, but **stressed** that the pool should not be static and that the membership should be broad and flexible.

112 **The Executive Council recognized** that IOC must consider the future of GESAMP in terms of three alternatives: (i) GESAMP as before; (ii) GESAMP as the main mechanism for the GMA; or (iii) GESAMP as a Group of Experts separate from GMA, but which, alongside other such groups, could contribute to the GMA, and that this future cannot be decided until the GMA and the UN–Oceans, as a relevant interagency mechanism, are better defined.

113 The Executive Council agreed that, once the GMA process has been defined, an open-ended intersessional working group should be established and carry out an in-depth study on the IOC response to the New GESAMP proposal and to consider the possible future of GESAMP regardless of whether it is involved in the GMA.

4.2.2 SCOR–IOC Symposium on Quantitative Ecosystem Indicators for Fisheries Management

114 Philippe Cury, of France's Research Institute for Development (IRD), introduced this item. He stressed that there is a continuing and growing need for a wide range of ecosystem indicators for use in fishery management, hence a need to develop them.

115 The SCOR–IOC Symposium on Quantitative Ecosystem Indicators for Fisheries Management (31 March–3 April 2004) was the culmination of the work carried out by the IOC–SCOR Joint Working Group 119 since 2001, which Philippe Cury co-chaired with Villy Christensen, University of British Columbia, Canada. The overall objective of this Joint Working Group was to develop a theory to evaluate changes (in states and processes) in marine ecosystems, from environmental, ecological and fishery perspectives. The Working Group defined generic indicators that can be used in marine environments, fisheries or for assemblages of exploited fish populations or marine ecosystems, and it formulated these indicators in mathematical or statistical terms. It determined which values of an indicator are meaningful statistically and/or ecologically and when to apply them to specific data sets or when using specific multispecies models, in order to evaluate their usefulness.

116 Fisheries are fully integrated into the ecosystems in which they operate, so that ecosystems are now rightly viewed as the appropriate integrative level for fishery management. The effects of fishing on marine ecosystems have been widely recognized, as has the need to move toward an ecosystem approach to fisheries (EAF). Such an evolution is being sought by society for all exploited natural resources. Fisheries are no exception.

117 The SCOR–IOC Symposium was aimed at reviewing existing indicators to support scientific aspects of indicators used for an EAF, as well as to develop new indicators reflecting the exploitation and state of marine ecosystems. The Symposium also aimed at evaluating the utility of indicators relative to specific objectives.

118 To meet this new challenge, a strategy is needed that will elaborate new operational frameworks. This requires the development of quantitative indicators at the ecosystem level, and the definition of innovative reference points to provide bridges between scientific results, society's needs, and an effective EAF.

119 The Representative of SCOR indicated that the Symposium and the joint sponsorship of GLOBEC highlights the very successful IOC–SCOR cooperation in fishery oceanography. SCOR wishes that this cooperation on ecosystem indicators for fisheries continue.

120 The Executive Secretary indicated that, in the IOC–SCOR Joint Working Group 119, several experts from the Fisheries Division of FAO were active participants, demonstrating the need for these complementary activities in which the comparative advantages of different UN organizations were fully exploited with mutual benefits.

121 **The Executive Council expressed** its appreciation of Philippe Cury's presentation and **welcomed** the conclusions of the IOC–SCOR Symposium.

4.3 OCEAN SERVICES SECTION

4.3.1 International Co-ordination Group for the Tsunami Warning System in the Pacific: ITSU-XIX Report

122 The Chairman of the International Co-ordination Group for the Tsunami Warning System in the Pacific (ICG/ITSU), François Schindelé, introduced this item. The Tsunami Warning System, as a long-established and successful IOC programme, has continued to evolve in terms of the technology applied and of the geographical coverage. The ICG is required to report to the IOC governing bodies on such developments.

123 The Chairman ICG/ITSU informed the Council that the evaluation of the Tsunami Programme requested by the Assembly at its 21st Session has not yet been carried out. A small group of experts has been nominated by Member States and it is expected that the evaluation will be completed in draft form in time for consideration by the Assembly at its 23rd Session (June 2005) and in final form for the 20th Session of ICG/ITSU (October 2005).

124 During the intersessional period 2001–2003, at the international level, new procedures were implemented and revised criteria were adopted for issuing warnings, watches and cancellations. A proposal for International Tsunami Signs and Symbols was drafted and the *Tsunami Glossary* in French, English and Spanish was published; a high-quality bi-monthly *Tsunami Newsletter* was issued. The development of the ITIC–USA website and the Visiting Experts Programme continued. At the national level, activities continued to focus on the further strengthening of national tsunami warning and mitigation systems.

125 The ICG/ITSU adopted its work plan for 2004–2005, with focus on the International Tsunami Information Centre (ITIC), the Global Tsunami Data Base (GTDB) and the new Integrated Tsunami Data Base (ITDB), the Tsunami Information Kit, the newly established Working Groups on a Comprehensive Tsunami Hazard Reduction Programme (TROIKA), on the Central American Pacific Coast Tsunami Warning System (CAPC-TWS), and on the Tsunami Warning System in the Southwest Pacific and Indian Ocean (SWP-TWS).

126 The ICG/ITSU will also address: co-operation with JCOMM, the Circum-Pacific Council, GLOSS, ISDR, and CEPREDENAC; the duration of the ITSU Training Programme in Hawaii, including an international component; expert missions to Member States; the frequency of the *Tsunami Newsletter*; ITSU signs for submission to ISO; the IOC/ITSU and ITIC websites; and the *ITSU Master Plan* Conclusions.

127 The Chairman ICG/ITSU presented the ITSU Tsunami Hazard Reduction Strategy which is based upon three elements: assessment, mitigation and warning guidance.

128 The Chairman ICG/ITSU stressed the insufficiency of resources allocated for ITSU in terms of staff and budget, thereby jeopardizing the Tsunami Warning System’s efficiency and effectiveness. He urged Member States to consider this issue when allocating resources.

129 The delegate of Japan informed the Executive Council of the sad passing away on 24 June 2004 of Professor K. Kajiura who, since 1983, had held the post of Vice-Chairman of the Tsunami Committee of the International Union of Geodesy and Geophysics (IUGG). Prof. Kajiura had a long and distinguished career in physical oceanography.

130 **The Executive Council requested** the delegate of Japan to express its condolences to the family of Prof. Kajiura.

131 Chile confirmed its offer to host ITSU-XX and a related workshop in October 2005.

132 The Philippines, the Russian Federation and Japan informed the Executive Council of the establishment or renewal of their national tsunami warning systems in the western Pacific, thereby demonstrating their countries' continued strong commitment to tsunami warning and mitigation.

133 Japan informed the Executive Council of the development of the North-west Pacific Tsunami Information Centre in 2004.

134 The Representative of the International Ocean Institute (IOI) expressed his organization's strong support of the ITSU Programme. He recalled the co-sponsoring by IOI of the 2002 tsunami workshop in Kamchatka and expressed his organization's interest in continued collaboration, with special attention to risk assessment, awareness and social issues.

135 The Representative of the International Hydrographic Organization (IHO) expressed his organization's strong support of the ITSU Programme. The improvement of ocean bathymetry and especially coastal bathymetry data sets are of great relevance to the ITSU programme. The IHO Representative called for closer collaboration between his organization and IOC's ITSU programme in this regard.

136 **The Executive Council instructed** the ICG/ITSU to identify specific bathymetric needs and priorities that could improve the tsunami programme, and make this information available to IHO for consideration by the appropriate IHO regional hydrographic commissions.

137 **The Executive Council called** for close collaboration between ITSU, GLOSS and JCOMM, for example, and **invited** the Chairpersons of relevant IOC and other programmes to attend ITSU Sessions and identify joint activities that will further the aims of ITSU.

138 **The Executive Council expressed** its strong appreciation of and support for the ITSU programme, as one of the IOC programme that specifically protects human life and property, thus having substantial societal importance and therefore direct relevance to GEO.

139 **The Executive Council noted** with appreciation the establishment of working groups on a Central America Pacific Coast Tsunami Warning System and on a Tsunami Warning System in the South-west Pacific and Indian Ocean, and **encouraged** Member States bordering other ocean basins to consider similar initiatives.

140 **The Executive Council adopted** Resolution EC-XXXVII.4.

4.3.2 Report of the 9th Meeting of the Consultative Group on Ocean Mapping (CGOM)

141 The Chairman of CGOM, Gunter Giermann, introduced this item. He reported the significant progress in the main programme components: the General Bathymetric Chart of the Oceans (GEBCO) and the regional International Bathymetric Charts (IBCs), as well as the International Geological/Geophysical Atlases of the Atlantic and Pacific Oceans (GAPA), published by the Head Department of Navigation and Oceanography (Russian Federation) in 2003. At its 9th Session, the CGOM recommended a project on an International Bathymetric Chart of the Southern Ocean (IBCSO) to the consideration of the Executive Council. Finally, with the aim of streamlining the management and governance of these programmes and to strengthen the links between GEBCO and IBC projects, the Chairman of CGOM mentioned the proposal developed by the IOC and IHO Secretariats to combine both projects under a single

technical body that would report to both organizations. He reminded the Executive Council that the centenary of GEBCO was celebrated with great success in April 2003.

142 For GEBCO to ensure the required training in marine cartography, the Nippon Foundation's support is much welcomed. Mr Giermann invited Member States to continue to pay great attention to regional marine cartography and carefully consider the importance of developing large-scale maps in selected parts of EEZs, at their request, and for the benefit of developing Member States.

143 Many Member States welcomed the work done by the Consultative Group and emphasized the importance of this ocean mapping programme, bearing in mind the improvement in bathymetric data exchange. Countries like Australia, China and the Russian Federation strongly supported the proposal to establish a new bathymetric project for the Southern Ocean.

144 As regards the establishment of a new structure for ocean mapping, some Member States supported the idea of closer co-operation with the International Hydrographic Bureau (IHB), but expressed the view that further discussion is needed. China felt that the existing structure should be retained.

145 **The Executive Council welcomed** the progress achieved by the Consultative Group on Ocean Mapping (CGOM) in implementing the relevant decisions of the IOC Executive Council (35th Session) and of the Assembly (21st Session).

146 **The Executive Council formally thanked** China, France, Japan, the Russian Federation, the United Kingdom and the United States for their support in funds for the programme; **it urged** other IOC Member States to follow this positive example.

147 **The Executive Council adopted** Resolution EC-XXXVII.5.

4.4 OPERATIONAL OBSERVING SYSTEMS SECTION

4.4.1 Review of the Structure of the Global Ocean Observing System (GOOS): Report of the Intersessional Working Group

148 The Chairman of the Intersessional Working Group on this subject, K. Radhakrishnan, introduced this item. He reminded the Executive Council that Resolution XXI-7 had called for a review of the organizational structure of GOOS to be carried out by an external independent Review Group during 2002–2003. The GOOS Review Group (GRG) presented its report (IOC/INF-1185) to the IOC Assembly at its 22nd Session (June 2003). By Resolution XXII-4, the IOC decided to establish an open-ended Intersessional Working Group of interested Member States and representatives of the GOOS sponsoring organizations to consider the recommendations of the GOOS Review Group and the comments from Member States, and to: (i) revise the terms of reference of I-GOOS, GSC and the GPO, accordingly; (ii) develop a draft plan of action; (iii) present their findings to the IOC Executive Council at its 37th Session.

149 The ISWG agreed with the actions recommended by the GOOS Review Group concerning:

(i) National coordination;

(ii) GOOS Initial Observing System;

(iii) Number of meetings of GSC and its Panels;

(iv) Recommendations on structure;

(v) Documentation of review outcome;

(vi) Improving the effectiveness of IODE in relation to GOOS;

(vii) Improving the effectiveness of GSC;

(viii) Application and modelling;

(ix) Capacity-Building Panel;

(x) GOOS Project Office;

(xi) Matters pertaining to IOC.

150 The ISWG considered it pertinent to elucidate further the actions recommended (document EC-XXXVII/2 Annex 9) by the GOOS Review Group on:

(i) Mandate for GOOS (para. 3.1);

(ii) Role of the research community (para. 3.2);

(iii) GOOS planning (para. 3.3);

(iv) GOOS Pilot Projects (para. 3.6);

(v) Current structure (para. 3.7);

(vi) GOOS Regional Alliances (para. 3.18).

151 The ISWG recommended changes in respect of the actions recommended by the Review Group concerning:

<u>Improving effectiveness of I-GOOS</u>

(i) The I-GOOS Board should be an Executive Body of I-GOOS.

(ii) The frequency of I-GOOS meetings should continue to be once every two years, unless and until it becomes clear that a lesser frequency is more appropriate.

<u>Improving the effectiveness of JCOMM in relation to GOOS</u>

Drop the Review Group's recommendation *"(b) that OOPC and COOP should report to the meetings of JCOMM…"*

152 The ISWG recommended revised Terms of Reference and renaming of one of the GOOS governing bodies, as follows:

(i) I-GOOS should remain as the Intergovernmental Committee on GOOS, functioning under the Intergovernmental Oceanographic Commission, and with overall responsibility for promotion, planning and coordination of GOOS. (para. 4.1, document IOC/EC-XXXVII/2 Annex 9);

(ii) The present GOOS Steering Committee should be renamed the GOOS Scientific Steering Committee (GSSC), with the responsibility of providing scientific and technical advice to I-GOOS (para. 4.2);

(iii) The GOOS Project Office should administer the planning, coordination and implementation of GOOS on behalf of the participating countries and sponsors (para. 4.3).

153 Canada expressed concern about the transition of the GOOS Steering Committee to the GOOS Scientific Steering Committee, while having a mandate that would include such tasks as identifying observational requirements, user needs, recommending pilot project priorities, and

recommending priorities for capacity development. The proposed renaming might send a message that operational managers and users would be less welcome as members of the renamed Steering Committee.

154 WMO and ICSU stressed that the GOOS Steering Committee (GSC) is the object of an MoU between the sponsoring organizations (IOC, WMO, UNEP and ICSU) and any suggestions concerning a change in its name or ToRs would be subject to the approval of the sponsors.

155 While the recommendations of the ISWG were generally well received by many Member States, some Member States were not in complete agreement with them.

156 **The Executive Council requested** Dr Radhakrishnan to convene an Intrasessional Working Group to re-examine the draft terms of reference proposed in the Draft Resolution to determine whether the differences could be bridged.

157 **The Executive Council agreed** that the research community should continue to give technical and scientific advice to GOOS through the renamed Steering Committee, but **recommended** that the Committee also include appropriate representation from users, programme managers and other stakeholders, including policy-makers, that rely on GOOS for ocean information.

158 **The Executive Council thanked** Dr Radhakrishnan for his leadership of the ISWG.

159 **The Executive Council adopted** Resolution EC-XXXVII.6.

160 **The Executive Council awarded** Dr John Gould an IOC Certificate of Appreciation in recognition of his contribution to the Intergovernmental Oceanographic Commission, particularly his work in the implementation of the World Ocean Circulation Experiment and, more recently, in the implementation of the Argo profiling-float programme, a vital part of GOOS.

161 In reply, Dr Gould said he was very honoured to receive this award and that it is a special joy for him to work in and serve the international oceanographic community.

4.4.2 Report on Support for the GOOS Project Office and the GOOS Capacity-Building Programme

162 The Chairwoman of the Intergovernmental Committee for GOOS (I-GOOS), Silvana Vallerga, introduced this item. She reported that, in the intersessional period, Keith Alverson (USA) was appointed new Head of the Section of Operational Observing Systems which acts as the GOOS Project Office (GPO). The second GOOS Regional Forum was held in Fiji (February 2004) and reviewed progress with and plans for all of the GOOS Regional Alliances. Thirteen GOOS Regional Alliances (GRAs), with 185 committed institutions from 88 countries, are now actively participating in efforts to implement GOOS.

163 The GOOS Regional Forum has so far been a tool for gathering information, the exchange of best practice and raising awareness, but a tool is also needed for the GRAs, to disseminate information, make decisions, and co-ordinate. The Chairpersons of the GRAs are each responsible for planning the development of marine services in their respective regions, but need to work together to create a single coherent strategy that will convince all the funding agencies.

164 The second GOOS Regional Forum endorsed a proposal from the Chairwoman of I-GOOS that a GOOS Regional Council (GRC) be formed to act as the management and decision-making mechanism for the GRAs acting together. The mission of the GRC is to build a coherent strategy for improving local marine environmental services by exploiting the Global Ocean Observing System. The members of the GRC will be the Chairpersons of the GOOS Regional Alliances. The Chairwoman of I-GOOS is the acting Chairperson of the GRC, pending the approval of the GRC by I-GOOS; the GRC will then elect its own Chairperson. The Head of the GPO will act as the Secretary of the GRC. However, the establishment of the GRC will require formal approval by I-GOOS and the IOC Assembly.

165 The GOOS Regional Forum also included the meeting initiating the project GOOS Regional Alliances Network Development (GRAND) which was created by the GRAs and was funded by the European Commission, for 2004−2005, to the extent of €520,000 (euros). The goal of GRAND is to enable the GRAs to work together and exchange experience on best practice in establishing observing systems.

166 The Chairwoman of I-GOOS stressed the fact that, for GOOS to be implemented fully, there is a need for a strong Section of Operational Observing Systems in the IOC Secretariat (IOC/OSS) that could act effectively as the GOOS Project Office (GPO), and for adequate scientific and technical capacity and support in the Member States. Although there has been a small increase in the number of scientific staff at IOC headquarters to assist with GOOS and JCOMM, which has helped to reduce some of the heavy pressure on the IOC/OSS-GPO staff, this support has been devoted mainly to the growing demands of GOOS and JCOMM in terms of programme co-ordination, which has still left little or no time to carry out essential communication. I-GOOS welcomed the fact that the new Head of the Capacity-Building Section in the IOC Secretariat will have a positive impact on GOOS-related capacity-building.

167 **The Executive Council thanked** the Chairwoman of I-GOOS for her presentation and **welcomed** the progress in the involvement of GRAs in GOOS and in the development of the GRAND project.

168 **The Executive Council took note** of the initiative of the GRAs to establish a GOOS Regional Council, but **emphasized** its own need for more information on the role of the GRC, its Terms of Reference, its functions within the structure of GOOS, and GPO resource implications. **It called on** I-GOOS to submit the required information to the IOC Assembly for consideration at its 23rd Session (2005).

169 **The Executive Council acknowledged** the continuing pressures on the IOC/OSS-GPO and **instructed** the Executive Secretary to: (i) work with Member States to find the resources to recruit an additional person for the outreach and communication activities of GOOS and JCOMM; (ii) provide adequate administrative support to IOC/OSS-GPO in view of increased demands for the organization of meetings; (iii) work with the Head of Capacity-Building and the Head of the GPO to coordinate in an integrated manner the capacity-building activities of GOOS and JCOMM as part of the overall IOC Strategy for Capacity-Building .

170 **The Executive Council took note** of the fact that China is considering secondment of an expert to the GPO, and **thanked** China for this positive gesture.

171 **The Executive Council welcomed** Keith Alverson as the new Head of the GOOS Office.

172 **The Executive Council presented** an IOC Certificate of Appreciation to Dr Colin Summerhayes for his service to the Intergovernmental Oceanographic Commission and in particular the Global Ocean Observing System.

173 In reply, Dr Summerhayes expressed his profound thanks for the Certificate and acknowledged the many individuals, GOOS governing bodies, GRAs, space agencies, scientific bodies and staff in the GOOS Project Office that are helping to make GOOS happen.

4.4.3 Report of JCOMM

174 The Co-President of the Joint WMO–IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM), Ms Savi Narayanan, introduced this item. With some eighteen months remaining until JCOMM-II, it is time to carefully review progress in implementing the various JCOMM Programme Area work plans and to begin thinking about the future work and structure of JCOMM, taking into account such initiatives as the GEOSS, IPY, the future WMO Information System and the broader space/remote-sensing programmes of WMO and IOC. Although considerable progress has been made in each of the observations areas, the needed global coverage has not yet been achieved. Since the global network was a composite of many sub-networks, there was a danger that member countries, by trying to optimize individual programmes, might do so at the expense of achieving an optimum global network, thus seriously weakening the ability to meet the objectives of the integrated system. The Co-President of JCOMM noted that the JCOMMOPS, through its website, provided essential support to the member countries and to the JCOMM by making available status and monitoring reports on the work of JCOMM.

175 In November 2003, JCOMM celebrated the 150th Anniversary of the Brussels Maritime Conference of 1853 convened in Brussels by Lt Matthew Fontaine Maury (US Navy). This event was followed by CLIMAR-II at which oceanographers and meteorologists discussed the results from marine meteorological and oceanographic observations, data assimilation and modelling, and technology development. The OceanOps'04 Workshop (Toulouse, May 2004) identified relevant operational oceanographic products and services. It was followed by a meeting of the Task Team on JCOMM Marine Pollution Emergency Response Support System (MPERSS) and of the Services Co-ordination Group (SCG-II).

176 A JCOMM Task Team was set up to provide an oversight of the space-based remote-sensing activities that are essential for JCOMM services and products, as well as material for input to international remote-sensing coordination mechanisms.

177 JCOMM has continued working closely with IODE and IOC on the IODE review and the development of the IOC Data-Management Strategy, and is developing a JCOMM data-management strategy consistent with it.

178 The terms of reference for the merged JCOMM–GOOS Capacity-Building Co-ordination Group were revised, and the Task Team on Resources is being continued to support the merged Co-ordination Group.

179 JCOMM will also include the Oceanographic Data and Information Network (ODIN) system in its capacity-building efforts, and the IODE OceanTeacher will be expanded to cover the full range of JCOMM data and information-management subject areas. The JCOMM–IODE Capacity-Building Jamboree will be held in Bergen, Norway (17–22 April 2005) and in Oostende, Belgium (1–6 May 2005). The objective of the event is to bring modellers and ocean-

data managers together to explain their complementarity and mutual dependence to provide operational services and products.

180 JCOMM-II will be held in Halifax, Canada, in September 2005. In accordance with the MoU between WMO and IOC, IOC will have the primary responsibility for JCOMM-II. Preceding JCOMM-II, a conference on Marine Meteorology and Oceanography for the 21st Century will be organized and will focus on recent JCOMM results, future science and observation technology, and future services.

181 **The Executive Council thanked** the Co-President of JCOMM for her comprehensive and informative report.

182 **The Executive Council affirmed** the importance of JCOMM through its responsibilities in respect of a number of conventions, including the Convention on the Safety of Life at Sea (SOLAS).

183 **The Executive Council recognized** that: (i) Member State contributions to the numerous JCOMM initiatives would most likely be facilitated if they could be provided within a regional context; (ii) JCOMM had to address the question of interfacing its global programmes with the relevant regional and even coastal programmes; (iii) at the national level, Member States might have to make appropriate institutional arrangements to allow all agencies concerned, whether from the oceanographic or the meteorological side, to closely collaborate with the Member States to meet their demands for services; (iv) the role of IOC in this context will be to promote the involvement of national oceanographic agencies in JCOMM, to try and balance the meteorological involvement.

184 **The Executive Council thanked** Canada for its commitment to host JCOMM-II.

4.4.4 Proposal to Investigate Marine Impacts on Lowland Agriculture and Coastal Resources (MILAC)

185 The Co-President of the Joint WMO–IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM), Johannes Guddal, introduced this item. This interagency project on Marine Impacts on Lowland Agriculture and Coastal Resources (MILAC) is aimed at reducing the impact of natural disasters in coastal lowlands due to tropical cyclones, which often cause severe damage to the coastal-zone population, agriculture, freshwater sources, environment, and infrastructure in general. In view of the impact of these processes in the economy of the coastal-zones of developing countries, the IOC is fundamentally interested in MILAC and the development of a successful strategy for its execution.

186 The core of MILAC is the forecasting or hindcasting of storm surges and waves caused by tropical cyclones and leading to inundation and other forms of damage, starting with a socio-economic analysis and a consequent choice of strategy to meet users' needs. MILAC was endorsed by the GOOS Steering Committee at its 7th Session, in 2004. It was also endorsed by WMO through Decision WMO Cg-XIV. This project is aimed at the development of permanent, routine oceanographic services, to be offered by oceanographic and meteorological institutions as a contribution to the integrated coastal management and disaster-prevention activities of their Member States. In contrast with previous experiences, its focus on services instead of instrumental infrastructure makes it an initiative that might be attractive to financial institutions responsible for international development aid.

187 To promote synergy through collaboration, MILAC is open to the participation of institutional partners from within the meteorological and oceanographic communities and from international consortia, such as the International Secretariat for Disaster Reduction, and the Prevention Consortium.

188 **The Executive Council recognized** that MILAC embodied a concept that could be incorporated into GOOS regional projects, each in the framework of the corresponding GOOS Regional Alliance, with a clear definition of the end products and services, capacity-building and observing systems, with a view to meeting the specific needs of each region. **It also recognized** that the initial activities could immediately be carried out at low cost, and that a realistic funding strategy developed in full consultation with the potential funding agencies for the subsequent activities would facilitate project execution.

189 India reminded the Executive Council that Indian Ocean-GOOS (IOGOOS) had endorsed a MILAC−India project at its 2nd Session, in April 2004, with the proviso that the focus be on developing operational capability and that the knowledge generated by MILAC–India be adaptable to the entire Indian Ocean region. India expressed its willingness to be a pilot site for this project and to lead this initiative.

190 **The Executive Council thanked** India for this leadership initiative. **It requested**: (i) JCOMM and IOGOOS, in consultation with the Executive Secretary and the Secretary-General of WMO, to develop a MILAC project for the Indian Ocean region, as a pilot project of IOGOOS; (ii) JCOMM to identify those observations that would be required as input to a MILAC Indian Ocean regional project and for storm-surge damage forecasts and assessment, taking into account ongoing programmes, such as GLOSS and the Tropical Cyclone Programme of WMO; and (iii) JCOMM to finalize a comprehensive project proposal for consideration by the Assembly at its 23rd Session, in 2005.

191 **The Executive Council called on** Member States to support the planning and implementation of this project.

4.4.5 Implications of the Decisions of the Conference of the Parties to the Framework Convention on Climate Change for the Follow-up to the GCOS Adequacy Report

192 The Chairman of the GCOS Steering Committee, Paul Mason, introduced this item. An important conclusion of the Second Report on the Adequacy of the Global Observing Systems for Climate in Support of the UNFCCC was that, despite significant progress, ocean networks are not yet adequate to meet the needs of the Parties for most variables and in most regions of the planet.

193 The Adequacy Report was presented to the 9th Conference of the Parties (COP) to the UNFCCC (2003). The main decisions of the Conference relevant to the ocean domain were: (i) a request that the Global Climate Observing System secretariat, under the guidance of the Global Climate Observing System Steering Committee, taking into account international and intergovernmental mechanisms, co-ordinate the development of a phased 5- to 10-year implementation plan for the integrated global observing systems for climate, using a mix of high-quality satellite and *in situ* measurements, dedicated infrastructure and targeted capacity-building; (ii) a request that the Global Climate Observing System conduct an open review of the implementation plan before its completion and submit the final implementation plan to the Subsidiary Body for Scientific and Technological Advice (SBSTA), at its 22nd Session in June 2005; and (iii) an invitation to the Global Climate Observing System secretariat, in conjunction with the Global Ocean Observing System Project Office, to provide information to the SBSTA,

at its 22nd Session, on progress in implementing the initial ocean climate observing system. The SBSTA has noted the importance of and current weaknesses in the ocean networks.

194 The comments of the IOC Member States on the draft implementation plan for the integrated global observing systems for climate will be taken into account for the final implementation plan, which is to be submitted to the Subsidiary Body for Scientific and Technological Advice at its 22nd Session.

195 GOOS, through its Ocean Observations Panel for Climate (OOPC), should work closely with GCOS in developing the progress report requested by the COP, and should compile information on the status of national contributions to the ocean networks. In view of the efforts of the Group on Earth Observations (GEO) to develop a 10-year implementation plan for a comprehensive, co-ordinated and sustained Earth observing system, IOC should work with GCOS to ensure that the ocean and climate observations of the GEO plan are consistent with the implementation plan developed by GCOS at the request of the Conference of the Parties to the UNFCCC (under (i) in paragraph 193, above).

196 Australia suggested that the IOC should, within its resources, provide assistance in the development of inputs to the report to SBSTA-22 on the status of the ocean observing systems for climate. However, the IOC does not have today a formal framework for doing so, and that, as the coastal and global elements of GOOS develop, the IOC would have to develop the capacity to report systematically on the state of the observing system.

197 **The Executive Council welcomed** Paul Mason's report and the decisions of COP-9; **it instructed** the Executive Secretary to: (i) take, through the GOOS Project Office, all measures necessary to implement those elements of GOOS that directly contribute to the Global Climate Observing System, GCOS; (ii) through the GOOS Project Office and OOPC, compile and provide information to the 22nd Session of the Subsidiary Body for Scientific and Technological Advice on progress in implementing the initial ocean climate observing system; (iii) include in this compilation the status of national contributions to the ocean networks, which should be requested from Member States in a systematic manner by the GOOS Project Office.

198 **The Executive Council called on** the Member States to: (i) take immediate action to improve the ocean observing networks under their responsibility; (ii) provide the requested information to the GOOS Project Office in recognition of the importance of developing comprehensive information on the ocean climate observing system for the planning and implementation of priority improvements; and (iii) for those Member States participating in GEO, to ensure that the ocean and climate components of the GEO implementation plan are consistent with those of the UNFCCC implementation plan developed by GCOS.

4.5 REGIONAL ACTIVITIES

4.5.1 IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE): IOCARIBE-VIII Report

199 The Head of the IOCARIBE Regional Secretariat, Cesar Toro, introduced this item. The Executive Summary of the 8th Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions (Recife, 14−17 April 2004) is in document IOC/SC-IOCARIBE-VIII/3s.

200 At this Session, IOCARIBE gave special attention to the development of programmes during the intersessional period 2002−2004, particularly: IOCARIBE-GOOS; ODINCARSA; HAB-ANCA (Harmful Algal Blooms–Algas Nocivas del Caribe); The Caribbean Large Marine

Ecosystem (C-LME) proposal for funding (by GEF/PDF-B) that was distributed in April 2004 to countries for review and endorsement; the Pacific Central American Large Marine Ecosystem (PAC-LME); and the Integrated Coastal Area Management (ICAM) initiative for Latin America and the Caribbean.

201 In response to the 22nd IOC Assembly mandate to visit countries and to strengthen national institutions and promote the establishment of National Oceanographic Commissions, two missions to the Member States of the region were carried out, one to CARICOM countries (Barbados, Guyana, Jamaica and Trinidad & Tobago, in March 2004) and a second to Central American countries (Belize, Guatemala, Nicaragua and Panama, in May 2004).

202 Among the main regional needs defined as a result of these missions are the development of a minimum critical mass of experts in the region; coastal-area management tools; and particularly, coastal erosion mitigation, coral-reef protection and beach management. Some short-term actions were also proposed: the organization of a Caribbean Ocean and Coasts Forum and a high-level Regional Conference on Ocean Affairs and Marine Science; and the drafting of a Memorandum of Co-operation with CARICOM.

203 At the Wider Caribbean Region Stakeholders Conference on the White Water to Blue Water (WW2BW; March, 2004), and in response to the UN General Assembly Resolution 56/12 of 2001, IOC/IOCARIBE, UNEP/RCU and the Swedish International Development Agency launched a partnership called “Regional Network in Marine Science and Technology for the Caribbean: the Know-Why Network.”

204 As a follow-up to the informal discussions between the Latin American and Caribbean Member States of the region and the Canadian International Development Agency (CIDA) during the 22nd Session of the IOC Assembly and during the WW2BW Conference, IOCARIBE-VIII discussed, recommended and approved in principle the proposed draft programme for Latin America and Caribbean (LAC) Hemispheric Marine Environmental Criteria Capacity-Building Programme aimed at upgrading the LAC marine scientific environmental management capacity.

205 Cuba expressed its satisfaction with the work done in the region since the re-establishment, on a permanent basis, of the Secretariat for the Regional Sub-Commission. Cuba emphasized the need to respond to Recommendation IOCARIBE-VI.11 calling for the elaboration of a Scientific Regional Agenda in Marine Affairs. To this end, Cuba supported the convening of a regional meeting of governmental and non-governmental organizations that are developing activities and programmes in the Wider Caribbean.

206 India recalled its long working association with the IOCARIBE region through the provision of the services of the Indian Research Vessel *Sagar Kanya* for the EEZ programme. India offered the co-operative efforts between India and IOCARIBE in several areas, including ocean energy and observations.

207 Mexico expressed its support for the initiative on capacity-building in Latin America and the Caribbean proposed by IOC and CIDA for the region.

208 Germany indicated the work it has accomplished in training and capacity-building in the field of harmful algal blooms and the possibility of enhancing such work to include the HAB–ANCA Group of IOCARIBE. Germany also confirmed its offer to the Assembly, at its 22nd Session, to host another Workshop on Analytical Methods in the HAB Programme, in 2005. This

Workshop will, of course, be open to members of the HAB–ANCA Group. Details will be provided to the Executive Secretary soon.

209 Canada reaffirmed its support to the IOC programmes and projects in the region and particularly to the initiative on capacity-building in Latin America and the Caribbean. Canada stressed the need to consider capacity-building at the national policy-making level and the lack of a long-term programme developing technical expertise at the field level to support the work of scientists.

210 Colombia said that its government intends to continue its support to IOCARIBE by providing the offices and manpower for the Secretariat in Cartagena. The Colombian Ocean Commission has been given governmental approval to actively participate in the Regional ICAM project.

211 The Chairman of IOCARIBE, Marco-Polo Bernal, expressed his satisfaction with the development and the achievements of the IOCARIBE programmes and projects; he emphasized the results achieved by the Sub-Commission in the last three years, which reflected well the investment and indicated a positive trend.

212 **The Executive Council expressed** its appreciation of the excellent work being done by IOCARIBE; **it thanked** the Government of Brazil for hosting the 8th Session of IOCARIBE in Recife, and the Government of Colombia for continuing to host the IOCARIBE Secretariat.

213 **The Executive Council endorsed** the Executive Summary of the report of IOCARIBE-VIII and **adopted** Resolution EC-XXXVII.7.

4.5.2 Review of Status of IOC Decentralized Offices: Executive Secretary's Report

214 The Executive Secretary introduced this item. He reminded Member States that the IOC Assembly, at its 22nd Session, requested the Executive Secretary to review the present status of existing IOC offices, in consultation with the host countries, taking into consideration the adopted guidelines, and to report to the 37th Session of the Executive Council.

215 The Executive Secretary's analysis of the current status of the offices shows that: (i) IOC's decentralized offices mostly comply with the established guidelines, although some specific adjustments need to be made gradually; (ii) the existing GOOS offices correspond most closely to Programme Offices according to the definition in the Guidelines. He highlighted the need to include a regular performance evaluation clause when establishing IOC's decentralized offices, focused on the effectiveness of each office in programme implementation at the regional level.

216 Several Member States supported the suggestion of having a regular performance evaluation clause when establishing IOC decentralized offices.

217 **The Executive Council accepted** the report of the Executive Secretary.

4.5.3 Concept Paper on the Modalities of Implementation of IOC Programmes in Regions

218 The Vice-Chairman IOC charged with following regional affairs, Mario Ruivo, introduced this item. Resolutions of the 56th and 57th Sessions of the UN General Assembly (A/RES/56/12; A/RES/57/141) called on IOC to act as a focal point, interacting, as appropriate,

with regional fishery, environmental and scientific bodies, and emphasized the need for cooperation and coordination amongst regional organizations in integrated ocean management.

219 The World Summit on Sustainable Development and the UN General Assembly's Informal Consultative Process on Oceans and the Law of the Sea have both encouraged co-operation in ocean affairs at regional and subregional levels.

220 The above-mentioned resolutions and the present UNESCO policy of decentralization formed the background for the decision of the IOC Assembly, at its 22nd Session, calling for the preparation of a Concept Paper based on intersessional consultations, to be submitted to the Executive Council, on the roles of the Regional Sub-Commissions in the linkages between IOC's global and regional programmes.

221 The IOC Officers, at their meeting in January 2004, offered their guidance to this process, suggesting that intersessional consultations should include Chairpersons or alternative officers of IOC Regional Subsidiary Bodies (RSB), the Vice-Chairman IOC charged with following regional issues, and the IOC Executive Secretary. Accordingly, the Secretariat, in consultation with the Vice-Chairman, prepared a background document with a view to stimulating discussions, comments and guidance from Member States on the elaboration of the Concept Paper.

222 An initial review of the RSBs indicated that, though funding for infrastructure and overheads has remained largely static in recent years, the IOC had succeeded in supporting GOOS during this period. Fortunately, GOOS, Integrated Coastal Area Management (ICAM) and the IODE programmes have also been able to attract extra-budgetary funds. Prominent too are projects in Africa that have received UNESCO funds and benefited from its cross-disciplinary approaches. Overall, however, the funding and staffing have been considered to be inadequate, and substantial differences between RSBs persist.

223 Though the major IOC programmes are designed with a global perspective, they are normally regionally implemented. It is therefore critically important to adequately inform regions of their overall resource position within the major global programmes, i.e. Ocean and Climate, ICAM, IODE, HAB, GOOS, etc. This would permit informed discussions on the quantum that the different regions will receive during the consideration of overall programme allocations, and not only during the discussions of the funding of regional programme support, i.e. IOCARIBE, WESTPAC, IOCEA, IOCWIO, IOCINDIO, BSRC, etc.

224 Some issues for the Concept Paper were identified for initial comment and guidance by the Executive Council. The Council was asked for suggestions that would lead to strengthening the RSBs, so that they would be able to respond to: (i) Member States' aspirations and goals; (ii) regional science, service and capacity needs; and (iii) cooperation with other regional organizations of the UN system and other appropriate bodies.

225 Numerous Member States noted the increasing role that RSBs needed to play to become effective in implementing IOC global programmes. There was general agreement that regional implementation of global programmes can stimulate co-operation, focus efforts, and attract major funding, and therefore needed to be incorporated within the purview of the RSBs. Reference was also made to institutional mechanisms that facilitate links and relationships between the RSBs and the regional and technical bodies of the Commission, as well as with other bodies cooperating with the Commission.

226 Representatives of IOCINDIO and IOCWIO gave examples of successful integration of IOC mainline programmes within their regional framework.

227 There was a general positive reaction to the issues suggested for the drafting of the Concept Paper and to the views expressed on additional aspects needing further detailing. It was suggested that some guiding principles, such as scientific understanding, capacity to carry out marine assessments, and implementation capabilities, be used when preparing the Concept Paper.

228 **The Executive Council endorsed** the steps suggested for finalizing the Concept Paper, namely:

(i) To establish an intersessional working group of IOC Regional Subsidiary Body representatives, under the Chairmanship of the Vice-Chair of IOC dealing with regions, which, working by electronic communication should construct the Concept Paper (experts and associates may be invited to contribute, if appropriate);

(ii) To organize broader consultations, also by electronic means, to keep all Member States informed about the evolution of the draft Concept Paper;

(iii) To finalize the draft Concept Paper within the statutory guidelines, so as to enable its translation into the working languages of the Commission and timely distribution to Member States for consideration by the 23rd Session of the Assembly in 2005;

(iv) To convene a "wrap-up" meeting with representatives of the RSBs on the draft Concept Paper, on the day prior to the opening day of the 23rd Session of the Assembly, in 2005;

(v) To present the draft Concept Paper to the Assembly in 2005, for its consideration.

4.5.4 Memoranda of Understanding Templates for Regional Programme and Project Offices: Intersessional Working Group Report

229 The Chairman of the Intersessional Working Group on Guidelines for the Establishment of IOC Decentralized Offices, Guillermo García Montero, introduced this item. He recalled that, to promote the implementation of its regional programmes and the regional components of IOC global programmes, the IOC needs appropriately decentralized offices to facilitate co-operation amongst the regional Member States and to co-ordinate regional activities.

230 The IOC Assembly, through Resolution XXII-1, adopted Guidelines for the Establishment of Decentralized Offices (summary report XXII/3 Annex VII). In response to the Assembly's request to the Intersessional Working Group to complete its tasks *"by preparing the framework Memoranda of Understanding for regional, programme and project offices, for submission to the IOC Executive Council at its 37th Session"*, the drafts of three Memoranda of Understanding templates (corresponding to regional, project and programme offices) have been completed (document IOC/EC-XXXVII/2 Annex 13).

231 **The Executive Council thanked** the Intersessional Working Group, and its Chairman in particular, for completing the tasks assigned to it, and **dissolved** it.

232 **The Executive Council endorsed** the Framework Memoranda of Understanding for IOC Project, Programme and Regional Offices, with the following amendments: the Memorandum of Understanding for IOC Project Offices, Article II.1 sub-item 3, shall now start with "If

applicable". The Memorandum of Understanding for IOC Programme Offices, Article II.1 sub-item 4, shall now start with "If applicable".

233 **The Executive Council adopted** the Framework Memoranda of Understanding for Regional, Programme and Project Offices, which are to be used as templates guiding the negotiations with Member States on the establishment of such offices.

234 **The Executive Council agreed** that the Guidelines for the Establishment of IOC Decentralized Offices, and the Framework Memoranda of Understanding for Regional, Programme and Project Offices, be revisited during the 23rd Session of the IOC Assembly, in conjunction with the Assembly's consideration of the Concept Paper on the Modalities of Implementation of IOC Programmes in Regions.

4.6 UN CONVENTIONS AND AGREEMENTS

4.6.1 IOC/ABE-LOS: Report of the Chairman

235 The Chairman of the IOC Advisory Body of Experts on the Law of the Sea (IOC/ABE-LOS), Elie Jarmache, introduced this item. IOC/ABE-LOS, as a primary subsidiary body, is required to report to the Executive Council on its activities in the intersessional period and on the outcome of its 4th Session.

236 He thanked the Government of Greece for having hosted the 4th Session of IOC/ABE-LOS (4−7 May 2004). The main items of discussion were: (i) the legal framework in the context of UNCLOS that is applicable to the collection of oceanographic data; (ii) the IOC internal procedures relative to the effective and appropriate application of Article 247 of UNCLOS; and (iii) the work previously agreed by the IOC Assembly on the Practice of Member States Regarding Marine Scientific Research (MSR) and Transfer of Marine Technology (TMT).

237 The Chairman of IOC/ABE-LOS informed the Executive Council that he had asked the Chairman of the open-ended Working Sub-Group on the IOC Internal Procedure Relative to the Effective and Appropriate Use of Article 247 of UNCLOS, Professor Alfred Soons (The Netherlands), to circulate a draft text at the end of September 2004. He noted that IOC/ABE-LOS should finalize its work on Article 247 and draw the conclusions to be submitted to the IOC Assembly at its 23rd Session.

238 In view of the practice of Member States in the application of Parts XIII and XIV of UNCLOS, he noted that a new working sub-group will be established in order to accomplish the work already begun by the Secretariat on Questionnaire No. 3 (on Member State practices mentioned here above).

239 The Chairman of IOC/ABE-LOS informed the Council that Professor Kari Hakapää (Finland) was designated Chairman of the Working Sub-Group on the Legal Framework in the Context of UNCLOS Applicable to the Collection of Oceanographic Data. There is a question about the nature of the activities being grouped under the name of operational oceanography. Are these activities covered by the regime of marine scientific research? He suggested that, nowadays, marine scientific research is to be considered *vis-à-vis* the emerging needs of operational oceanography and that we are now in a transition phase.

240 Finally, the Chairman of IOC/ABE-LOS invited Member States to increase their financial support to the work of IOC/ABE-LOS whose budget in the regular programme is still very low in relation to its commitments; it should be reinforced, for the benefit of IOC.

241 Argentina stated that IOC/ABE-LOS is dealing with very delicate matters that need time to be discussed more thoroughly; this view was shared by several other Member States. Argentina offered to host the 5th Session of IOC/ABE-LOS in Buenos Aires.

242 The Russian Federation urged IOC/ABE-LOS to develop a legal framework for the protection of equipment used in the collection of oceanographic data, in view of the present lack of international regulations in this field.

243 China expressed its support to IOC/ABE-LOS and commended its work; this position was shared by several other Member States. China is also considering the possibility of hosting the next session of IOC/ABE-LOS.

244 Some Member States mentioned that IOC/ABE-LOS should deal also with matters linked to biodiversity. Other Member States, however, expressed their view that IOC/ABE-LOS should first complete the tasks assigned to it under its present mandate before new tasks were considered.

245 Some Member States expressed their opposition to the Draft Resolution presented under this item. Australia, in particular, regretted the late reception of the Summary Report of the 4th Session of IOC/ABE-LOS and requested the withdrawal of the Draft Resolution in favour of an Executive Council Decision on this matter, in the body of the Summary Report.

246 Given the divergence of views, the Chairman requested Germany to chair an Intrasessional Working Group to reconsider, or redraft, the Draft Resolution, taking into account the views expressed in plenary. Brazil, Canada, Germany (Chairperson), Portugal, the Russian Federation, UK, and USA, participated. In the light of this charge, the Chairman decided to prolong the deadline for submission of DRs until the Intrasessional Working Group had completed its task (*de facto*, Saturday 26 June 2004, 16.00 h).

247 The Chairwoman of I-GOOS reminded the Executive Council of the importance of the I-GOOS Programme to the work of IOC/ABE-LOS and offered the expertise of Comandante Núñez (Chile) as an I-GOOS advisor to the Advisory Body of Experts.

248 **The Executive Council endorsed** the oral report on the 4th Session of IOC/ABE-LOS presented by its Chairman.

249 **The Executive Council thanked** Argentina and China for their offer to host the 5th Session of IOC/ABE-LOS and instructed the IOC Executive Secretary to bear these offers in mind when the dates and place of the Body's next session are being decided.

250 **The Executive Council adopted** Resolution EC-XXXVII.8.

4.7 CAPACITY-BUILDING, TEMA AND PUBLIC AWARENESS

4.7.1 Draft IOC Strategy for Capacity-Building

251 The Head of the Capacity-Building Section, Ehrlich Desa, introduced this item. He invited Professor Venugopal Ittekkot, Director, Centre for Tropical Marine Ecology, University of Bremen (Germany) to present the Draft Strategy for Capacity-Building.

252 Beginning with a description of current IOC capacity-building activities, in which programme lifetimes determined training times, Prof. Ittekkot noted the departure that the Oceanographic Data and Information Network (ODIN) programme was making by integrating

ocean science and operational lines into data-management programmes. The recent appointment of a professional staff member to develop and implement an overall Strategy for Capacity-Building made the IOC unique amongst organizations in respect of its commitment to a sustainable, integrated approach to capacity-building.

253 He described the currently available resources in support of capacity-building related to IOC programmes, and the mission statement that set down the principles applied in selecting capacity-building activities that would be supported. He then enumerated the major proposed activities in the medium term and the various IOC initiatives (current and proposed) that could be used in their implementation. The medium-term goal was to set up autonomous centres where user-demanded products and services would be created, and where science that increased knowledge of the ocean could be carried out. The proposed Strategy, though concentrating primarily on the coastal zone, does not neglect the open ocean, recognizing it is an integral part of coastal-zone processes and of great importance over the longer term. The tools of remote sensing and modelling would also be encouraged. He concluded that the crux of the Strategy is to *"shift from being programme–based to being issue-based."*

254 The Executive Secretary outlined the status position of capacity-building within the IOC. The current emphasis on programme-based activities was perhaps due to the 7-year gap during which there was no unit in the Secretariat charged with overseeing capacity-building. He noted that the IOC Strategy for Capacity- Building should be integrated across all programmes and should provide a strong link with regional activities. A focus on issues, rather than immediate programme needs, would assist the IOC in securing access to international development-aid.

255 **The Executive Council thanked** Professor Ittekkot for his contribution to the draft IOC Strategy for Capacity-Building and **welcomed** the improved IOC co-ordination of capacity-building.

256 Many Member States and international organizations endorsed the Strategy for Capacity-Building, offered to share their experience and pledged their continued support for IOC capacity-building activities. Finland and India, in particular, expressed their appreciation of the emphasis on issue-based capacity-building.

257 Several Member States welcomed the improved supervisory management of capacity-building activities at the IOC, including the higher visibility this would bring to capacity-building programmes. Several Member States also emphasized the importance of quantitatively evaluating the IOC's future capacity-building activities.

258 Cuba suggested that the Capacity-Building Section should act as an "auditor" in the IOC, with capacity-building activities approved by the Section, and reported in an integrated, periodic and systematic manner to the Member States.

259 Many Member States emphasized the role of IOC Regional Subsidiary Bodies and GOOS Regional Alliances in capacity-building, in regional assessments of needs, and in the implementation of regional components of global programmes. Turkey particularly pointed to the provision of remotely sensed data.

260 Several Member States stressed the importance of providing technical support to developing countries and of creating a pool of scientists in these countries. They also emphasized the role of continuing higher education in capacity-building.

261 Several Member States and international organizations asked that the role of the JCOMM–GOOS Capacity-Building Panel be considered in the further development of the Strategy For Capacity-Building.

262 Canada suggested that assistance in addressing social and policy issues, as well as institutional growth or clustering, should be considered in IOC capacity-building efforts. And The Philippines stressed the importance of an interface with social issues, such as pollution, population and political will.

263 The USA encouraged a review of past IOC capacity-building efforts so that the lessons learned could be applied in the future, and offered to host a workshop on the development of an implementation plan based on the Strategy. It suggested that the implementation plan should focus on the medium term, but should include mechanisms for continued conceptual development of long-term activities.

264 The USA and Australia suggested that the regional subsidiary bodies should be considered part of an overall strategy including the observational programmes and the Member States themselves. They both expressed a desire to see capacity-building efforts organized to support other IOC Main Lines of Action.

265 **The Executive Council adopted** Resolution EC-XXXVII.9.

4.7.2 IOC Plan for Capacity-Building in Remote Sensing in Oceanography

266 The representative of the Committee on Earth Observation Satellites (CEOS), Michael Hales (NOAA, USA), introduced this item. He briefly reviewed the CEOS capacity-building efforts, and noted opportunities for future collaboration between IOC and CEOS.

267 Mr Hales mentioned that CEOS works on a best-effort basis and is not a donor organization. However, he strongly emphasized that the CEOS membership does have significant satellite-data assets, access to remote-sensing expertise, access to individual space agency resources, and a willingness to apply leverage and provide these resources in response to specific requests.

268 The groups within CEOS to facilitate this capacity-building are the CEOS Working Group on Education, Training and Capacity Building (WGEdu) and the CEOS WSSD Follow-up Programme (CEOS-WSSD).

269 The CEOS-WSSD was designed around the 12 specific references to the role of satellite and remote-sensing data in sustainable development contained in the WSSD Plan of Implementation. These 12 references overlap in five key areas as follows: capacity-building; water-resource management; disaster management and conflicts; climate change; and global mapping, land-use monitoring, and GIS.

270 At the CEOS WSSD Follow-up Programme Workshop on Module 1, Education, Training and Capacity-Building held at Stellenbosch, South Africa, on 2–3 October 2003, co-funded by IOC and NOAA, satellite-data users throughout Africa gathered to develop a set of recommendations for future CEOS capacity-building effort. These recommendations were also accompanied by 13 recommendations to put them in an African context, and an African Advisory Group was formed to help continue the dialogue between CEOS and developing countries.

271 The CEOS Working Group on Training and Education (WGEdu) has recently made substantial progress. Notably, it has consolidated CEOS Members' web-based capacity-building resources in a single portal website. This website also includes contributions from the IOC/UNESCO Bilko Learning Project. WGEdu also drafted the CEOS Principles of Satellite Data Provision in Support of Earth Observation Training and Education which were approved by CEOS Agencies. These principles, in general, endeavour to provide comprehensive and complete data sets for education, training and capacity-building purposes.

272 CEOS wishes to continue its strong working relationship with IOC in the months to come, specifically on the following activities: CSD Milestones, ROOFS−Africa and the CEOS WSSD Follow-up Programme, and capacity-building in the framework of: GMA; GOOS−JCOMM; IOCARIBE-GOOS; GEO; and IGOS (G3OS).

273 **The Executive Council expressed** its support for the plan to improve the use of remote sensing in oceanography.

274 **The Executive Council recommended** the Member States to develop mechanisms for remote-sensing capacity-building at a national level.

275 **The Executive Council recognized** that remote sensing data should be available in a format that was usable and useful for developing countries.

276 The Russian Federation offered the University of St Petersburg to host an IOC UNESCO Chair in Capacity-Building in Remote Sensing and Modelling.

277 **The Executive Council adopted** Resolution EC-XXXVII.10.

5. ADMINISTRATION AND MANAGEMENT

5.1 DRAFT PROGRAMME AND BUDGET FOR 2006–2007

278 The Vice-Chairman IOC charged with following financial affairs and Chairman of the Financial Committee, Capitán de Navío Javier A. Valladares, introduced this item. He informed the Executive Council of the work accomplished by the Financial Committee (Brazil, Japan, France, Portugal, United Kingdom and the USA).

279 The first meeting of the Committee was devoted to the examination of the progress report on budget execution for the biennium 2002−2003 and the outline of the IOC budget structure for 2004−2005, as in Annexes 2 and 2 Add to the Action Paper (document IOC/EC-XXXVII/2).

280 At its second meeting, the Committee discussed and approved the proposed initial guidelines on the draft programme for 2006−2007 (document IOC/EC-XXXVII/2 Annex 16 rev).

281 The third meeting was devoted to preparing the Draft Resolution on this item. The Committee took note of the fact that IOC has benefited from the allocation to it by UNESCO of an "incompressible" budget for its established level of Regular-Budget-supported activities, and that the increasing interest in IOC activities has attracted substantial supplementary support from Member States, notably through contributions to the IOC Special Account.

282 However, the Committee shared the concern that, as a result of the increasing long-term responsibilities of the IOC in global ocean issues, the resources available to the IOC will fall

below the level needed to sustain its work, and that extra-budgetary contributions, although substantial, cannot be expected to fill this gap.

283 The Committee decided to refer, in the Draft Resolution on the present agenda item, to conclusion 4 of the External Evaluation Report (which was presented to the IOC Executive Council, at its 33rd Session, as document IOC/EC-XXXIII/2 Annex 3) and in particular its recommendation 4.2 that urgent steps be taken to increase the core professional staffing of the IOC Secretariat.

284 To improve the IOC's internal planning and to address more efficiently the staffing problem, the Committee considered it appropriate that the Executive Council request the IOC Executive Secretary to report to the IOC Assembly, at its 23rd Session, on the appropriate allocation of permanent staff to fulfil effectively and efficiently the IOC's objectives in the next Medium-Term Strategy for 2008−2013.

285 **The Executive Council approved** the initial guidelines for the IOC draft programme 2006–2007 and **adopted** Resolution EC-XXXVII.11.

5.2 DATES AND PLACE OF THE THIRTY-EIGHTH AND THIRTY-NINTH SESSIONS OF THE EXECUTIVE COUNCIL

286 The Executive Secretary introduced this item. He referred, in particular, to the recommendations of the Assembly at its 22nd Session on this issue.

287 The Executive Council, at its 38th Session in 2005, will act as the Steering Committee of the 23rd Session of the Assembly and will meet for half a day on the day (Monday 20 June 2005) preceding the opening of the Assembly.

288 Some Member States, although appreciative of the information session in the four working languages of the IOC, suggested this could be somewhat reduced.

289 Chile suggested that the 39th Session of the Executive Council could be extended by one day.

290 **The Executive Council briefly considered** the experience gained from the present session, which spanned five and a half working days, including a one-day information session and **instructed** the IOC Executive Secretary, in consultation with the IOC Officers, to draw the lessons from this experience and apply them in the planning of the 39th Session of the Executive Council.

291 **The Executive Council decided** to hold its 39th Session from Wednesday 21 to Tuesday 27 June 2006 or Wednesday 28 June, leaving the final decision to the IOC Officers and the Executive Secretary, taking into account the Provisional Agenda for the 39th Session.

6. ADOPTION OF RESOLUTIONS AND SUMMARY REPORT

292 Haiquing Li, Chairman of the Resolutions Committee, reported on the work of the Committee during this Executive Council and its findings. He recalled the Committee's Guidelines as presented in document IOC/INF-734 Rev. on the preparation of Resolutions, as a useful document codifying the IOC practices in preparing and reviewing draft resolutions. He highlighted some difficulties encountered in some cases, when the Committee had to review

Draft Resolutions that had not been discussed during the plenary session of the Council. In these cases, the Chairman of the Committee was entrusted to verify that the Draft Resolution was consistent with the debate of the plenary. Mr Li thanked the members of the Committee as well as the Technical Secretary for their intense work.

293 **The Executive Council adopted** the Summary Report of its 37th Session and the Resolutions thereof (given in Annex II).

7. CLOSURE

294 The Chairman closed the 37th Session of the IOC Executive Council at 18.05 h on 29 June 2004.

ANNEX I

AGENDA

1. OPENING

2. ORGANIZATION OF THE SESSION

2.1 ADOPTION OF THE AGENDA
2.2 DESIGNATION OF THE RAPPORTEUR
2.3 ESTABLISHMENT OF INTRASESSIONAL COMMITTEES
2.4 INTRODUCTION OF TIMETABLE AND DOCUMENTATION
2.5 ROGER REVELLE MEMORIAL LECTURE

3. DEVELOPMENTS SINCE THE 22nd SESSION OF THE IOC ASSEMBLY

3.1 REPORT OF THE EXECUTIVE SECRETARY ON PROGRAMME IMPLEMENTATION
[Rule of Procedure No 49.1]
3.2 REPORT OF THE EXECUTIVE SECRETARY ON THE EARTH OBSERVATION SUMMIT
[Rule of Procedure No. 21.2a]

4. PROGRAMME MATTERS REQUIRING DECISIONS BY THE EXECUTIVE COUNCIL

4.1 GENERAL POLICY ISSUES

4.1.1 Feasibility of Establishing a Regular Process for the Assessment of the State of the Marine Environment
[Res. EC XXXV.3, Res. XXII-2; Rule of Procedure No. 21.2a]

4.1.2 Prioritized Follow-up of Key Recommendations of the External Evaluation
[Rec. XXI Item 4.4 para. 94; Dec. EC-XXXV Item 3.3. para 47; Rule of Procedure No. 21.2b]

4.1.3 Memorandum of Understanding ICES–IOC
[Inst. XXII Item 4.4.1.2. para 206; Res.XXII-9; Rule of Procedure No. 21.2a]

4.1.4 Memorandum of Understanding UNEP–IOC
[Inst. XXII Item 4.4.1.2. para 202; Rule of Procedure No. 21.2a]

4.1.5 Joint SCAR–SCOR–IOC Coordination of Southern Ocean Studies
[Rule of Procedure No. 21.2f]

4.1.6 IOC Participation in the International Polar Year 2007–2008
[Rule of Procedure No. 21.2c]

4.1.7 International Year of Planet Earth 2005–2007
[Rule of Procedure No. 21.2c]

4.2 OCEAN SCIENCES SECTION

4.2.1 The New GESAMP
[Rule of Procedure No. 21.2c]

4.2.2 SCOR–IOC Symposium on Quantitative Ecosystem Indicators for Fisheries Management [Rule of Procedure No. 21.2c]

4.3 OCEAN SERVICES SECTION

4.3.1 International Co-ordination Group for the Tsunami Warning System in the Pacific: ITSU-XIX Report
[Rule of Procedure No. 48.3]

4.3.2 Report of the 9th Meeting of the Consultative Group on Ocean Mapping (CGOM)
[Rule of Procedure No. 48.3]

4.4 OPERATIONAL OBSERVING SYSTEMS SECTION

4.4.1 Review of the Structure of the Global Ocean Observing System (GOOS): Report of the Intersessional Working Group
[Res. XXII-4; Rule of Procedure No. 21.2a]

4.4.2 Report on Support for the GOOS Project Office and the GOOS Capacity-Building Programme
[Res. XXII-8; Rule of Procedure No. 21.2a]

4.4.3 Report of JCOMM
[Rule of Procedure No. 48.3]

4.4.4 Proposal to Investigate Marine Impacts on Lowland Agriculture and Coastal Resources (MILAC)
[Rule of Procedure No. 21.2f]

4.4.5 Implications of the Decisions of the Conference of the Parties to the Framework Convention on Climate Change for the Follow-up of the GCOS Adequacy Report
[Call to MS XXII Item 4.4.3 para. 227; Rule of Procedure No. 21.2c]

4.5 REGIONAL ACTIVITIES

4.5.1 IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE): IOCARIBE-VIII Report
[Rule of Procedure No. 48.3]

4.5.2 Review of Status of IOC Decentralized Offices: Executive Secretary's Report
[Inst. XXII Item 4.1.3 para 54; Rule of Procedure No. 21.2 a]

4.5.3 Concept Paper on the Modalities of Implementation of IOC Programmes in Regions
[Inst. XXII Item 4.5.2. para 272; Rule of Procedure No. 21.2 a]

4.5.4 Memoranda of Understanding Templates for Regional Programme and Project Offices: Intersessional Working Group Report
[Inst. XXII Item 4.1.3 para. 55; Rule of Procedure No. 21.2a]

4.6 UN CONVENTIONS AND AGREEMENTS

4.6.1 IOC/ABE-LOS: Report of the Chairman
[Res. IOC XXII-12; Rule of Procedure No. 21.2a]

4.7 CAPACITY-BUILDING, TEMA AND PUBLIC AWARENESS

4.7.1 Draft IOC Strategy for Capacity-Building
[Rule of Procedure No. 21.2c]

4.7.2 IOC Plan for Capacity-Building in Remote Sensing in Oceanography
[Res. IOC XXII-13; Rule of Procedure No. 21.2a]

5. ADMINISTRATION AND MANAGEMENT

5.1 DRAFT PROGRAMME AND BUDGET FOR 2006–2007
[Rule of Procedure No. 21.2c]

5.2 DATES AND PLACE OF THE THIRTY-EIGHTH AND THIRTY-NINTH SESSIONS OF THE EXECUTIVE COUNCIL
[Rules of Procedure No. 4 and 19.2]

6. ADOPTION OF RESOLUTIONS AND SUMMARY REPORT

7. CLOSURE

ANNEX II

ADOPTED RESOLUTIONS

Resolution EC-XXXVII.1

PREPARATION FOR THE INTERNATIONAL MEETING TO REVIEW THE IMPLEMENTATION OF THE PROGRAMME OF ACTION FOR THE SUSTAINABLE DEVELOPMENT OF SMALL ISLAND DEVELOPING STATES (BARBADOS+10)

The Executive Council,

Recalling:

(i) the IOC Resolution EC-Ext.1.1 and its Annex, to support the preparation of IOC for the WSSD held in Johannesburg in 2002,

(ii) the successful participation of IOC at the Small Island Developing States Summit held in Barbados in 1994, and

(iii) the strategic importance and increased visibility granted to IOC's programmes through the WSSD Plan of Implementation, in the areas of marine sciences, services, observations and, in particular, capacity-building in these fields,

Recognizing the special character of the Small Island Developing States (SIDS) with respect to their strong interactions with the marine environment,

Noting the conclusions of the Inter-Regional Preparatory meeting of SIDS, held in Nassau, Bahamas, in January 2004,

Appreciating the address of the Chair of the Alliance of Small Islands States (AOSIS), H.E. Ambassador Koonjul, on the occasion of the opening of the 37th Session of the IOC Executive Council,

Adopts the IOC Declaration to the International Meeting to Review the Implementation of the Programme of Action for the SIDS, as annexed to this Resolution;

Instructs the IOC Executive Secretary to:

(i) forward the IOC Declaration for timely transmission and distribution at the International Meeting to be held in Mauritius in January 2005, together with an IOC Brochure on SIDS;

(ii) to copy these documents to IOC Member States and relevant UN agencies and international organizations;

(iii) to report to the 23rd Session of the IOC Assembly, on how the IOC proposes to contribute to the implementation of the Programme of Action and respond to the outcomes of the International Meeting;

Urges Member States to:

(i) participate in the SIDS International Meeting to be held in Mauritius;

(ii) support the IOC Declaration in their preparation for and statements during the International Meeting;

Invites the Director-General of UNESCO to assist the IOC in raising awareness of the importance of the ocean and regional seas to SIDS, and to further assist in promoting the IOC Declaration through the UNESCO preparatory process for Barbados+10.

Financial Implications: Regular Programme (2004–2005): US$10,000
IOC Brochure and Declaration publication: US$4,000
IOC Participation at Mauritius International Meeting: US$6,000

Annex to Resolution EC-XXXVII.1

DECLARATION

by the Intergovernmental Oceanographic Commission of UNESCO to the International Meeting to Review the Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States, Mauritius, January 2005

"The world oceans and their adjacent seas, and the living and non-living resources they contain, are a necessary element for the survival of life as we now know it". This phrase, taken from the IOC Declaration to the WSSD, held in Johannesburg in 2002, is particularly important for small islands all over our mother Earth.

In this context, society has to be aware that small islands, particularly those that are at the same time developing States (SIDS) are vulnerable. SIDS are unique, since they possess rich environments, hosting important and fragile ecosystems. These ecological resources play strategic roles in the economy and social well-being of SIDS. Because their whole environment is directly dependent upon the oceans and seas, SIDS deserve a special approach and treatment.

Bearing these factors in mind, the Member States of the Intergovernmental Oceanographic Commission, of UNESCO, recognize the specific vulnerability of Small Island Developing States and express their willingness to work together with SIDS and other international organizations, in order to build the necessary marine science and observation capacity to reach the comprehensive and holistic approach needed to address the following SIDS issues:

(i) climate change and sea-level rise;

(ii) natural disasters;

(iii) coastal and marine resources;

(iv) biodiversity resources;

(v) science and technology;

(vi) sustainable capacity development and education for sustainable development.

To this end, the international community must continue working together. The collective effort of all States is required to resolve global and regional issues, which are particularly threatening to the very existence of many SIDS. Cooperation and coordination of ocean-related programmes and activities at global and regional levels are necessary.

The Intergovernmental Oceanographic Commission of UNESCO, as the competent UN organization for ocean science and services, has many notable achievements over the last decade. Among them it is worth mentioning:

- the support of research into ocean climate and long-term weather variations in cooperation with the World Climate Research Programme which allows early forecasting of El Niño events, such as happened in 1997–1998;
- the Global Ocean Observing System (GOOS), which has been initiated in concert with companion UN agencies and ICSU, with an initial focus on the open ocean and a fast developing parallel focus on monitoring and forecasting in coastal seas;
- the improved systems for exchange and availability of ocean data and information;
- a programme on Integrated Coastal Area Management (ICAM) that is focusing attention on many of the high-priority environmental problems in coastal areas;
- an improved scientific knowledge of ocean processes and the impacts of human actions on the state of the marine environment;
- the strengthened regional mechanisms in ocean sciences and in capacity-building of developing countries in marine research and services;
- the leadership of the UN 1998 International Year of the Ocean;
- a substantial contribution to the UN General Assembly's Informal Consultative Process on Oceans and the Law of the Sea.

Taking all these facts into account, the Intergovernmental Oceanographic Commission affirms its will to:

- act as a focal point to encourage interactions in marine science and observations across relevant bodies of the UN system and other organizations;
- further develop partnership in capacity-building in marine science and services at regional and national levels, particularly with SIDS;
- develop GOOS as an operational system that could provide support to achieve the integrated management of marine and coastal resources of SIDS and also for better forecasts of the conditions of the oceans and seas;
- promote the development and implementation of programmes on Integrated Coastal Area Management in SIDS countries;
- promote the use of scientific knowledge for management decisions and policy-making and facilitate access to this knowledge through international cooperation in general, and South-South marine science cooperation in particular; and support ocean policy and governance programmes in all regions;
- work to increase public awareness of the importance of the oceans and coasts for SIDS' sustainable development, including through the Global Forum on Oceans, Coasts, and Islands.

The Member States of the Intergovernmental Oceanographic Commission invite the delegates and representatives at the International Meeting to Review the Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States to be held in Mauritius, in January 2005, to reaffirm:

1. the importance of the oceans and seas for sustainable development of SIDS;

2. the role of IOC as the competent marine science body of the UN; and
3. the need for governments and funding organizations to provide the resources necessary to implement marine science and observation capacity-building in SIDS.

The Member States of the Intergovernmental Oceanographic Commission wish to reaffirm that they are also prepared to promote, improve and strengthen international cooperation in general, and South-South marine science cooperation in particular, as a way to increase the sharing of endogenous capacity in marine and coastal science and technology knowledge.

Resolution EC-XXXVII.2

THE EARTH OBSERVATION SUMMIT (EOS)

The Executive Council,

Recalling the WSSD Plan of Implementation, particularly paragraph 132,

Noting:

(i) the Declaration from the First Earth Observation Summit held in Washington, D.C., on 31 July 2003, on improved coordination of observing systems towards a comprehensive, coordinated and sustained Earth Observing System of Systems,

(ii) the Framework Document adopted by the Second Earth Observation Summit held in Tokyo, Japan, on 25 April 2004, which describes the principal benefits of Earth observations to a broad range of user communities and the fundamental elements to be included in the 10-Year Implementation Plan for what will henceforth be called a Global Earth Observation System of Systems (GEOSS), and

(iii) the invitation to governments as well as governing bodies of international and regional organizations sponsoring existing Earth-observing systems to support GEOSS,

Recognizing the significant opportunity for GEOSS to provide socio-economic benefits, enhanced capacity-building and sustainable development through improved observations and a better understanding of the Earth system, particularly its oceans, coastal areas, natural resources, ecosystems and natural and human-induced hazards,

Noting the relevance to GEOSS of:

(i) IOC's mandate, experience and expertise,

(ii) the roles and responsibilities of other intergovernmental organizations,

Appreciating the contribution to the intergovernmental ad hoc Group on Earth Observations (GEO) of the IOC Executive Secretary as Co-chair of the subgroup on International Cooperation, and of the IOC programmes,

Noting further that many Member States participate in the GEO,

Expressing its appreciation for actions and efforts of the GEO member countries and participating organizations,

Considering the rapid pace at which a 10-Year Implementation Plan for GEOSS is progressing towards adoption at the Third Earth Observation Summit to be held on 16 February 2005 in Brussels,

Endorses the concept of GEOSS and supports its implementation to the maximum extent possible within IOC's mandate;

Emphasizes that:

(i) the 10-Year Implementation Plan should focus on meeting socio-economic needs while providing enhanced scientific understanding of earth systems;

(ii) *in situ* measurements on land, in the ocean and atmosphere should be integrated in conjunction with remote-sensing observations;

(iii) it is essential that GEOSS ensure synergy among international and national observing systems that are in place and/or planned, and recognize the existing organizational arrangements for these observation systems;

(iv) the organization to oversee the implementation of the 10-Year Plan should be inclusive in its membership and committed to a significant effort in capacity-building to enable developing countries to benefit from and contribute to GEOSS;

(v) a high-level endorsement by the UN of the GEO process and the 10-Year Implementation Plan is highly desirable;

Urges Member States:

(i) to become fully involved in the planning and implementation of GEOSS by becoming members of GEO;

(ii) to ensure their GEO national delegations are fully informed about existing and planned ocean observations;

(iii) to promote the plans and goals of IOC in this context;

Invites all participants in the GEO process to commit themselves to the development of robust, long-term institutional arrangements that ensure GEOSS is built effectively on existing observation systems and achieves widespread ownership amongst Member States, IOC governing and subsidiary bodies, and other relevant agencies;

Reaffirms the importance of full and open exchange of observations with minimum time delay and costs, recognizing relevant international instruments, national policies and legislation, and the IOC Oceanographic Data Exchange Policy (IOC Resolution XXII-6);

Instructs the IOC Executive Secretary:

(i) to continue to take an active role by fully informing the GEO of the interests of the Commission, of including GOOS as an essential component of GEOSS, and of the relevance of other core programmes, such as IODE, ICAM, and Capacity-Building;

(ii) to ensure that ocean observing systems are developed in a mode that is compatible with the 10-Year Implementation Plan, and, when the Plan is finalized, to provide advice as to how IOC programmes should operate within the framework of the GEOSS;

(iii) to work closely with counterparts in other UN agencies and programmes to ensure an effectively coordinated role for the UN system in the planning and implementation of GEOSS.

Financial implications: none

Resolution EC-XXXVII.3

THE INTERNATIONAL POLAR YEAR (IPY) 2007–2008

The Executive Council,

Noting:

(i) the call by the ICSU Executive Council for an International Polar Year in 2007–2008, and the endorsement of this concept by the Fourteenth World Meteorological Congress through WMO Resolution 34(Cg-XIV),

(ii) the recommendation by the Chairpersons of the five scientific programmes of UNESCO (IOC, IGCP, IHP, MAB and MOST), to the Director-General and the 32nd Session of the General Conference, that UNESCO be involved in the proposed International Polar Year,

(iii) the intention of ICSU and WMO to form a Joint Organizing Committee to take over responsibility for the further development of IPY 2007–2008,

Recalling the usefulness of the International Year of the Ocean as a means of promoting the development of oceanography nationally and internationally,

Recognizing:

(i) the significant role of the oceans in the polar regions, not least as engines driving the circulation of global deep waters and hence influencing climate across the world,

(ii) the potentially vital role to be played by the IOC through its programmes in participating in the IPY and facilitating access to ocean data from polar regions,

Instructs the IOC Executive Secretary to:

(i) inform ICSU and WMO of IOC's interest in joining the proposed ICSU–WMO Joint Organizing Committee;

(ii) develop a plan for IOC's participation in the science initiatives of the IPY, including ways in which the IOC-led efforts may be integrated with the different programmes and projects being developed under the IPY;

(iii) discuss with the co-sponsors of the IPY, the eventual creation of a group of experts to coordinate polar ocean science beyond 2008; and

(iv) report on these matters to the 23rd Session of the Assembly.

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Financial Implications: none

Resolution EC-XXXVII.4

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

The Executive Council,

Recalling that the IOC Tsunami Programme is a high priority programme of the Commission,

Appreciating:

(i) the support of Chile, France, New Zealand, Republic of Korea and USA to the IOC Tsunami Programme in 2002–2003 through Trust Fund and in-kind contributions,

(ii) the support of the USA in hosting and co-funding the operation of the International Tsunami Information Centre (ITIC) in Hawaii, and of Chile for the post of ITIC Associate Director,

(iii) the establishment of the North-western Pacific Tsunami Information Centre by Japan in 2004,

Considering the Summary Report, Resolution and Recommendations of the 19th Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific (ITSU-XIX), held in Wellington, New Zealand, from 29 September to 2 October 2003, and the progress achieved by the ICG in the implementation of the ITSU Programme at the national and international levels,

Welcoming the studies in support of the development of sub-regional tsunami warning systems for the Central American Pacific Coast and for the South-west Pacific and Indian Ocean, and the possible development of a comprehensive tsunami hazard-reduction programme,

Endorses the Summary Report and Resolution **and adopts** the Recommendations of ITSU-XIX;

Strongly encourages Member States to contribute actively to the further development and maintenance of the Tsunami Programme, either through financial contributions to the IOC Trust Fund, staff support or in-kind contributions;

Instructs the IOC Executive Secretary to take action to strengthen the IOC Secretariat support for the ITSU Programme.

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Financial implications (2004–2005):

US$82,500 from Regular Programme Budget
- US$58,500 from ITSU
- US$24,000 from Regions

US$59,000 from extra-budgetary resources to be identified

Total amount: US$141,500

Resolution EC-XXXVII.5

OCEAN MAPPING

The Executive Council,

Noting with satisfaction the progress made in the implementation of GEBCO, at a 1:10 million scale, and the IBCs, which cover seven regions with approximately 150 sheets, at a 1:1 million scale,

Recalling that in April 2003 GEBCO successfully celebrated its Centenary in Monaco, where GEBCO was established in 1903 by Prince Albert I,

Welcomes the nomination by the IOC Executive Secretary of Dr Meirion Jones, UK, as Member of the GEBCO Guiding Committee;

Endorses the Summary Report of the 9th Meeting of IOC/CGOM, held in Monaco, 10–12 April 2003, and the Recommendations annexed to the Summary Report of the CGOM highlighting the importance of the construction of marine geological/geophysical overlay sheets, and of the production of a digital grid with finer spacing from original compilation materials;

Supports the establishment, jointly with IHO, of an International Bathymetric Chart of the Southern Ocean (IBCSO), for which a planning meeting will be organized by the Alfred Wegener Institute for Polar and Marine Research (AWI), in Bremen, Germany, 30–31 July 2004;

Invites Member States to:

(i) include more bathymetric charting in their marine research programmes, in particular in regions with sparse data;

(ii) pay particular attention to geological and geophysical overlay sheets;

(iii) continue to contribute funds for training in ocean mapping, either on shore or on board research vessels or survey ships;

(iv) express, by 31st December 2004, their views to the IOC Executive Secretary on the proposal to streamline the ocean mapping support mechanisms by bringing together GEBCO and IBCs under a joint IOC–IHO Ocean Mapping Board.

Financial implications (2004): US$7,000 from extra-budgetary resources to be identified to organize the 1st Meeting of the Editorial Board for IBCSO.

Resolution EC-XXXVII.6

REVIEW OF THE STRUCTURE OF THE GLOBAL OCEAN OBSERVING SYSTEM (GOOS)

The Executive Council,

Recalling the decision of the 22nd Session of the IOC Assembly to create an open-ended Intersessional Working Group (Resolution XXII-4) of interested Member States and representatives of the GOOS-sponsoring organizations, and following the recommendations of the Report of the GOOS Review Group (IOC/INF-1185) and comments from Member States to (i) revise the Terms of Reference of I-GOOS, GSC and GPO accordingly, (ii) develop a draft plan of action and (iii) present their findings to the IOC Executive Council at its 37th Session,

Noting with appreciation the Report of the Intersessional Working Group (IOC/EC-XXXVII/2 Annex 9) which agreed with most of the recommendations of the GOOS Review Group while considering it pertinent to take into account specific comments of the Member States in respect of the actions pertaining to a few recommendations,

Expresses its thanks to the Chairman and Member States of the Intersessional Working Group for the work done;

Approves, in principle, the structure of the Global Ocean Observing System as proposed by the Intersessional Working Group;

Expresses its view that the detailed Terms of Reference of I-GOOS, GSSC and GPO should be considered by the 23rd Session of the Assembly on the basis of the draft Terms of Reference annexed to this Resolution;

Instructs the IOC Executive Secretary:

(i) to invite Member States to submit their comments on the draft terms of reference before 31 December 2004;

(ii) to submit, in consultation with the IOC Officers, a consolidated proposal to the 23rd session of the Assembly;

Instructs the IOC Executive Secretary to seek the views of the GOOS co-sponsors, as appropriate, on the proposal made by the Intersessional Working Group in order that their comments may be incorporated into his report to the Assembly.

Financial implications: none

Annex to Resolution EC-XXXVII.6

DRAFT TERMS OF REFERENCE FOR I-GOOS, GSSC AND GPO

1. The Intergovernmental Committee on GOOS (I-GOOS)

The terms of reference of I-GOOS are to be revised as follows:

The Intergovernmental Committee for GOOS (I-GOOS), functioning under the Intergovernmental Oceanographic Commission (IOC) of UNESCO and with co-sponsorship from WMO and UNEP, shall have the overall responsibility for promotion, planning and coordination of GOOS, including development of consensus on policy, principles and strategy. I-GOOS will:

(i) assess regularly the user requirements for information products and services, including the needs of (a) international and regional conventions and treaties, and (b) regional and national development;

(ii) facilitate development of scientific and technical strategy as well as scientifically sound plans, on the advice of the GOOS Scientific Steering Committee and in close coordination with JCOMM and IODE acting as the main technical subsidiary bodies, as appropriate, for the sustained development of both the observing system and its utilization for the generation of information products and services to meet the above needs;

(iii) approve overall plans for the implementation of GOOS elements, according to the agreed principles and strategy;

(iv) facilitate the implementation of such plans through national initiatives and regional initiatives, using JCOMM and GOOS Regional Alliances (GRAs), as appropriate;

(v) identify the resources needed for GOOS and the means of obtaining them;

(vi) monitor, review and assess the progressive development and implementation of the components of GOOS, in close coordination with JCOMM and IODE, and propose changes as required;

(vii) assist in developing the capacity of all Member States to contribute to and benefit from GOOS and in particular aid countries to acquire and make best use of information products and services derived from GOOS;

(viii) provide guidance to the Director of the GOOS Project Office on priority needs for GOOS development, coordination and implementation;

(ix) represent GOOS at intergovernmental meetings,

To implement these activities, the I-GOOS shall:

(a) work through bodies responsible for the various existing programmes and activities, such as JCOMM, IODE and GIPME/MARPOLMON;

(b) maintain close liaison with relevant bodies of other UN and regional organizations, such as FAO, ICES, IMO, PICES and UNEP;

(c) maintain liaison with related research programmes, projects and pilot projects as input to the design and development of GOOS and to ensure that GOOS responds as appropriate to research needs;

(d) develop and maintain a strategy, in coordination with JCOMM, for providing training and technical assistance within the TEMA framework;

(e) support and co-ordinate regional development of GOOS, by fostering strong GOOS Regional Alliances and working through the Council of GRAs, when created;

(f) commission cost–benefit studies of GOOS;

The Chair and two Vice-Chairs of I-GOOS will be elected by the members from among them (in their individual capacity) for a two-year term. The Director GPO will be the Technical Secretary for I-GOOS. The Chair or other designated representative of the GSSC, JCOMM, IODE, and GRAs, as well as representatives of the GOOS sponsoring organizations (IOC, WMO, UNEP, ICSU), will have observer status at I-GOOS sessions.

I-GOOS shall meet at two-year intervals until decided otherwise by the IOC governing bodies. The I-GOOS Board shall function as an Executive Body of I-GOOS during the inter-sessional period. The membership and terms of reference for the I-GOOS Board will be decided by I-GOOS.

2. GOOS Scientific Steering Committee (GSSC)

The GOOS Scientific Steering Committee (GSSC), composed of nominated experts in relevant disciplines of marine science and global observation and co-sponsored by IOC, WMO, UNEP and ICSU, has the responsibility to provide scientific and technical advice to I-GOOS, the intergovernmental body responsible for GOOS. GSSC will:

(i) advise the I-GOOS on all scientific and technical aspects of GOOS, as well as on the resource requirements;

(ii) develop, for the I-GOOS and other sponsors, a long-term strategic plan and accompanying short- to medium-term action plans and targets for GOOS, subject to approval by Member States and to be presented and updated at each session of I-GOOS;

(iii) be responsible for the scientific and technical aspects of GOOS design, and undertake appropriate activities to support the design process;

(iv) coordinate and take responsibility for GOOS planning and provide oversight during the implementation process, on the basis of the scientific and technical design, and of intergovernmental requirements and resources as expressed through I-GOOS;

(v) submit reports to the sponsoring organizations and to I-GOOS at appropriate times;

(vi) review and provide advice on budget and staffing plans for the GOOS Project Office related to the work of the GSSC and its subordinate scientific and technical bodies.

To implement these activities, the GSSC shall:

(a) identify the observational requirements (user needs) and products in cooperation with I-GOOS; define design objectives; and recommend coordinated actions by the sponsoring organizations and other relevant organizations and agencies;

(b) identify and encourage research efforts, in close cooperation with the ongoing international research programmes (such as IGBP and WCRP) in order to promote studies of importance for the development of GOOS;

(c) suggest processes for the migration of research measurements into operational ones, in close coordination with JCOMM;

(d) recommend priorities for pilot projects and new technologies needed for GOOS;

(e) periodically evaluate the scientific integrity of the different components of GOOS;

(f) recommend to JCOMM and I-GOOS, capacity-building activities that improve the scientific capabilities of developing countries and increase the opportunities for developing countries to benefit from GOOS data and products.

The above functions may be accomplished by the GSSC through its subordinate bodies such as OOPC and COOP, as appropriate. The membership and terms of reference for the subordinate bodies of the GSSC (OOPC and COOP) will be decided by the GSSC.

GSSC shall comprise (a) scientific and technical experts (up to a maximum of 15), selected with the assistance of the sponsoring bodies, on the basis of their personal expertise, so as to provide a balanced representation of the major scientific and technical disciplines and of the major operational and research programmes, including users, industry, governmental and policy-makers, contributing to GOOS, (b) one representative of each of the GOOS sponsoring organizations; (c) the Chairpersons of I-GOOS, JCOMM and IODE, (d) representatives of the other global observing systems. Individual experts will be invited as needed, including the chairs of the GSSC advisory panels. The Chair and a Vice-chair will be chosen by the sponsors from among the members.

GSSC shall meet annually until decided otherwise by the IOC governing bodies. The Director of the GPO will be the Technical Secretary for GSSC.

3. GOOS Project Office

The GOOS Project Office (the executive office for the GOOS organization and part of the Secretariat of IOC under the line management of the Executive Secretary, IOC), administers the planning, coordination and implementation of GOOS on behalf of participating countries and sponsors, in addition to supporting I-GOOS, the GSSC, and JCOMM. The GPO will:

(i) provide technical support to the GOOS related groups of the Commission;

(ii) assist in the execution of decisions and resolutions which have been taken by the different organs of the Commission and which are related to GOOS, and by the governing bodies of the Commission;

(iii) promote and manage GOOS, under the guidance of I-GOOS, with particular emphasis on capacity-building;

(iv) identify the resources needed for GOOS and the means for obtaining them;

(v) develop and update plans for initiating implementation stages and monitoring the progress of GOOS;

(vi) liaise and co-operate with WMO in the promotion, co-ordination and development of JCOMM functions, as well as in the organization and conduct of JCOMM sessions;

(vii) liaise with related research projects and other observing-system bodies, as appropriate;

(viii) prepare explanatory outreach materials and maintain appropriate web sites to educate the public about the purpose of GOOS;

(ix) manage GOOS Regional Offices;

(x) support the promotion and nurturing of GRAs;

(xi) support the work of I-GOOS, the GSSC and JCOMM, and their subsidiary bodies;

(xii) liaise with IODE;

(xiii) develop work programmes and budgets in consultation with regional offices and the bodies involved;

(xiv) raise funds for GOOS coordination and implementation, in close coordination with sponsors and appropriate groups;

(xv) make cost estimates of GOOS in terms of existing activities, new activities, utilization of satellites, technical assistance, training and other value-added services, and periodically review the predicted costs and benefits, including the costs of technical assistance and training;

(xvi) support the I-GOOS in terms of GOOS outreach through publications and web site.

Resolution EC-XXXVII.7

EIGHTH SESSION OF THE IOC SUB-COMMISSION FOR THE CARIBBEAN AND ADJACENT REGIONS (IOCARIBE)

The Executive Council,

Acknowledging the successful implementation of the IOC Programmes in the Region during the IOCARIBE intersessional period 2002–2004,

Noting the collaboration by Member States, UN, governmental and non-governmental organizations in the implementation of IOCARIBE activities in the region,

Recognizing the need to strengthen and ensure the future development of the IOCARIBE programmes and activities,

Expresses its appreciation to the Government of Brazil for hosting the 8th Session of the IOCARIBE, held in Recife, 14–17 April 2004;

Endorses the Executive Summary of the 8th Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE) and its fourteen Recommendations;

Instructs the IOC Executive Secretary to take action as necessary to implement the IOCARIBE-VII Recommendations;

Urges Member States and donor agencies:

(i) to participate actively in the implementation of the IOCARIBE programmes and projects, through provision of extrabudgetary funds and/or expertise;

(ii) to further develop and strengthen capacity-building initiatives in the region, following the priorities already identified by the Sub-Commission at its 8th Session; and

(iii) to provide additional resources and technical staff to the IOCARIBE Secretariat in order to strengthen its operations;

Invites other international and regional organizations and programmes to continue collaboration in the implementation of IOCARIBE programmes and projects.

Financial implications: (2004–2005):
Regular Programme: US$35,000

(2004–2006)
Extra-budgetary: US$545,000

Resolution EC-XXXVII.8

FOURTH MEETING OF THE IOC ADVISORY BODY OF EXPERTS ON THE LAW OF THE SEA (IOC/ABE-LOS-IV)

The Executive Council,

Noting:

(i) the progress made by the Advisory Body of Experts on the Law of the Sea (IOC/ABE-LOS) in the implementation of the mandate assigned to it,

(ii) the valuable contribution of IOC/ABE-LOS to the realization of IOC functions according to Article 3.1(c) of the IOC Statutes,

Considering Resolution 56/12 of the UN General Assembly and IOC Resolution EC-XXXV.7, which required IOC to survey the practice of States with respect to Parts XIII (Marine Scientific Research) and XIV (Development and Transfer of Marine Technology) of the UNCLOS,

Requests IOC/ABE-LOS to continue its work on the basis of the Recommendations of its fourth session, as annexed to this Resolution, with the aim of reporting to the 23rd Session of the Assembly on:

(i) an appropriate internal procedure for an effective and appropriate use of Article 247 of UNCLOS;

(ii) the practices of Member States regarding marine scientific research and transfer of marine technology; and

(iii) the legal framework within the context of UNCLOS that is applicable to the collection of oceanographic data;

Urges Member States to increase the financial support for the organization of IOC/ABE-LOS, in addition to the regular programme funds already allocated;

Instructs the IOC Executive Secretary to disseminate and promote the implementation of the Criteria and Guidelines on the Transfer of Marine Technology among Member States and relevant international organizations, and to report on the progress of this initiative to the 23rd Session of the Assembly.

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Financial implications: (2005)
US$15,000 (from Regular Programme) for the organization of IOC/ABE-LOS-V session.

Annex to Resolution EC-XXXVII.8

RECOMMENDATIONS OF THE 4TH SESSION OF THE IOC/ABE-LOS

The IOC Advisory Body of Experts on the Law of the Sea at its 4th Session (IOC/ABE-LOS IV) recommended the following:

1) That the 37th session of the IOC Executive Council: a) take note of the progress report by the Chairman of the IOC/ABE-LOS sub-group on the work concerning an appropriate internal procedure related to an effective and appropriate use of Article 247 of the UN Convention on the Law of the Sea; and b) request the IOC/ABE-LOS to continue its work on this topic, by electronic mail and in close co-operation with the Division for Ocean Affairs and the Law of the Sea of the Office of Legal affairs of the United Nations (UN/OLA/DOALOS), on the basis of the comments and observations made when discussing this matter at IOC/ABE-LOS-IV and during the intersessional period. This, with a view to considering the adoption of such an internal procedure by the 23rd session of the Assembly.

2) That the 37th session of the IOC Executive Council take note of the Draft Terms of Reference of the open-ended IOC/ABE-LOS sub-group on the practice of IOC Member States regarding marine scientific research and transfer of marine technology, annexed to these recommendations, including the proposed change in the name of the sub-group to reflect the fact that the work of the sub-group focuses on the practice of the Member States in the application of Parts XIII and XIV of UNCLOS; and

3) That the 37th session of the IOC Executive Council: a) take note of the progress report by the Chairman of the open-ended IOC/ABE-LOS sub-group on the legal framework for the collection of oceanographic data within the context of UN Convention on the Law of the Sea; b) also take note of the draft terms of reference for such a sub-group, to be prepared by the Secretariat and the Coordinator of the sub-group and to be adopted at the next session of IOC/ABE-LOS; and c) request the IOC/ABE-LOS to continue its work on this topic in close co-operation with the Division for Ocean Affairs and the Law of the Sea of the Office of Legal Affairs of the United Nations (UN/OLA/DOALOS), on the basis of the comments and observations made when discussing this matter at IOC/ABE-LOS-IV and during the intersessional period.

ANNEX TO RECOMMENDATIONS

Draft Terms of Reference
for the IOC/ABE-LOS Open-ended Working Subgroup
on the Practice of the Member States in the Application of Parts XIII and XIV of UNCLOS

1) The main Purpose of the IOC/ABE-LOS Working Subgroup on the Practice of the Member States in the Application of Parts XIII and XIV of UNCLOS is to elaborate preliminary conclusions from the data provided in Annex 6 of Document IOC/ABE-LOS-III/9, Questionnaire Number 3, as complemented by the UN/OLA/DOALOS data base on marine scientific research legislation and other relevant objective data, in accordance with IOC Assembly Resolution XXII-12, Annex para. 3.

2) The IOC/ABE-LOS Working Subgroup shall work by electronic correspondence in close cooperation with the United Nations Office of Legal Affairs, Division of Ocean Affairs and the Law of the Sea of United Nations (UN/OLA/DOALOS). The Chairperson of the Subgroup shall decide on the working methodology of the Subgroup.

3) The IOC/ABE-LOS Working Subgroup shall issue the First Draft of Preliminary Conclusions drawn from the aforementioned Report on Practices of States in the Field of Marine Scientific Research (MSR) and Transfer of Marine Technology (TMT) on 1 October 2004. The First Draft of Preliminary Conclusions shall then be circulated to members of the IOC Advisory Body of Experts on the Law of the Sea for discussion and comments.

4) On the basis of these additional consultations, the Chairperson of the Subgroup will prepare a revised Draft which shall be circulated at least two months in advance of the 5th Session of IOC/ABE-LOS in spring 2005, if the Executive Council, at its 37th Session, agrees to have such a session. This revised draft shall contain a memorandum in which shall be set out a summary of views and comments provided by all experts in the field.

5) The 5th Session of IOC/ABE-LOS will examine the revised draft, and possibly adopt a recommendation to be submitted to the IOC Assembly, at its 23rd Session, for final adoption.

6) Should the IOC/ABE-LOS Working Subgroup need further information regarding the Questionnaire No.3, the Chairperson shall be entitled formally to contact national experts and institutions only through the IOC Secretariat. IOC Member States shall then

provide the requested information or shall submit a written statement to IOC explaining its refusal to do so.

Resolution EC-XXXVII.9

A STRATEGY FOR CAPACITY-BUILDING

The Executive Council,

Recognizing the need to:

(i) update the Strategy and Framework Plan for Capacity-Building and TEMA, endorsed at the 19th Session of the Assembly, and the TEMA report presented at the 20th Session of the Assembly in 1999,

(ii) expand the Strategy for Capacity-Building described in the Medium-Term Strategy for IOC 2004–2007,

(iii) utilize the Strategy for Remote Sensing endorsed by the 22nd Session of the Assembly which calls for a mechanism to build the capacity of Member States in remote sensing,

(iv) respond to the requirement for strengthening the capacity of Member States to conduct research and create information products of local relevance,

Endorses the basic principles detailed in Document IOC/EC-XXXVII/2 Annex 14 as a base from which the final draft Strategy and associated Implementation Plan will be developed;

Instructs the IOC Executive Secretary to produce a final draft Strategy for Capacity-Building document for consideration by the 23rd Session of the IOC Assembly, based on:

(i) comments received from Member States at the 37th Session of the Executive Council;

(ii) further comments to be requested from Member States through a Circular Letter requesting input on the draft Strategy by 30 November 2004;

Further instructs the IOC Executive Secretary to develop the associated Implementation Plan, building on existing initiatives, also for consideration by the 23rd Session of the IOC Assembly, that:

(i) is in accordance with the new IOC Medium-Term Strategy;

(ii) assesses the extent and impact of existing and past capacity-building efforts;

(iii) has specific terms of reference and associated performance measures for all elements;

(iv) takes account of GOOS and JCOMM capacity-building action plans; and

(v) outlines a feasible and robust means of support and resources for capacity-building;

Expresses its appreciation of the offer of the USA to support:

(i) an expert workshop to facilitate the drafting of an Implementation Plan for the IOC Strategy for Capacity-Building during the first quarter of 2005; and

(ii) an assessment of the capacity-building carried out by the IOC over the last five years;

Urges Member States to support the IOC Capacity-Building Section through direct contributions to the IOC Special Account and the provision of seconded associate experts and part-time staff to work within the IOC regions.

Financial implications (2004–2005): 2004: US$42,000 from extra budgetary funds
2005: US$255,000 from extra budgetary funds

Resolution EC-XXXVII.10

A PLAN FOR THE USE OF REMOTE SENSING IN OCEANOGRAPHY BY DEVELOPING COUNTRIES

The Executive Council,

Noting the call in IOC Assembly Resolution XXII-13 for a Strategy for the Use of Remote Sensing in Oceanography that will enable developing countries to have access to and to utilize the data from earth observation satellites,

Recalling the World Summit on Sustainable Development (WSSD) Plan of Implementation which calls for widespread utilization of remote sensing from space as a tool for sustainable development,

Recognizing the overarching framework described in Resolution EC-XXXVII.9 that endorses the general approach to an IOC Strategy for Capacity-Building,

Endorses the Plan for the Use of Remote Sensing in Oceanography by Developing Countries given in Document IOC/EC-XXXVII/2 Annex 15;

Instructs the IOC Executive Secretary to implement the elements of that Plan, and to report on progress to the 23rd Session of the IOC Assembly.

Financial implications (Regular programme) (2004–2005):

(i) US$10,000 for sponsoring attendance of developing country representatives at satellite-remote-sensing conferences (GOOS Main Line of Action);

(ii) Sponsoring courses in remote-sensing techniques, for developing countries, including US$20,000 investment in the IOCCG for courses in ocean colour, plus the use of extra-budgetary resources to support courses on the use and interpretation of

remotely sensed data in various regions on request and as funds permit (Policy MLA);

(iii) Supporting the regional development of remote sensing for IOC programme applications, with US$20,000 for an African workshop in 2005 (GOOS MLA);

(iv) US$14,000 for international coordination of capacity-building activities with space agencies, to attend meetings with the space agencies through CEOS and the IGOS Partners (GOOS MLA);

(v) Development of training materials, through US$74,000 investment in the Bilko Project to upgrade the Bilko learning package, prepare lesson material, and make the Bilko products available via the Bilko website (GOOS MLA);

(vi) Training trainers and developing their training materials US$30,000/year (TEMA MLA).

Total: US$168,000

Resolution EC-XXXVII.11

IOC PROGRAMME AND BUDGET FOR 2006-2007

The Executive Council,

Noting Articles 1.2, 10.1 and 10.4 of the IOC Statutes,

Recalling:

(i) the designation of the IOC programme of work as a flagship programme of UNESCO in its 2002–2007 Medium-Term Strategy (31 C/4),

(ii) the emphasis placed in Resolutions A/RES/56/12 and A/RES/57/141 Oceans and the Law of the Sea adopted, respectively, by the 56th and the 57th Sessions of the United Nations General Assembly, on the role of the IOC as a focal point for developing appropriate interactions in the field of marine science,

Stressing the unique role of the IOC as the competent intergovernmental body dealing with ocean science, services and capacity-building, and also acting as the ocean arm of UNESCO,

Noting with appreciation that the IOC has benefited from the allocation by UNESCO of an "incompressible" budget for its established level of Regular Budget-supported activities, and that the increasing interest in IOC activities has attracted substantial supplementary support from Member States, notably through contributions to the IOC Special Account,

Expressing concern that, as a result of the increasing long-term responsibilities of the IOC in global ocean issues, the resources available to the IOC will fall below the level needed to sustain the work of the Commission, and that extra-budgetary contributions, although substantial, cannot be expected to fill this gap,

Recalling the conclusion 4 of the External Evaluation Report (document IOC/EC-XXXIII/2 Annex 3) which states that "*the IOC Secretariat carries out a vitally important role with great*

professionalism and dedication" and its recommendation 4.2 that urgent steps be taken to increase the core professional staffing of the Secretariat,

Urges:

(i) UNESCO Member States to support actively the IOC programme and budget proposals when the Draft 33 C/5 is being considered by the UNESCO Executive Board and the General Conference, and in particular to invite the UNESCO Governing Bodies and the Director-General to consider as a high priority the possibilities of increasing the number of IOC staff in light of the recommendation 4.2 of the External Evaluation Report;

(ii) IOC Member States to continue to increase their support to the IOC through direct and in-kind contributions and to consider complementary arrangements in accordance with Article 10.4 of the IOC Statutes;

Adopts the proposal on initial guidelines for the IOC Draft Programme for 2006–2007 as contained in document IOC/EC-XXXVII/2 Annex 16 rev.;

Identifies the following Main Lines of Action for the IOC Programme for the 2006–2007 biennium:

MLA 1: Addressing scientific uncertainties for the management of the marine environment and climate change.

MLA 2: Developing monitoring and forecasting capabilities for the management and sustainable development of the open and coastal ocean.

MLA 3: Developing and strengthening the global mechanism to ensure full and open access to ocean data and information for all.

MLA 4: Developing ocean governance issues and increasing the effectiveness of the IOC Governing Bodies

MLA 5: Developing the capacity and effectiveness of Member States in marine scientific research, and in the management and sustainable development of the open and coastal ocean.

Instructs the IOC Executive Secretary to report to the 23rd Session of the IOC Assembly on the appropriate allocation of permanent professional staff to fulfil effectively and efficiently the IOC's objectives in the next Medium-Term Strategy for 2008–2013.

Financial implications: none

ANNEX III

ADDRESSES & STATEMENTS

- A-
Statement by H.E. Ambassador Jagdish Koonjul, Ambassador of Mauritius to the United Nations, Vice-Chairman of the UN Economic and Social Council, and Chairman of the Alliance of Small Island States at the opening session of the Intergovernmental Oceanographic Commission,

Paris, 23 June 2004

It is a distinct honour for me to address the thirty-seventh Session of the Executive Council of the Intergovernmental Oceanographic Commission in my capacity as Chairman of the Alliance of Small Island States. Let me acknowledge the presence of the Director-General of UNESCO Mr Koichiro Matsuura and thank him warmly for his personal commitment and support to the work of the Commission.

I welcome this opportunity to share with you a few thoughts on the issues before us, namely the understanding of the oceans and their resources, the development of a Global Ocean Observing System and the strengthening of capacities in Member States particularly Island States.

All these issues are of critical importance for Island States, particularly Small Island States, which are custodians of vast expanses of the oceans because just as much as the oceans represent an enormous potential for the development of the small island they also constitute the greatest risk to their very survival. The proper management of the oceans within their jurisdiction, the sustainable development of the marine resources and sound, integrated and appropriate management of the coastal areas can be extremely beneficial to the island States while the lack of these can be disastrous.

The Barbados Programme of Action (BPOA), which is currently being reviewed 10 years after its adoption, highlighted the dependence of Small Island Developing States on coastal and marine resources. Let me briefly report on the review process which has led us through a number of preparatory meetings at regional level culminating with an Inter-Ministerial Meeting which took place in Nassau, Bahamas, at the beginning of the year, at which we adopted what subsequently became the G-77 strategy paper after its endorsement by the Group. That document has served as the basis of the negotiations with the development partners. As you are aware, the International Meeting to conclude the review was to take place in August/September this year, but due to logistics problems linked to effects of climate change, the Government of Mauritius has to ask for a rescheduling of the meeting, since the Conference Centre being built specifically for the purpose will not be completed in time. The Meeting will now take place from 10 to 14 January 2005.

Issues relating to oceans and coastal environment, because of their vital and strategic importance to Small Island Developing States (SIDS), figure prominently in the G77 strategy document and I am pleased to say that, in the two rounds of discussions we have had so far, the development partners have shown tremendous interest and goodwill to further strengthen the relevant paragraphs so as to make them more specific, more focused and more effective. Indeed, there is a growing awareness and sensitivity to harnessing the potentials of the oceans in all their facets.

With the establishment of the 200 miles economic zone, small islands will find that their land area will actually represent only a small fraction of the total space under their jurisdiction. In most cases the ocean to land ratio exceeds 30:1 and for the quartile of the smallest islands it averages 200:1. Small islands could in fact more aptly be called large Ocean States with the natural implications of heavier responsibilities for the managements, conservation and sustainable development of the important resources and the biodiversity that exist therein. Building upon Agenda 21 and the BPOA, SIDS have been recognized as a special 'case' for sustainable development in view of their situation and responsibilities as custodians of vast ocean spaces. However, much still needs to be done to translate this recognition into tangible and concrete actions that would effectively bring about sustainable development in SIDS.

The Alliance of Small Island States (AOSIS), 29 of which are members of the IOC, believes in a strong partnership with organizations and agencies such as this Intergovernmental Oceanographic Commission to pursue efforts aimed at making the best possible use of the rich potential of the oceans. In that context, there are many areas where AOSIS would wish to see greater cooperation. Let me list some of them.

First, in the area of climate change and sea level rise, which lead to coastal erosion, loss of landmass and saline intrusion with devastating effects on beach topography, biodiversity and coastal economy, we believe that the collection, analysis and sharing of relevant information on sea level rise obtained through appropriately placed monitoring stations should be done on a regular basis in order to monitor threats and where necessary take pre-emptive measures. It is also necessary to ensure that the data collected and processed is well understood and well interpreted. For this there is a need for appropriate training and capacity-building within the Small island Developing States.

In the area of climate predictions and forecast, especially of such events as El Niño, AOSIS is very interested in the Global Ocean Observing System, which the IOC is developing. It is now well established that oceans play an essential role in the climatic cycles and that oceans and adjacent seas from the various parts of the globe behave like an entwined, moving snake rather than massive lakes, with the result that both warm surface water from the tropics and the cold water from deep below move slowly around the world. A more global system to observe ocean movement is therefore very timely. Our Strategy paper calls for international support to facilitate regional monitoring efforts as the Global Ocean Observing System.

Natural disasters resulting from ocean-based activities such as tsunamis also constitute an area where the IOC's role in coordinating various warning systems is extremely significant. In this particular respect the BPOA emphasizes the importance of improving SIDS' access to technology and relevant training in hazard and risk assessment and early warning systems. The protection of islands from environmental disasters consistent with national and regional strategies for disaster management is also emphasized. Access to technology and capacity-building components related to such technology is a priority issue for SIDS. We will continue to seek partnerships in these areas and in the field of Early Warning Systems (EWS), including damage assessment, with interested partners from the international community. SIDS also favour a global and holistic approach to natural disasters and consider that the 10-year review of the Yokohama Strategy in January next year should address this particular aspect of disaster reduction, including early warning systems.

SIDS' marine areas support a great diversity of plants, animals and natural habitats and their coastal areas are dominated by a living fringing reef, which helps protect the coasts from the onslaught of the waves. Associated with the reefs is a complex and diverse system of animals

and plants, which use the reefs as a habitat, but at the same time, create the conditions which are essential for the very survival of the reef.

Their marine environment includes unique ecosystems and threatened species that are increasingly menaced by unsustainable exploitation and water pollution. The increase of activities along the shorelines as a result of tourism expansion in SIDS regions has also given rise to unplanned development along the coastline, thereby increasing pressures on the limited resources in these areas.

Conscious of these realities, SIDS have committed themselves to address as a matter of priority the impacts of coastal development and to elaborate and implement initiatives to promote sustainable conservation and management of coastal and marine resources, drawing upon the best practices from the various SIDS regions, including the Pacific Islands Regional Ocean Policy. In that regard the Strategy Paper calls for international support to facilitate initiatives such as IOC marine science programmes that are of particular relevance to SIDS. Particular attention will also be paid to activities aimed at addressing the impact of coral bleaching, including enhancing resistance and recovery, which is an area where IOC has considerable experience.

In the area of Science and Technology, SIDS would be particularly interested in various sources of new and renewable energies, like energy from wind, waves, currents, tides and especially from variations in ocean thermometry. In this regard there is a great interest in Ocean Thermal Energy Conversion (OTEC) as a possible source of energy which is not only cheap and sustainable but which also provides great side benefits, such as potable water and possibilities for aquaculture. There is also the need for investigating and identifying non-living deposits within the maritime waters of SIDS as well as multi-beam mapping of the sea bed, so as to gather information on the geological make-up of the islands.

In all the above cases, the need for capacity-building, training and technical assistance is of paramount importance. In addition, awareness building about the oceans among the public at large needs to be further enhanced. At the same time we believe that it is necessary to pay attention to traditional knowledge which has a scientifically supported basis and which for centuries has helped maintain the sustainability of the oceans. Any assistance, which the IOC can bring in this regard, would be warmly welcomed.

As we prepare for the International Meeting, SIDS would expect the IOC to send a strong message that it stands prepared to support SIDS in the relevant areas, not as an observer, but as a key player willing to take initiatives to build appropriate partnerships and to coordinate support form other agencies and more importantly to assist them in the use of scientific knowledge and capacity for management decisions and policy-making by facilitating access to such knowledge through international cooperation.

We also expect that IOC will continue to play a leading role within the Global Forum on Oceans, Coasts and Islands to trigger international and multi-sectoral dialogue on ocean governance and sustainable development.

We look forward to the outcome of this important session of the Executive Council and I, as Chairman of AOSIS, would bring any recommendation made in regard to islands and oceans to the attention of all the SIDS for their appreciation.

There is an apprehension that the rescheduling of the International Meeting may result in the loss of momentum which had been building up since the preparatory process started a year ago. We are determined to maintain the momentum and we are planning to organize a series of activities between now and January, one of which could be a panel discussion of the whole issue of oceans and marine resources. Participants could include concerned officials from UNEP, UNCLOS and others interested in the issues linked to responsibilities and role of SIDS in all the relevant areas, including security, surveillance, and monitoring, fisheries development, movement of wastes and the whole question of delimitation of the exclusive zones. We would hope that IOC would also be interested in such an exercise.

Let me conclude by wishing you every success in your deliberations. As has been said by Mr Geoffrey Holland, "there are very few global issues, even poverty, that are not linked to the oceans". Many nations depend on the sea for survival, be it through fishing, maritime trade or tourism. Oceans are part of the global heritage and have the capacity to drive global climate and to absorb the shocks of change, both natural and man-made. It is our interest as human beings to make wise and prudent use of these potentials.

Thank you

- B -

Address by Mr Koïchiro Matsuura, Director-General of the United Nations Educational, Scientific and Cultural Organization (UNESCO),

Paris, Friday 25 June

Mr President,
Distinguished Members of the IOC Executive Council,
Ladies and Gentlemen,

It is a great pleasure to meet with you during this thirty-seventh session of the Executive Council of IOC. I appreciate very much having this opportunity to speak with you about IOC's work and, in particular, about the challenges that we face in implementing the programme approved by the General Conference of UNESCO for this biennium (2004–2005).

From the outset, I would like to say that, two weeks ago, on the occasion of World Environment Day, UNESCO reaffirmed its commitment to sustainable development in general and to the sustainable development and protection of the ocean environment in particular. Indeed, the protection of oceans and seas is a theme of particular interest to UNESCO. As the sole UN organization specialized in ocean science and services, the Intergovernmental Oceanographic Commission of UNESCO has been fully engaged during the last 44 years in improving our understanding of the oceans and its resources, especially by bringing together countries and other partners to build the Global Ocean Observing System (GOOS).

At the World Summit on Sustainable Development (WSSD) in August/September 2002, the assembled Heads of State approved the Johannesburg Plan of Implementation, which contains specific targets and timetables for action to address the many problems and threats facing the sustainable development of oceans, coasts and islands. These targets represent an important global consensus, reached at the highest political level, and reflect the need for urgent action.

The assumption underpinning this agenda for action is that the world is still capable of making significant choices, but time is running out.

I would like to present you with a special request, namely, to put the Johannesburg Plan of Implementation highest in your agenda for your future meetings in order to enable UNESCO and its IOC to respond appropriately to this crucial endeavour.

In addition, the international community in general and the United Nations in particular need to respond in a coordinated manner to the aspirations of Small Island Developing States (SIDS) for sustainable development. This process will be reinforced next January with the ten-year review of the Programme of Action for the Sustainable Development of SIDS, which will be hosted by Mauritius. In this perspective, I am pleased that His Excellency Mr Jagdish Koonjul, Permanent Representative of Mauritius to the UN, and Chairman of the Alliance of Small Island States (AOSIS), had the opportunity to address this Council on Wednesday. I also had a very useful bilateral meeting with him yesterday. UNESCO and IOC in particular have contributed to the implementation of the Barbados Programme of Action in various areas of concern to SIDS, such as climate change and sea level-rise, coastal and marine resources, freshwater resources, science and technology, and sustainable capacity development.

Mr President,
Ladies and Gentlemen,

As you know, the US Government organized in July 2003 the First Earth Observation Summit (EOS I) to "Promote the development of a comprehensive, coordinated, and sustained Earth observation system or systems among governments and the international community, to understand and address global environmental and economic challenges."

The UN welcomes the US Government's initiative to convene the first EOS, and the establishment of the *ad hoc* intergovernmental Group on Earth Observations (GEO) as a follow-up of the Summit. From the very beginning, UNESCO and IOC have contributed to the GEO process by providing full information about the operational systems in which we are involved, including their technical specifications and requirements. UNESCO and IOC staff have participated actively in the GEO Secretariat and the User Requirement Sub-group and in co-chairing the International Cooperation subgroup. The GEO process came to fruition at the meeting of EOS II in Tokyo, Japan, in April 2004, with a Ministerial Declaration and a 10-Year Plan of Implementation.

At the Tokyo meeting, UNESCO stated that the organization that emerges from the GEO process to oversee the further implementation of the 10-year plan should remain open in its membership to all countries of the world and should recognize and integrate the pre-existing observing systems, such as the World Weather Watch (WWW) of WMO and those under the auspices of the UN system, such as GOOS, the Global Climate Observing System (GCOS) and the Global Terrestrial Observing System (GTOS). Those ideas influenced the Tokyo Ministerial Declaration and the Framework Document adopted at EOS II. The Ministers participating in the Summit reiterated the invitation to other governments to join them in this initiative. Please note that, this group, while open to all countries, has only 44 members. Building the 'Global Earth Observation System of Systems' (GEOSS) is a major contribution to the Johannesburg Plan of Implementation. It is vital that this new effort by a group of countries and the UN's activities should be mutually recognized; they are fully complementary processes. I believe that a formal recognition of GEOSS by the UN system,

including IOC, and the endorsement of the agreed 10-Year Plan of Implementation to build the first phase of GEOSS are highly desirable objectives.

In the Framework Document agreed at EOS II in Tokyo, the GEO countries made the commitment that, after the 3rd Earth Observation Summit planned to be held in Brussels in February 2005, "For 2005 and beyond, the implementation of the '10-Year Implementation Plan' will require a ministerial-guided successor mechanism with maximum flexibility – a single intergovernmental group for Earth observations drawing on the experience of the ad hoc GEO, with membership open to all interested governments and the European Commission, and with representatives of relevant international organizations taking part." (Framework Document, 7.2)

Prior to EOS III, there is an important meeting at the end of September in Brussels to discuss the governance and define the successor mechanism for the *ad hoc* intergovernmental Group on Earth Observations (GEO).

In a relatively short period of time, the GEO and EOS processes have become part of IOC's operational environment. You may be assured that UNESCO and IOC are engaging with these important developments in a constructive and collaborative manner.

Mr President,
Ladies and Gentlemen,

I am pleased to say that, as Director-General, I have received very positive feedback from outside UNESCO about the role and activities of IOC in different international fora; I have also received such feedback from representatives of Member States during my recent official missions. I am proud of the good work that the network of institutions, agencies, ministries and universities are doing under the IOC umbrella to make ocean sciences and services relevant to the sustainable development of the world's oceans and coastal areas.

Indeed, IOC brings credit and visibility to the entire Organization. My message to you today is simply this: keep up the good work! It remains for me to wish you success in your deliberations.

Thank you very much.

- C -

**Statement by Vice Admiral Conrad C. Lautenbacher, Jr. USN (ret.),
Under Secretary of Commerce for Oceans and Atmosphere (NOAA)**

Paris, 28 June

Development of the Global Earth Observation System of Systems (GEOSS)

Thank you, David [Pugh, Chairperson, IOC Executive Council] for your kind introduction and good afternoon to all of you. It's a great pleasure for me to return to the IOC to talk about the great progress that has been made in the development of the Global Earth Observation System of Systems (GEOSS) in just one year.

Before I begin, allow me to recognize the invaluable efforts of Patricio Bernal [Executive Secretary of the IOC], in advancing the international efforts of GEOSS. Patricio is serving as one of the co-chairs of the International Cooperation Subgroup of the Group on Earth Observations and is doing an outstanding job.

I also recognize and offer my congratulations to Keith Alverson on his appointment as the new Head of the Operational Observing Systems Section, where he will serve as the Head of the GOOS Project Office.

It is important to note that I am here in my capacity as Co-Chair of the Group on Earth Observations and that I am speaking on behalf of the 47 nations and 29 international organizations in GEO, as well as my fellow co-chairs from Japan, South Africa and the European Commission. Many of the nations represented in this room are partners in GEO and have invested valuable time and energy into working with GEO, as well as supporting their individual national contributions to the Global Earth Observation System of Systems.

The active involvement and support of intergovernmental organizations such as, and in particular, the IOC is vital to the success of GEO. The contributions of IOC, and of its individual members, to the GEO process are valued and I urge you to continue to bring ideas to GEO as the implementation plan is developed.

Since Patricio has already given you a brief update on the progress of GEO earlier in this meeting, I'd like to concentrate on the reasons I believe the GEOSS will be successful – the user-focus of the system of systems and the political support generated by the potential for near-term and long-term benefits to all nations.

Background.
Just one year ago, I spoke to you about the need for an Earth Science Renaissance. The G8 had just met in Evian, and had identified global observations as one of three key areas of international cooperation. A little over a month later, the US hosted the first-ever Earth Observation Summit, which resulted in a declaration calling for the establishment of a comprehensive Earth observing system.

Participants in that Summit, including representatives and members of the IOC, recognized the value of affirming at the political level what the scientific and technical communities had been talking about for decades. Certainly, all here today understand that establishing a comprehensive sustained ocean observing system alone would provide enormous new knowledge on a wide variety of societal issues. Reaching beyond ocean observations and embracing the parallel, but now independent, atmospheric and terrestrial observing systems, and then working to integrate those systems, would provide much more.

This is the goal of GEOSS -- An Earth information system with an interdisciplinary focus, providing the foundation for sound decision-making regarding sustainable development and the wise use of our natural resources.

Social, economic and scientific benefits drive the need for building an integrated Earth information and data management system. Put simply, improved observational capabilities will provide information to enable decision-makers to make better decisions regarding sustainable development and the wise use of our limited natural resources.

The Global Ocean Observing System provides a strong foundation and will be a key component of a successful Global Earth Observation System of Systems.

Societal Benefits Focus.
Those of us who work closely with these systems understand their application and their value. However, for the rest of the world, for those that make decisions about investment in science, investments in observations, and the use of the information derived from observations, it is important to look at it from the perspective of the users of such a system of systems. This is why, in Baveno at GEO 2, the group agreed to a set of nine benefits areas as a focus for the plan's development:

- Reducing loss of life and property from natural and human-induced disasters;
- Understanding environmental factors affecting human health and well being;
- Improving management of energy resources;
- Understanding, assessing, predicting, mitigating, and adapting to climate variability and change;
- Improving water resource management through better understanding of the water cycle;
- Improving weather information, forecasting, and warning;
- Improving the management and protection of terrestrial, coastal, and marine ecosystems;
- Supporting sustainable agriculture and combating desertification;
- Understanding, monitoring, and conserving biodiversity.

Over the next few minutes, I will provide some examples of the connections we can and should make between observations and socio-economic benefits.

Improving the Management and Protection of Terrestrial, Coastal, and Marine Ecosystems.
Improving our ability to detect and predict changes in terrestrial, coastal, and marine ecosystems is an international priority. If we are going to manage the "health" of these ecosystems then we need to observe and forecast habitat modification and loss, changes in biodiversity, eutrophication, harmful algal events, invasions of non-native species, and diseases and mass mortalities of marine organisms.

We have only begun to understand the effects of human activities and climate variability on the structure and function of coastal and marine ecosystems and their capacity to support ecosystem goods and services. Resolving and predicting anthropogenic and climate effects requires long-term time series observation of key properties and processes, more efficient and effective data management that enables timely access to diverse data from disparate sources, and a more comprehensive understanding of the structure, function, and variability of ecosystems (e.g., how changes occurring in coastal drainage basins, the ocean basins and airsheds impact coastal ecosystems).

Improving the Management and Protection of Terrestrial, Coastal, and Marine Ecosystems is one of the 9 societal benefits areas agreed to in the Framework Document approved at Earth Observation Summit II in Tokyo earlier this year, and illustrates one of our long-term goals.

But what are some near-term actions that we can take to address a few of our most pressing global needs?

Sea Level Rise
At last year's IOC meeting, I also talked about the importance of improving what we know about how fast sea level rise is occurring and what observations we need to reduce uncertainties in our understanding of this phenomena.

Global sea level rise is a high priority issue that requires strengthened international cooperation in the sustained collection of high-quality observations as the basis for sound decision-making. Present estimates of globally averaged sea level rise – based on historical tide gauge records and a decade of observations by the U.S./France TOPEX/Poseidon and Jason-1 altimeter satellites – are anywhere from 1 to 3 mm/year, more likely 1.5 to 2.0 mm/year. The major causes of uncertainty in these estimates result from inadequate observations of:

- Sea level by tide gauges, due to poor data reporting (both quality and timeliness), as well as vertical movement of the land
- Sea level by satellite altimetry, due to the relatively short record
- Changes in the volume of the ocean, due to changes in the temperature and salinity structure of the ocean
- Changes in the mass of the oceans, due to changes in the volume of glaciers and ice caps, as well as storage by lakes and reservoirs.

You may be interested to know that just before the Earth Observation Summit II in Tokyo in April, President Bush's Science Advisor, Jack Marburger, hosted a G8 Science Ministers meeting to discuss progress on the Science and Technology Action Plan from the Evian meeting. The participants in that meeting strongly endorsed GEO developing a comprehensive long-term plan, but they also discussed specific near-term actions that can be undertaken quickly, and at relatively low cost to fill existing gaps in our observations.

Using sea level rise as an example, the USA submitted a discussion paper at that meeting that identified several such near-term actions, including addressing the need for:

- About 170 tidal gauges, reporting hourly data in real time, and with co-located GPS receivers to measure the vertical movement of land
- At least three decades of coverage by satellite altimetry
- Continuing observations of the upper-ocean temperature and salinity structure by a global array of 3,000 Argo profiling floats
- Improved understanding of the re-distribution of water mass on the surface of the Earth

The 3rd Assessment Report (2001) by the Intergovernmental Panel on Climate Change projects globally averaged sea level to rise anywhere from 9 to 88 centimeters over the coming century. With 100 million people living within 1 meter of sea level, this is of great concern for the protection of life and property around the world. With a gradual rise in sea level, the storm surge generated by hurricanes, typhoons, and cyclones will become an ever-increasing threat for barrier islands (southeastern U.S.), coastal cities (Venice), river deltas

(especially Bangladesh, but also including New Orleans), and low-lying islands (like the Maldives with a maximum elevation of 2.4 m).

With statistics like these, we must improve our understanding of sea level rise, so we can reduce the wide range of uncertainty in the projected rate of seas level rise.

G8 Science & Technology for Sustainability Action Plan/Progress Report
At this year's meeting of the G8, held earlier this month on Sea Island in Georgia (United States), the G8 released its 2004 Science and Technology for Sustainability Action Plan and Progress Report. That report noted the two Earth Observation Summits held since the Evian Summit, the work of GEO, the adoption of the Framework, and the ongoing progress at developing a 10-year plan. My understanding is that the Science Ministers will continue their discussions on these projects at another meeting later this year. This will be a valuable opportunity for us to identify our priority requirements for near and long-term observations in a comprehensive system of systems, and to bring these specifics to the attention of Ministers.

Capacity Building
Of course all of our planning and implementation of ocean observing systems will, in the end, fail if we don't have the human resources necessary to operate, maintain, and deliver the benefits from the system. Capacity building in ocean science and technology is a vital need and must be an integral part of our efforts. I applaud the IOC for recognizing this critical activity in its current program planning. I am pleased that the IOC Strategy for Capacity Building gives priority to operational oceanography in general, and GOOS implementation in particular. We will look forward to working with Dr Erlich Desa on moving the strategy forward.

Conclusion
I hope I have provided you with some insight as to where we are headed with the GEO process toward a user-focused global system that is:

Comprehensive, by including observations and products gathered from all components required to serve the needs of participating members;

Coordinated, in terms of leveraging resources of individual contributing members to accomplish this system, whose total capacity is greater than the sum of its parts; and

Sustained, by the collective and individual will and capacity of participating members.

The Intergovernmental Oceanographic Commission has provided the scientific leadership that, coupled with other organizations within the UN system, provides the foundation for the system of systems.

In a joint statement read by Michel Jarraud, Secretary-General of the World Meteorological Organization at the Tokyo Summit, IOC (as part of UNESCO) joined FAO, UNEP and WMO in stating that:

> *[You] support the GEO process for the potential it offers to reduce hunger, alleviate poverty, improve health and a variety of other benefits that many of [your] member countries find lacking.*

By building on the work that the IOC has already done, particularly with the Global Ocean Observing System, we have a firm basis for reaching those goals. I urge IOC member nations not already involved with GEO to consider joining this intergovernmental effort to plan and build the GEOSS, and support a robust and sustained Global Ocean Observing component.

Thank you, and I look forward to answering any questions you may have.

ANNEX IV

ROGER REVELLE MEMORIAL LECTURE, 2004
23 June 2004

Upper trophic level changes in ocean basin ecosystems

Daniel M. PAULY

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Summary — There is a strong bias in the marine biological and oceanographic community toward what may be called 'bottom-up' processes, owing to (1) the ease of sampling indicators of such processes (SST, photosynthetic pigments, etc.), and to generate telling time series and synoptic maps (see e.g., "Challenges in Modeling Ocean Basin Ecosystems". Science, June 4, 2004: 1463-66), and (2) the challenges of representing 'top-down' processes at large geographic scales, until recently addressed by risky extrapolations from local data sets, and/or uncritical use of output from national or international fisheries regulatory agencies. The development in the last 15 years of food web modeling approaches built around mass-balance assumptions, notably as implemented in the widely used 'Ecopath with Ecosim' software, in combination with GIS-based approaches, has made it recently possible, however, to test a variety of hypotheses regarding the behavior of the upper trophic levels in the ocean, and to separate out, in quantitative terms, the relative impacts of top-down vs. bottom-up processes on marine ecosystems. Results from analyses of this sort are now enabling marine biologist to apprehend the major role played by top predators in structuring marine food webs, and therefore, to evaluate the ecological impact of marine fisheries, which have, in the last decades, massively reduced the biomasses of these top predators.

Dr Daniel M. Pauly, a French citizen, is since 1994 a professor at, and since November 2003 the Director of, the Fisheries Centre of the University of British Columbia, Vancouver, Canada (www.fisheries.ubc.ca). Previously, he worked at the International Centre for Living Aquatic Resource Management (ICLARM, now WorldFish), then in Manila, Philippines.

His early career, following doctoral studies at Kiel University, Germany, and field work in West Africa and Indonesia, was focused on developing new approaches for fisheries research and management in data-sparse settings, especially tropical developing countries. From his base in the Philippines, he has taught on these issues on FAO- or EU-sponsored and other courses in four languages in Europe, Africa, Asia, Oceania and Latin America.

Besides numerous and well-cited journal articles, books and other publications, his work has led to software (ELEFAN; Ecopath, see www.ecopath.org) and scientific data bases (FishBase, www.fishbase.org) now used throughout the world. His current work, concentrating on ecosystem-based fisheries management, has led to concepts now structuring much research in marine biology, notably on "fishing down marine food webs," which impacts all the worlds aquatic systems, but which many do not notice because of the "shifting baseline syndrome of fisheries."

Daniel Pauly is Principal Investigator of the Sea Around Us Project (www.seaaroundus.org), devoted to investigating the global impact of fisheries on marine ecosystems. He has received

the Oscar E. Sette Award from the Marine Fisheries Section, American Fisheries Society and the Murray Newman Award for Excellence in Marine Conservation Research from the Vancouver Aquarium, both in 2001. He was named a 'Honorarprofessor' of Kiel University in late 2002, and elected a Fellow of the Royal Society of Canada (Academy of Science) in early 2003. Profiles of D. Pauly were published in Science on April 19, 2002, Nature on January 2, 2003, and the New York Times on January 21, 2003.

Dr Pauly has authored or co-authored over 500 scientific articles, book chapters and shorter contributions, and authored or (co-)edited about 30 books and reports. Two books ("In a Perfect Ocean: fisheries and ecosystem in the North Atlantic". Island Press, 2003; and "Darwin's Fishes: an encyclopaedia of ichthyology, ecology and evolution."

ANNEX V

INFORMATION SESSION
23 June 2004

1) GODAE, au coeur de la phase intensive de démonstration (2003–2005)/GODAE, in the heart of its intensive implementation phase (2003–2005), by Pierre Bahurel

Résumé
L'expérience internationale GODAE (Global Ocean Data Assimilation Experiment) avait pris rendez-vous dès 1997 pour une phase intensive (2003–2005) de démonstration de notre capacité collective à observer, surveiller et prévoir l'océan en temps réel et de façon continue.

Le rendez-vous est tenu et les ingénieurs, chercheurs et techniciens mobilisés dans les agences spatiales, les équipes embarquées pour l'observation in situ ou les nouveaux centres de modélisation et prévision ont déjà significativement contribué à faire évoluer notre connaissance opérationnelle de l'océan.

Les différentes composantes du système GODAE – systèmes d'observation, systèmes d'assimilation et prévision, serveurs de données – sont progressivement déployées à travers le monde, au rythme de projets pilotes (ARGO, GHRSST, …) et de la structuration des initiatives nationales pour l'océanographie opérationnelle. Forte des premiers succès réalisés à l'échelle des bassins océaniques (voir par exemple le projet pilote Atlantique Nord), l'expérience GODAE aborde aujourd'hui trois grands défis. Le premier consiste naturellement à étendre à l'échelle globale (océan mondial) cette capacité d'océanographie opérationnelle démontrée à l'échelle de quelques bassins. Le deuxième consiste à concevoir et développer les diagnostics internes de validation systématique de l'information élaborée. Le troisième enfin à structurer sur des bases pérennes une relation de qualité avec les utilisateurs de cette nouvelle information d'océanographie opérationnelle.

Nous montrerons, sur la base d'illustrations et d'exemples apportés par Mercator et les différentes équipes GODAE, comment celles-ci abordent ces différents objectifs, avec, en perspective claire, la volonté de construire les éléments favorables à une consolidation de la démonstration GODAE pour une activité réellement opérationnelle.

Présentation donnée en mémoire de Christian Le Provost, membre de l'International Steering Team de GODAE et Responsable Scientifique Modélisation de Mercator.

Pierre Bahurel is head of MERCATOR OCEAN, a public French company devoted to operational oceanography and Mercator project management, created in 2002 by French agencies.

2) The NEPTUNE Ocean Observatory: an interactive network of remotely operated submarine laboratories in the north-east Pacific Ocean, by John Delaney

Summary
The earth, ocean, and planetary sciences are shifting from an intermittent expeditionary mode of identifying "what's out there" to a sustained, in situ experimental mode of exploring natural systems in the time domain. The shift arises in part from the rapidly expanding developments in the computational, robotic, communications, and sensor industries, and in part from a maturation of the natural sciences that involves a growing awareness of process complexity and interactive dynamics in many systems. These new approaches require an extensive, remote, continual, interactive "sensor presence" within a particular system of interest, whether

a full instrumented fault system on land, a remotely wired oceanic plate, or a robotic colony on Mars.

The goal of NEPTUNE – North-East Pacific Time-series Undersea Networked Experiments – is to establish a regional cabled ocean observatory in the northeast Pacific Ocean. NEPTUNE's 3,000-km network of fiber-optic/power cables will encircle and cross the Juan de Fuca tectonic plate in the northeast Pacific Ocean, an area roughly 500 km by 1,000 km in size.

The ultimate vision of NEPTUNE is to enable regional-scale, long-term, real-time, interactive observations and experiments with the ocean, the sea floor, and regions below the sea floor.

NEPTUNE is a multi-institutional, international project. Partners are the University of Washington, Seattle, Washington; the University of Victoria, Victoria, British Columbia; Woods Hole Oceanographic Institute, Woods Hole, Massachusetts; Monterey Bay Aquarium Research Institute, Moss Landing, California; and Caltech's Jet Propulsion Laboratory, Pasadena, California. NEPTUNE is described in detail at http://www.neptune.washington.edu/.

About 26 major experimental nodes will be established along the cable. The system will have the capability of establishing auxiliary experimental sites using extension cables from the main nodes, enabling a dynamic ability to adapt to scientific needs. All of these locations will be instrumented to interact with physical, chemical, and biological phenomena that operate across multiple scales of space and time. Interactive sensor networks will fill in the volume between nodes and will include multipurpose robotic underwater vehicles that will reside at depth, recharge at nodes, and respond to events such as submarine volcanic eruptions. Via the Internet, the network will provide real-time information and command-and-control capabilities to shore-based users.

With an expected infrastructural lifetime in excess of 25 years, the network will be a resource for the scientific and educational communities, much as a research vessel is an observational platform open to a wide range of users. For the first time, researchers, as well as decision-makers and shore-based learners of all ages, will participate in detailed studies and experiments on a wide area of sea floor and ocean for decades rather than days or weeks. The network will provide unprecedented multidisciplinary measurements at spatial scales from microns to megameters and at temporal scales from microseconds to decades. NEPTUNE's capabilities will allow many basic oceanographic and geophysical systems to be explored with entirely new investigative strategies.

John R. Delaney is Director of the NEPTUNE Programme and a Professor of Oceanography at the University of Washington, Seattle, Washington, USA. He specializes in marine geology and his research focuses on the deep-sea volcanic activity on the Juan de Fuca Ridge in the north-east Pacific Ocean.

He received his B.A. degree in geology from Lehigh University in 1964. He then attended the University of Virginia where he received his M.Sc in geology while working as a Mineral Exploration Geologist in Charlottesville. In 1977 he earned his Ph.D. in geology at the University of Arizona studying volatiles trapped in the glassy rinds of mid-ocean ridge basalts. He joined the University of Washington faculty in 1977 at the School of Oceanography where he won the Teaching Award in 1980 and the Distinguished Research Award in 1991. He was a visiting scientist at the Lunar and Planetary Institute and Johnson Space Center from 1977 to 1980.

As a marine geologist, his research focuses on the deep-sea vulcanism of the Juan de Fuca Ridge in the northeast Pacific Ocean. He has served as chief scientist on more than 20 oceanographic research cruises, many of which have included the Deep Submergence Vehicle ALVIN. In the summer of 1998, Delaney led a joint expedition with the American Museum

of Natural History to successfully recover four volcanic sulfide structures from the Ridge. This USA–Canada effort was the subject of a NOVA/PBS documentary.

Other activities and honours include being named a Fellow of the American Geophysical Union in 1995; participation in the development and launch of the REVEL professional-development programme which takes science teachers to sea; and serving on the NASA committee planning a mission to the icy moons of Jupiter.

3) From WOCE – the catalyst, to Argo – the future, by John Gould

Summary
The World Climate Research Programme's World Ocean Circulation Experiment (WOCE) that ended in 2002 spanned almost two decades from initial planning. It marked the development of ocean observations and modelling as the truly global activities that are required to address the oceans' role in climate.

The simplest measures of WOCE's achievements are its ever-growing list of scientific publications and its unprecedented data set. WOCE also leaves a legacy of technological development and international collaboration. The most obvious example of this is seen in the Argo array of autonomous profiling floats which, since its start in 2000, has grown to be the most abundant source of CTD data from the open oceans. By the end of 2004, half of Argo's target 3000-float array will be delivering 4,500 temperature/salinity profiles per month to users throughout the world. Argo is the core of the global in situ observing system.

The talk outlined the development of WOCE, documented its achievements and described how Argo has grown, how it operates and will show its importance and potential to the Global Ocean and Climate Observing Systems.

W. John Gould is Director, International Argo Project, Scripps Institution of Oceanography, La Jolla, California, USA. He is a physical oceanographer who started his research career in the late-1960s working with John Swallow, FRS, at the UK National Institute of Oceanography, on the use of neutrally buoyant floats and currentmeters to reveal the subsurface ocean circulation. This interest continued throughout his career and he led many cruises, mostly exploring the North Atlantic circulation. He became head of the Marine Physics Group at the UK Institute of Oceanographic Sciences.

Continuing his involvement in international marine science, through involvement in MODE, and PolyMODE and the work of ICES, where he chaired the Oceanic Hydrography WG, he was appointed Director of the World Climate Research Programme's WOCE project in 1994 and to the the Directorship of CLIVAR in 1998. With the end of WOCE in 2002, he moved to the USA where he is now Director of the International Argo Project and is involved in the planning of global observing systems.

4) Coral reef targeted research and capacity-building project, by Ms Tundi Agardy

Summary
Coral reefs are one of the most stressed biomes on the planet and, ironically, one of the ecosystems upon which people most depend. Fully 48 of IOC's 129 Member States have tropical coral reefs within their jurisdiction. Coral reefs provide coastal communities with important fish resources and, at the same time, act to stabilize shorelines and buffer land from storms. Coral-reef-based fisheries are economically valuable, estimated to generate $5.7 billion per year. Coral-reef-based tourism generates $9.6 billion annually, and this tourism is one of the fastest growing sectors in the industry.

Ironically, even as more and more people come to rely on reefs and partake of the numerous benefits they provide, reefs are being lost and degraded. Almost 30% of the world's reefs have already been destroyed, and another 30% may be lost in the coming decades if current trends continue. We know that poorly managed reefs are predisposed to be more vulnerable to the effects of disease and climate change, but information about other key aspects of coral reef ecology is lacking. What is called for is a strategic, targeted programme of research that aims to quickly answer the most critical scientific questions about coral reef ecology, in order to better inform management.

The Coral Reef Targeted Research and Capacity-Building Project is the answer to this cry. The project is funded by the GEF. It is an ambitious, long-term, multi-institutional, international initiative that aims to provide answers to key questions of reef ecology in order to better arm managers and decision-makers with the scientific information necessary for more effective reef conservation; it involves renowned researchers from over 50 institutions carrying out integrated research projects in four regions around the globe and working together to ensure that local capacity in the regions in which they work will be built over time. This exciting and very necessary programme of targeted research points directly to the heart of IOC's mandate – supporting science-based management and policy – and IOC plays a crucial role. The targeted research caters directly to the needs of countries that have a strong reliance on healthy, productive reefs, and indeed, early results of the effort have helped improve management and build capacity in several nations already.

Tundi Agardy is Executive Director, Sound Seas, Bethesda, Maryland, USA. She has a background in marine biology and is an internationally renowned expert on marine conservation, specializing in marine protected areas and coastal planning. She has published a series of important papers, and currently serves as co-editor for the Millennium Ecosystem Assessment "Coastal-Marine" theme. Dr. Agardy has worked for WWF and Conservation International as Senior Scientist and Senior Director, and has consulted for the World Bank, UNDP, UNEP, bilateral aid organizations, and private foundations, to provide guidance on conservation investment in the Black Sea region, throughout Africa, the western Pacific, and the Caribbean Basin, as well as the Mediterranean and throughout North America. She currently heads an independent policy group called Sound Seas, based in the Washington, D.C., area.

5) The IOC TTR Programme: training through research on ocean margins under the theme of geosphere–biosphere interaction, by Neil Kenyon

Summary
The TTR programme (http://ioc.unesco.org/ttr) is a well established educational network that has given experience in research at sea to over 600 students and young scientists from about 25 countries. The main discipline is marine geoscience and its interface with biology and physical oceanography. In addition to major achievements in the study of geological hazards, deep-water sand systems and neo-tectonics there has been an emphasis on the field of fluid flow including the mapping of mud volcanoes and associated fauna and bacteria. The link between carbonate crusts, giant carbonate mounds and cold-water corals and fluid seepage has been studied. TTR's record in the field of capacity-building and its scientific achievement has lead to its inclusion in the forthcoming HERMES programme (Hotspot Ecosystem Research on the Margins of European Seas).

This very large EC programme aims to understand in an integrated way deep-water ecosystems, including cold-water coral, canyon, cold seep and anoxic ecosystems. This will include study of their fragility and of their potential global relevance, e.g. to the carbon cycle.

Neil Kenyon, of the Challenger Division for Seafloor Processes, Southampton Oceanography Centre, Southampton, United Kingdom, is the Coordinator of the IOC TTR Programme. He has had 39 years' experience of research on continental margins, especially in the processes and products of sand transport and is the co-author of two books (*Sonographs of the sea floor*, Elsevier; *Offshore tidal sands, processes and deposits*, Chapman and Hall) and 130 refereed papers. He was the UK coordinator of the USGS/IOS programme using the GLORIA sidescan sonar to map the EEZ of the USA and is a Visiting Research Fellow of the Southampton Oceanography Centre. He has a D.Sc. from the University of Keele.

6) Regime shifts, marine ecosystems and indicators, by Roger Harris

Summary
The presentation links three research areas that have been supported by recent IOC initiatives, on marine ecosystems, regime shifts, and ecosystem indicators. Advances in each suggest that combination of elements of these topics will provide a productive basis for future work. The concept of a regime shift as a sudden shift in the structure and functioning of a marine ecosystem, affecting one or several living components and resulting in an alternative steady, sustained ecosystem state is discussed. Examples of regime shifts from a range of globally distributed marine ecosystems are presented and their common characteristics reviewed. The theoretical and modelling basis for bi-stable states in marine ecosystems is considered. It is concluded that there may be potentially severe management implications for ecosystems with alternative stable states. A precautionary approach should take into account regime shifts in marine ecosystems.

A number of IOC-sponsored initiatives in this area have been important recently and a combination of some elements from GLOBEC, GOOS, IOC–SCOR WG119 and the 2003 IOC Villefranche Workshop on Regime Shifts might provide the basis for a new initiative in this research area.

Roger Harris, of the Plymouth Marine Laboratory, Plymouth, United Kingdom, has a research background in biological oceanography and has been involved in a number of international and interdisciplinary projects. He is past chairman of the IGBP/SCOR/IOC GLOBEC Steering Committee and is currently a member of the GLOBEC SSC and leader of the GLOBEC Focus 2 Working Group. He is a past member of the SC-IGBP, GAIM (Global Analysis Integration and Modelling), and has attended the Global Ocean Observing System (GOOS) Coastal Ocean Observing Panel (COOP). He is past chairman of the ICES Working Group on Zooplankton Ecology. He has acted as a Project Leader for the Biogeochemical Ocean Flux Study (BOFS) at the Plymouth Marine Laboratory and as a Project Leader for the Strategic Research Project "Productivity and Physical Structure in Pelagic Ecosystems". He currently leads a group doing research on how the composition of the autotrophic and heterotrophic community affects carbon cycling and ecosystem stability. Main research interests are: the control of biological production by physical processes, the role of water-column biology in global oceanic carbon flux, the ecology and physiology of calanoid copepods. He was Co-ordinator of the EU-funded EHUX project and has been a member of the TASC and EURAPP Steering Committees. In addition to publishing more than 100 peer-reviewed journal papers he has recently edited the "ICES Zooplankton Methodology Manual" as well as journal Special Issues for the first and second GLOBEC Open Science Meetings (Fisheries Oceanography), the 1994 and 2003 ICES Zooplankton Production Symposia (ICES Journal of Marine Science) and the Special Issue of Progress in Oceanography on "Regime Shifts". He is currently Strategic Editor for the Journal of Plankton Research.

7) Assessment and management implications of submarine groundwater discharge into the coastal zone, by William Burnett

Summary
Although not as obvious as river discharge, continental and insular ground waters also discharge directly into the sea. Like surface water, ground water flows down gradient. Therefore, ground water flows directly into the ocean wherever a coastal aquifer is connected to the sea. Furthermore, artesian aquifers can extend for considerable distances from shore, underneath the continental shelf with discharge to the ocean at their points of outcrop. While the magnitude of such discharge is almost always unknown, recent studies have indicated that ground water may occasionally account for a significant fraction of the fresh water and biogeochemical inputs into the coastal zone.

The principal reason that groundwater estimates have not attained the precision that is typically achieved for other oceanic inputs is that the direct discharge of groundwater into the coastal zone is inherently very difficult to measure. Concerted efforts are required to improve this situation by integrated application of both hydrological and oceanographic techniques. The methodological approaches in these two fields are quite different and have rarely been systematically compared or evaluated. Hydrogeologists and oceanographers are literally approaching the same problem from different ends.

In order to develop the scientific and technical knowledge that will enable these issues to be addressed with a higher degree of certainty, our group is conducting a project to evaluate SGD assessment techniques and address the management implications of groundwater discharges. The project was initiated by a SCOR–LOICZ joint team and was expanded shortly afterwards to include UNESCO and IAEA. The UNESCO component consists of IOC (ICAM) and IHP. Our approach has been to design intercomparison experiments in different types of coastal environments (karst, coastal plain, glacial, deltaic, etc.) in order to provide a standardized methodology for assessment of SGD. The idea is that several techniques would all be employed at the same time in order to make comparisons (and eventual improvements) on a level playing field. An important aspect of our programme has been to disseminate the results widely, to coastal managers and other relevant parties, in the hope that national authorities will encourage the scientific community to investigate this phenomenon properly.

Thus far, we have organized SGD assessment experiments in Florida (August 2000; karst environment), Australia (November 2000; coastal plain), Sicily (March 2002; karst-volcanic), New York (May 2002; glacial till), and Brazil (November 2003; fractured crystalline rock). Methods employed included standard hydrological measurements and modeling, geochemical tracers, and seepage meters of several different designs. In general, the “direct measurements” based on tracers and seepage-flux meters have agreed relatively well, but agreement between these methods and hydrological modeling has not been consistent. Plans for next year call for an experiment on the island of Mauritius inspired by the observation that large oceanic islands appear to have a disproportionately higher amount of SGD per unit shoreline than continental areas.

William Burnett is a Professor in the Department of Oceanography at Florida State University. He has an M.Sc. (1971) and Ph.D. (1974) in Geochemistry from the University of Hawaii. Since joining the faculty of FSU in 1977, Dr. Burnett has developed a worldwide research program based on the measurement of natural uranium and thorium decay-series isotopes in marine and terrestrial systems. He began study of groundwater discharge into the coastal zone in the early 1990s and was named Chair of an international working group sponsored by the Scientific Committee on Oceanic Research (SCOR) on the subject in 1997. Dr. Burnett has authored over 120 articles in scientific journals and books, co-edited a book

for Cambridge University Press, and served as principal investigator on over 35 national, state, and corporate research grants including awards from the National Science Foundation, Office of Naval Research, Department of Energy, American Chemical Society, Earthwatch, and others. He was named the Carl H. Oppenheimer Professor of Oceanography at Florida State University in 2003.

ANNEX VI

LIST OF DOCUMENTS

Document Code	Title	Agenda Items	Languages available
WORKING DOCUMENTS			
IOC/EC-XXXVII/1 prov. rev.	Revised Provisional Agenda	2.	E F R S
IOC/EC-XXXVII/1 Add. prov. rev.	Revised Provisional Timetable	2.4	E only
IOC/EC-XXXVII/2	Action Paper	All	E F R S
IOC/EC-XXXVII/2 Annex 1	Report by the IOC Executive Secretary on Programme Implementation	3.1	E F R S
IOC/EC-XXXVII/2 Annex 1 Add.	Implementation of IOC Governing Body Resolutions	3.1	E F R S
IOC/EC-XXXVII/2 Annex 2	Progress Report on Budget Execution 2002–2003 and Outline of the Budget Structure for 2004–2005 *(Executive Summary)*	3.1	E F R S
IOC/EC-XXXVII/2 Annex 2 Add.	Progress Report on Budget Execution 2002–2003 and Outline of the Budget Structure for 2004–2005 *(Addendum)*	3.1	E only
IOC/EC-XXXVII/2 Annex 3	Internal Follow-up of the IOC External Evaluation	4.1.2	E F R S
IOC/EC-XXXVII/2 Annex 4	Draft Memorandum of Understanding UNEP–IOC	4.1.4	E F R S
IOC/EC-XXXVII/2 Annex 5 Rev.	A Proposal to SCAR, SCOR and the IOC for Joint SCAR, SCOR, IOC Coordination of Southern Ocean Studies	4.1.5	E F R S
IOC/EC-XXXVII/2 Annex 6 rev.	Preparation for the International Polar Year 2007–2008	4.1.6	E F R S
IOC/EC-XXXVII/2 Annex 7	Progress Report on the establishment of a UN International Year of Planet Earth	4.1.7	E F R S
IOC/EC-XXXVII/2 Annex 8	Towards a New GESAMP: Developments, Strategy and Financial Implications	4.2.1	E F R S
IOC/EC-XXXVII/2 Annex 9	Report of the Intersessional Working Group on Review of the Structure of the Global Ocean Observing System (GOOS)	4.4.1	E F R S
IOC/EC-XXXVII/2 Annex 10	Report on Support for the GOOS Project Office and the GOOS Capacity Building Programme	4.4.2	E F R S
IOC/EC-XXXVII/2 Annex 11 (cancelled)	*(See Information document IOC/INF-1198)*	4.4.4	--
IOC/EC-XXXVII/2 Annex 12	Concept Paper on the Modalities of Implementation of IOC Programmes in Regions	4.5.3	E F R S
IOC/EC-XXXVII/2 Annex 13	Framework Memoranda of Understanding for IOC project, programme and regional offices	4.5.4	E F R S
IOC/EC-XXXVII/2 Annex 14	A Strategy for Capacity-Building	4.7.1	E F R S

Document Code	Title	Agenda Items	Languages available
IOC/EC-XXXVII/2 Annex 15	A Plan for the Use of Remote Sensing in Oceanography by Developing Countries	4.7.2	E F R S
IOC/EC-XXXVII/2 Annex 16	Proposal on Initial Guidelines for the IOC Draft Programme 2006–2007	5.1	E F R S
IOC/EC-XXXVII/3 prov.	Draft Summary Report	6.	E F R S
IOC/EC-XXXVII/4 prov.	Provisional List of Documents	All	E F R S
IOC/EC-XXXVII/5 prov.	Provisional List of Participants	--	E/F/S
REPORTS OF IOC AND COOPERATING BODIES REQUIRING ACTION			
IOC-XXII/3	Summary Report the Twenty-second Session of the Assembly, Paris, 24 June–2 July 2003	3.1	E F R S
IOC/EC-XXXV/3	Summary Report of the Thirty-fifth Session of the Executive Council, Paris, 4–14 June 2002	3.1	E F R S
IOC/ITSU-XIX/3	Summary Report of Nineteenth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, Wellington, New Zealand, 29 September–2 October 2003	4.3.1	E *(Executive Summary in F R S)*
IOC/CGOM-IX/3	Report of the Ninth Session of the Consultative Group on Ocean Mapping, Monaco, 12–13 April 2003 *(executive summary)*	4.3.2	E *(Executive Summary in F R S)*
IOC/SC-IOCARIBE-VIII/3	Summary Report of Eighth Session of IOC Sub-Commission for the Caribbean and Adjacent Regions, Recife, Brazil, 14–17 April 2004	4.5.1	E *(Executive Summary in F R S)*
IOC/ABE-LOS-IV/3	Summary Report of the Fourth Meeting of the Advisory Body of Experts on the Law of the Sea, Lefkada Island, Greece, 4–7 May 2004	4.6.1	E *(Executive Summary in F R S)*
INFORMATION AND OTHER REFERENCE DOCUMENTS			
IOC/INF-1194 prov.	Provisional Guidelines for the Preparation of Documents, Reports, Resolutions and Recommendations of IOC meetings	2.4	E only
IOC Annual Report No. 10	IOC Annual Report, 2003	3.1	E only
IOC Annual Report No. 9	IOC Annual Report, 2002	3.1	E only
United Nations Resolution A/RES/58/240	UN Resolution on Oceans and the Law of the Sea	3.1	E F R S
United Nations document A/58/423	Oceans and the Law of the Sea – a Regular Process for the Global Reporting and Assessment of the State of the Marine Environment: Proposals on Modalities – Report of the Secretary-General	3.1	E F R S
United Nations document A/58/65	Oceans and the Law of the Sea – Report of the Secretary-General	3.1	E F R S
United Nations document A/58/95	Report on the Work of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea	3.1	E F R S
--	Communiqué of the Second Earth Observation Summit (25 April 2004)	3.2	E only

Document Code	Title	Agenda Items	Languages available
--	From Observation to Action – Achieving Comprehensive, Coordinated and Sustained Earth Observations for the Benefit of Humankind: Framework for a 10-year Implementation Plan	3.2	E only
--	Ad Hoc Group on Earth Observations (GEO): From Observation to Action – Building the Global Earth Observation System of Systems (GEOSS) Elements of the 10-Year Implementation Plan *(electronic copy only)*	3.2	E only
A/AC.271/WP.1 *http://www.un.org/Depts/los/global_reporting/global_reporting.htm*	A Regular Process for the Global Reporting and Assessment of the State of the Marine Environment, Including Socio-economic Aspects *(draft document prepared by the group of experts)*	4.1.1	E F R S
A/AC.271/WP.2	Idem *(comments received on the draft document prepared by the Group of Experts)*	4.1.1	E only
2004-04-20 IPY_OSP5.0	International Polar Year 2007-2008 – Initial Outline Science Plan (20 April 2004)	4.1.6	E only
-- *(brochure)*	International Year of Planet Earth 2005–2007	4.1.7	E only
IOC/INF-1196	The New GESAMP, Science for Sustainable Oceans	4.2.1	E only
IOC/INF-1197	Accomplishment, Activities and Future of GESAMP	4.2.1	E only
Ocean & Coasts Management 45 (2002) 77-89	Caring for the Sea – Accomplishments, Activities and Future of the United Nations GESAMP *(Elsevier Publisher, abstract)*	4.2.1	E only
MAN-III/3 *http://www.wmo.ch/web/aom/marprog/Publications/publications.htm*	Third Session of JCOMM Management Committee, Geneva, 17–21 March 2004 *(electronic copy only)*	4.4.3	E only
IOC/INF-1198	Proposal to Investigate Marine Impacts on Lowland Agriculture and Coastal Resources (MILAC)	4.4.4	E only
IOC/INF-1195	GCOS Second Adequacy Report and Implementation Plan: Background	4.4.5	E only
GCOS-82 (ES), WMO/TD No. 1143	Second Report on the Adequacy of the Global Observing Systems for Climate in Support of the UNFCCC (Executive Summary)	4.4.5	E F R S
GCOS-82 WMO/TD No. 1143 http://www.wmo.ch/web/gcos/gcoshome.html	Second Report on the Adequacy of the Global Observing Systems for Climate in Support of the UNFCCC (Full report) *(electronic copy only)*	4.4.5	E only
IOC/INF-1193 prov.	Guidelines for the Structure and Responsibilities of the Subsidiary Bodies of the Commission, and for the Establishment of Decentralized Offices	4.5.2 & 4.5.4	E only

ANNEX VII

LIST OF PARTICIPANTS

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ANNEX VIII

LIST OF ACRONYMS

ADG	Assistant Director-General [UNESCO]
AOSIS	Alliance of Small Islands Developing States
Argo	GODAE global profiling float project (not an acronym)
AWI	Alfred Wegener Institute for Polar and Marine Research, Bremerhaven, Germany,
B.A. degree	Bachelor of Art
BAS	British Antarctic Survey
BPOA	Barbados Programme of Action
BSRC	IOC Black Sea Regional Committee
CANIGO	Canary Islands Azores Gibraltar Observations
CAPC-TWS	Central American Pacific Coast Tsunami Warning System
CARICOM	Caribbean Community Secretariat
CEOS	Committee on Earth Observation Satellites
CEPREDENAC	Coordination Centre for the Prevention of Natural Disasters in Central America
CGOM	Consultative Group on Ocean Mapping
CIDA	Canadian International Development Agency
CliC	Climate and Cryosphere Programme [WMO]
CLIMAR	Climate and Production of Marine Resources
CLIVAR	Climate Variability and Predictability
C-LME	Caribbean Large Marine Ecosystem
COMEST	Commission on the Ethics of Scientific Knowledge and Technology
COOP	Coastal Ocean Observing Panel
COP	Conference of the Parties (to the UNFCCC), also CoP
CPPS	Permanent Commission for the South Pacific
CSD	Commission on Sustainable Development [UN]
D.Sc.	Doctor of Science
DBCP	Data Buoy Cooperation Panel
DHN	Dirección de Hidrografía y Navegación [Peru]
DR	Draft Resolution
EAF	Ecosystem Approach to Fisheries
ECOSOC	Economic and Social Council
EEZ	Exclusive Economic Zone
EHUX	European Emiliania huxleyi programme
EOS I	First Earth Observation Summit
ERFEN	Regional Study of the El Niño Phenomenon
EU	European Union
EURAPP	Impact of Appendicularians in European Marine Ecosystems
EWS	Early Warning Systems
FAO	Food and Agriculture Organization of the United Nations
FRS	Fisheries Research Services [Scotland]
G3OS	Sponsors Group for the Global Observing Systems [GCOS, GOOS and GTOS]
G-77	Group of 77 [seventy-seven developing countries signatories of the "Joint Declaration of the Seventy-Seven Countries" issued at the end of the first session of the United Nations Conference on Trade and Development (UNCTAD) in Geneva, 15 June 1964]

G8	Group of Leaders of the world's major industrial democracies: Canada, France, Germany, Italy, Japan, Russian Federation, the United Kingdom, and the United States [first G6 created in 1975]
GAIM	Global Analysis Integration and Modelling
GAPA	International Geological/Geophysical Atlases of the Atlantic and Pacific Oceans
GAW	Global Atmosphere Watch
GCOS	Global Climate Observing System
GEBCO	General Bathymetric Chart of the Oceans
GEF	Global Environment Facility [World Bank-UNEP-UNDP]
GEF/PDF-B	Project Development Facilities
GEO	Group on Earth Observations
GEOSS	Global Earth Observation System of Systems
GESAMP	Group of Experts on the Scientific Aspects of Marine Environment Protection [IMO-FAO-UNESCO-WMO-WHO-IAEA-UN-UNEP]
GHRSST	Global Ocean Data Assimilation Experiment (GODAE) high-resolution sea surface temperature pilot project
GIPME	Global Investigation of Pollution in the Marine Environment [IOC-UNEP-IMO]
GLOBEC	Global Ocean Ecosystem Dynamics
GLOSS	Global Sea Level Observing System
GMA	Global assessment of the marine environment
GODAE	Global Ocean Data Assimilation Experiment
GOOS	Global Ocean Observing System
GPO	GOOS Project Office
GRAND	GOOS Regional Alliances Network Development
GRAs	GOOS Regional Alliances
GRG	GOOS Review Group
GSC	GOOS Steering Committee
GSSC	GOOS Scientific Steering Committee
GTDB	Global Tsunami Data Base
GTOS	Global Terrestrial Observing System
HAB	Harmful Algal Blooms
HAB-ANCA	Harmful Algal Blooms–Algas Nocivas del Caribe
HERMES	Hotspot Ecosystem Research on the Margins of European Seas
IAEA	International Association for Educational Assessment
IBCs	International Bathymetric Charts
IBCSO	International Bathymetric Chart of the Southern Ocean
ICAM	Integrated Coastal Area Management
ICES	International Council for the Exploration of the Sea
ICG/ITSU	International Co-ordination Group for ITSU
ICLARM	International Centre for Living Aquatic Resource Management
ICP	United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea
ICSU	International Council for Science
IGCP	International Geoscience Programme
I-GOOS	Intergovernmental Committee for GOOS
IGOS	Integrated Global Observing Strategy
IGP	Instituto Geofísico del Perú
IHB	International Hydrographic Bureau
IHP	International Hydrological Programme

IMARPE	Instituto del Mar del Perú
IMO	International Maritime Organization
INDECI	Instituto Nacional de Defensa Civil
INRENA	Instituto Nacional de Recursos Naturales
IOC	UNESCO Intergovernmental Oceanographic Commission
IOC/ABE-LOS	IOC Advisory Body of Experts on the Law of the Sea
IOC/OSS	Section of Operational Observing Systems in the IOC Secretariat
IOCARIBE	IOC Sub-Commission for the Caribbean and Adjacent Regions
IOCCG	International Ocean Colour Coordinating Group
IOCEA	IOC Regional Committee for the Central Eastern Atlantic
IOCINDIO	IOC Regional Committee for the Central Indian Ocean
IOCWIO	IOC Regional Committee for the Western Indian Ocean
IODE	International Oceanographic Data and Information Exchange
IOGOOS	Indian Ocean-GOOS
IOI	International Ocean Institute
IPCC	Intergovernmental Panel on Climate Change
IPY	International Polar Year
IRD	France's Research Institute for Development
ISDR	International Strategy for Disaster Reduction
ISOS	Inter-disciplinary Southern Ocean Science
ISWG	Intersessional Working Group on Guidelines for the Establishment of IOC Decentralized Offices
ITDB	Integrated Tsunami Data Base
ITIC	International Tsunami Information Centre, Hawaii, USA
ITSU	Tsunami Warning System in the Pacific
IUGG	International Union of Geodesy and Geophysics
IYPE	International Year of Planet Earth 2005–2007
JCOMM	Joint WMO–IOC Technical Commission for Oceanography and Marine Meteorology
LAC	Latin America and Caribbean
LOICZ	Land-Ocean Interaction in the Coastal Zone
M.SC	Master of Science
MAB	Programme on Man and the Biosphere [UNESCO]
MARPOLMON	Marine Pollution Monitoring System [IOC]
MERCATOR	French component of the international Global Ocean Data Assimilation Experiment (GODAE)
MILAC	Marine Impacts on Lowland Agriculture and Coastal Resources
MLA	Main Line of Action (of IOC-UNESCO programme and budget
MODE	Mid-Ocean Dynamics Experiment, a programme carried out between March and July 1973
MOST	Management of Social Transformations Programme [UNESCO]
MPERSS	JCOMM Marine Pollution Emergency Response Support System
MSR	Marine Scientific Research
NASA	National Aeronautics and Space Administration [USA]
NEPAD	New Partnership for Africa's Development
NOAA	National Oceanic and Atmospheric Administration, USA
NOVA/PBS	NOVA is a Science programme on the Public Broadcasting Service [USA]
ODIN	Oceanographic Data and Information Network
ODINCARSA	Ocean Data and Information Network for the Caribbean and South America Regions

OOPC	Ocean Observations Panel for Climate
OTEC	Ocean Thermal Energy Conversion
PAC-LME	Pacific Central American Large Marine Ecosystem
PICES	North Pacific Marine Science Organization
PolyMODE	Joint US/USSR oceanographic programme to study mesoscale processes in the North Atlantic in the late 1970s and early 1980s
ROOFS−AFRICA	Regional Ocean Observing and Forecasting System for Africa
RSB	IOC Regional Subsidiary Bodies (
RSP	Regional Seas Programme
SBSTA	Subsidiary Body for Scientific and Technological Advice
SCAR	Scientific Committee on Antarctic Research
SCG	Services Co-ordination Group
SCOR	Scientific Committee on Oceanic Research
SENAMHI	Servicio Nacional de Meteorología e Hidrología
SGD	Submarine Groundwater Discharge
SIDS	Small Island Developing States
SST	Sea-Surface Temperature
SWP-TWS	Tsunami Warning System in the South-west Pacific and Indian Ocean
TASC	Trans-Atlantic Study of *Calanus finmarchicus* [European Research Programme]
TEMA	IOC Programme for Training, Education and Mutual Assistance in the Marine Sciences
TMT	Transfer of Marine Technology
TOPEX/Poseidon	Joint U.S.A-France satellite for ocean observation [launched in August 1992]; Jason-1 launched in July 2001 is the follow-on of TOPEX/Poseidon
TROIKA	Working Groups on a Comprehensive Tsunami Hazard Reduction Programme
TTR	Programme: training through research
TTR	Training-through-Research [UNESCO]
UK	United Kingdom
UN	United Nations
UN/DOALOS	Division of Ocean Affairs and the Law of the Sea of United Nations
UN/OLA	United Nations Office of Legal Affairs
UNCLOS	United Nations Convention on the Law of the Sea [1982]
UNEP	United Nations Environment Programme
UNEP/RCU	United Nation’s Environment Programme’ s Regional Co-ordinating Unit
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
USA	United States of America
USGS/IOS	Internal Oversight Service of the United States Geological Survey
USN	U.S. Navy
WCRP	World Climate Research Programme
WESTPAC	IOC Sub-Commission for the Western Pacific
WG	Working group
WGEdu	CEOS Working Group on Education, Training and Capacity Building (
WHO	World Health Organization
WMO Cg-XIV	Fourteenth Congress of WMO
WMO	World Meteorological Organization

WOCE	World Climate Research Programme's World Ocean Circulation Experiment
WSSD	World Summit on Sustainable Development, 2002
WW2BW	Conference on the White Water to Blue Water, 2004
WWW	World Weather Watch [WMO]

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65.	Second Planning Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 1995	E only
66.	Third Session of the IOC Sub-Commission for the Western Pacific, Tokyo, 1996	E only
67.	Fifth Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions, Christ Church, 1995	E, S
68.	Intergovernmental Meeting on the IOC Black Sea Regional Programme in Marine Sciences and Services	E, R
69.	Fourth Session of the IOC Regional Committee for the Central Eastern Atlantic, Las Palmas, 1995	E, F, S
70.	Twenty-ninth Session of the Executive Council, Paris, 1996	E, F, S, R
71.	Sixth Session for the IOC Regional Committee for the Southern Ocean and the First Southern R Ocean Forum, Bremerhaven, 1996	E, F, S,
72.	IOC Black Sea Regional Committee, First Session, Varna, 1996	E, R
73.	IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean, Fourth Session, Mombasa, 1997	E, F
74.	Nineteenth Session of the Assembly, Paris, 1997	E, F, S, R
75.	Third Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 1997	E, F, S, R
76.	Thirtieth Session of the Executive Council, Paris, 1997	E, F, S, R
77.	Second Session of the IOC Regional Committee for the Central Indian Ocean, Goa, 1996	E only
78.	Sixteenth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, Lima, 1997	E, F, S, R
79.	Thirty-first Session of the Executive Council, Paris, 1998	E, F, S, R
80.	Thirty-second Session of the Executive Council, Paris, 1999	E, F, S, R
81.	Second Session of the IOC Black Sea Regional Committee, Istanbul, 1999	E only
82.	Twentieth Session of the Assembly, Paris, 1999	E, F, S, R
83.	Fourth Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 1999	E, F, S, R
84.	Seventeenth Session of the International Coordination Group for the Tsunami Warning System in the Pacific, Seoul, 1999	E, F, S, R
85.	Fourth Session of the IOC Sub-Commission for the Western Pacific, Seoul, 1999	E only
86.	Thirty-third Session of the Executive Council, Paris, 2000	E, F, S, R
87.	Thirty-fourth Session of the Executive Council, Paris, 2001	E, F, S, R
88.	Extraordinary Session of the Executive Council, Paris, 2001	E, F, S, R
89.	Sixth Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions, San José, 1999	E only
90.	Twenty-first Session of the Assembly, Paris, 2002	E, F, S, R
91.	Thirty-fifth Session of the Executive Council, Paris, 2001	E, F, S, R
92.	Sixteenth Session of the IOC Committee on International Oceanographic Data and Information Exchange, Lisbon, 2000	E, F, S, R
93.	Eighteenth Session of the International Coordination Group for the Tsunami Warning System in the Pacific, Cartagena, 2001	E, F, S, R
94.	Fifth Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 2001	E, F, S, R
95.	Seventh Session of the IOC Sub-commission for the Caribbean and Adjacent Regions (IOCARIBE), Mexico, 2002	E, S
96.	Fifth Session of the IOC Sub-Commission for the Western Pacific, Australia, 2002	E only
97.	Thirty-sixth Session of the Executive Council, Paris, 2003	E, F, S, R
98.	Twenty-second Session of the Assembly, Paris, 2003	E, F, S, R
99.	Fifth Session of the IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean, Kenya, 2002 (* Executive Summary available separately in E, F, S & R)	E*
100.	Sixth Session of the IOC Intergovernmental Panel on Harmful Algal Blooms, St. Petersburg (USA), 2002 (* Executive Summary available separately in E, F, S & R)	E*
101.	Seventeenth Session of the IOC Committee on International Oceanographic Data and Information Exchange, Paris, 2003 (* Executive Summary available separately in E, F, S & R)	E*
102.	Sixth Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 2003 (* Executive Summary available separately in E, F, S & R)	E*
103.	Nineteenth Session of the International Coordination Group for the Tsunami Warning System in the Pacific, Wellington, New Zealand, 2003 (* Executive Summary available separately in E, F, S & R)	E*
104.	Third Session of the IOC Regional Committee for the Central Indian Ocean, Tehran, Islamic Republic of Iran, 21-23 February 2000	E only
105.	Thirty-seventh Session of the Executive Council, Paris, 2004	E, F, S, R