

Intergovernmental Oceanographic Commission
Reports of Meetings of Experts and Equivalent Bodies



IOC-UNEP-IUCN-NOAA
Consultative Meeting on Large
Marine Ecosystems (LMEs)

Eighth Session

Paris, France
3–4 July 2006

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UNESCO

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UMIT UNLUATA: *Not long after this meeting, we sadly heard of the death of our colleague Dr Umit Unluata, who was Head of Ocean Sciences Section at the IOC. He was a long time friend and supporter of LME work, providing the LME network with IOC assistance and logistics at each of the LME Consultative Committee meetings. Born in Turkey, he became a scientist and oceanographer, teaching at the Middle East Technical University for many years. He was an active contributor to scientific research in the Mediterranean Sea LME. Umit and his ocean expertise, his willingness to move actions forward, and his perpetual good nature, will be missed by his many colleagues and friends of the LME network from around the globe.*

TABLE OF CONTENTS

	Page
1. INTRODUCTION.....	1
2. LME INDICATORS AND ASSESSMENTS.....	1
3. LME/IUCN PARTNERSHIP AND PERSPECTIVE ON EUTROPHICATION.....	1
4. REPORTS ON THE PLANNING AND IMPLEMENTATION OF LARGE MARINE ECOSYSTEM ASSESSMENT AND MANAGEMENT PROJECTS.....	2
4.1 THE BALTIC SEA LME PROJECT AND EUTROPHICATION.....	3
4.2 BENGUELA.....	3
4.3 THE GUINEA CURRENT LME: REFLECTIONS ON THE LME APPROACH.....	4
4.4 BAY OF BENGAL LARGE MARINE ECOSYSTEM (BOBLME) UPDATE.....	5
4.5 CARIBBEAN SEA LME.....	5
4.6 YELLOW SEA LME.....	6
5. PROMOTING LME APPROACHES TO FISHERIES CONSERVATION.....	7
5.1 ECOPATH-ECOSIM LME WORKSHOPS.....	7
5.2 GEF-DATA BASE FISHERIES MANAGEMENT IT NETWORK.....	8
5.3 NITROGEN FLUX MODELS AND TRAINING.....	8
5.4 INFORMATION PORTAL.....	9
5.5 MODELING OF BIOLOGICAL PARTICLE SIZE SPECTRA.....	10
5.6 FAO STATISTICS.....	10
6. REVIEW OF LME ACTIONS IN THE ARCTIC.....	10
7. GIWA ASSESSMENTS AND THE UNEP-LME APPROACH.....	11
8. POLLUTION AND ECOSYSTEM HEALTH INDICATORS FOR LMES AND THE GPA.....	11
9. THE CONTRIBUTION OF LME INDICATORS TO CLIMATE CHANGE ASSESSMENTS: GEOSS AND IOOS.....	12
10. BLACK SEA LME.....	12
11. CANARY CURRENT LME PROJECT.....	13

12. AGULHAS CURRENT LME AND SOMALI CURRENT LME	14
13. GULF OF MEXICO LME PROJECT.....	14
14. LME PROJECTS AND GOOS AND GEOSS IN AFRICA.....	14
15. THE NEW GESAMP	14
16. BONUS, A NETWORK OF SCIENCE AGENCIES.....	15

ANNEXES

- I. AGENDA**
- II. LIST OF PARTICIPANTS**
- III. THE BENGUELA CURRENT COMMISSION**
- IV. THE GUINEA CURRENT COMMISSION**
- V. BEIJING DECLARATION**
- VI. THE CAPE TOWN DECLARATION**
- VII. A WEBSITE FOR THE POWERPOINTS FROM THE IOC 8th CC MEETING**
- VIII. ACRONYMS**

1. INTRODUCTION

The Eighth Consultative Committee Meeting on Large Marine Ecosystems (LMEs) was held on 3–4 July 2006. The consultation was convened by the Intergovernmental Oceanographic Commission (IOC) of UNESCO, the US Department of Commerce's National Oceanic and Atmospheric Administration (NOAA), the World Conservation Union (IUCN), and the United Nations Environment Programme (UNEP). It was hosted by IOC at UNESCO headquarters, Paris, France. The meeting was co-chaired by IOC Executive Secretary, Dr Patricio Bernal, Dr Kenneth Sherman of NOAA, and Dr Carl Gustaf Lundin of IUCN. The meeting agenda is given in Annex I and a list of attendees in Annex II.

Dr Umit Unluata, on behalf of the IOC-UNESCO, welcomed the group to the meeting. Dr Patricio Bernal, General Secretary of the IOC, in his remarks to the meeting indicated the importance to the IOC of the GEF-LME Projects in Asia, Africa, Latin America and eastern Europe, where they are the principal sources of information on changing coastal ecosystem conditions around the globe. He viewed the projects as providing an important baseline of information for the global marine assessment under consideration by IOC and UNEP.

2. LME INDICATORS AND ASSESSMENTS

Dr Kenneth Sherman reviewed progress in LME assessments and indicator applications. Progress is being made on the development of indicators in the pollution and ecosystem health module, with the US Environmental Protection Agency (EPA) proposing 5 suites of indicators to assess the health of the LMEs bordering the United States. A handbook on socio-economic module indicators was produced by University of Rhode Island faculty since the meeting and is available at the LME website at <http://edc.uri.edu/lme>. The Woods Hole Oceanographic Institution recently developed an economic index of marine activity for each of the 64 LMEs. Good progress is being made in describing the key indicators for the productivity and fish and fisheries modules. The Benguela Current, Guinea Current and Baltic Sea LME projects are making progress in the development and application of socioeconomic and governance indicators. Several LME programmes are making technological strides in the productivity module by acquiring undulating plankton recorders and Mariner Shuttle samplers. The GEF International Waters unit is working to leverage one billion dollars of World Bank loans to support fisheries projects in the LMEs of sub-Saharan Africa (US\$100 million), and to address land-based sources of pollution issues in the Mediterranean Sea LME (US\$250 million) and in Southeast Asian LMEs (US\$650 million).

3. LME/IUCN PARTNERSHIP AND PERSPECTIVE ON EUTROPHICATION

Carl Gustav Lundin reviewed the IUCN and LME partnership. In the development and implementation of GEF-supported LME projects, the IUCN has established six Commissions, including one on Ecosystem Management. LME Projects are invited to send members to the deliberations at these commissions. Issues of nutrient export are critical to LMEs. In January 2006, Dr Sybil Seitzinger, of NOAA and Rutgers University, completed a successful Nitrogen workshop at the IOC/UNESCO in Paris, using a watershed N model approach to estimate the amounts and sources of land-based N exported into LME coastal systems. A second workshop was held at IOC/UNESCO in September 2006, with 7 participating LME projects (Baltic Sea, Bay of Bengal, Benguela Current, Guinea Current, Gulf of Mexico, Humboldt Current and Yellow Sea) continuing their training in the use and interpretation of the N model. The DIN-model was developed by an IOC work group and was recently published in *Global Biogeochemical Cycles* (December 2005).

The amount of DIN export varies among watersheds within LMEs. The DIN-Model output by watershed within each LME can be used to compare DIN export from watersheds among different LMEs. For example, some watersheds in Angola are estimated to have similar DIN yields as some watersheds in eastern India. For more information about the workshops, Dr Seitzinger can be contacted at sybil@marine.rutgers.edu. The website for the participants is at: <http://www.marine.rutgers.edu/globalnews/LMEworkshop.htm> (access the username: LMEworkshop; and password: export). For more information on the Nitrogen flux models, see also 5.3.

ECOPATH and ECOSIM modeling workshops have also been held. The University of British Columbia is continuing to update its work on fisheries statistics and is reviewing the trophic indices for each of the 64 LMEs. UNEP is partnering with the NOAA LME Programme to integrate land-based sources of pollution project activities with the LME modular assessment strategy. The partnership will produce the publication of a “UNEP LME report: A Perspective on Changing Conditions in LMEs of the World’s Regional Seas”, which will cover all 64 LMEs and all 5 modules and will include information on productivity, hydrography (ocean fronts), trophodynamics, multidecadal trends in fish catch value of landings, and average trophic indices for the fish yields in each of the LMEs.

4. REPORTS ON THE PLANNING AND IMPLEMENTATION OF LARGE MARINE ECOSYSTEM ASSESSMENT AND MANAGEMENT PROJECTS

The Committee welcomed senior Project Coordinators, Managers, and Directors for presentations on the status of GEF-supported LME project planning and implementation activities for projects from around the globe. Dr Kenneth Sherman reviewed ecosystem indicators for climate change and anthropogenic forcing of LMEs in Regional Seas. The principal causes of LME degradation issue from demographic expansion and from environmentally-altered ecosystems. These causes are climate change, species introductions, mechanical habitat destruction, pollution and excessive fishing mortality. He presented an overview of the indicators of changing ecosystem states in the world’s LMEs for productivity, fish and fisheries, pollution and ecosystem health, socioeconomics and governance. He discussed the recent outputs of the GEF-LME Medium Size Proposal, “Promoting Ecosystem-based Approaches to Fisheries Conservation and LMEs,” sponsored by the IOC. These products include the Nutrient Export Modeling Training Workshop conducted by Dr Sybil Seitzinger. LME Projects in support of the UNEP Regional Seas Programme are integrating land-based sources of pollution project activities with the LME modular assessment strategy. The funding for these projects could reach a total of US\$2 billion in combined grants and loans over the next 36 months. Other collaborating groups are NOAA’s Narragansett Laboratory, working on primary productivity, the University of British Columbia Sea Around Us project on trophodynamics and fish and fisheries valuations (accessible on the web for each LME at: www.seaaroundus.org/lme/), the Marine Policy Center of the Woods Hole Oceanographic Institution, and the University of Rhode Island on socioeconomics, valuation, and governance of LMEs. Dr Carl Gustav Lundin, IUCN Marine Programme Head, discussed the impacts of climate change in the Arctic Ocean. He outlined the IUCN goal for “good” management, the IUCN Ecosystem Management Commission, the work done in conjunction with IW Learn, and the availability of IUCN funding to help with LME project outreach activities and products. A discussion followed on the possibility of IUCN helping to publicize the accomplishments of LME projects and to move the information into the general marine community. He also mentioned IUCN efforts to close benthic areas in the high seas to fishing activities.

4.1 THE BALTIC SEA LME PROJECT AND EUTROPHICATION

Dr Jan Thulin and Dr Andris Andrushaitis reported on activities for the Baltic Sea LME. Eutrophication has been identified as a major threat to the Baltic Sea LME, caused by nutrient loading from land, atmospheric deposition, and internal nutrient loading by biological and geochemical pathways. The Helsinki Commission (HELCOM) contracting parties routinely monitor nutrient discharges to the Baltic Sea, estimate the magnitude of nutrient losses to watercourses in the drainage area, and identify nutrient sources, although agreement on a common methodology among participants has not yet been reached. The GEF/LME Nutrient Workshop report, available on the web at <http://woodsmoke.edc.uri.edu/Portal/>, summarizes the calculations made to arrive at estimates of DIN export from Baltic Sea catchments, and the implications for management. Agriculture is the dominant nitrogen source for the Baltic Sea. Soil properties influence the spatial distribution of nitrogen export, with export levels lower in the loamy areas of Poland and Southern Sweden and higher in other catchments like southern Finland. Assessments and strategies to reduce Baltic Sea nutrient loads were put forward by HELCOM in the 4th Baltic Sea Pollution Load Compilation and also in a source apportionment study conducted by the European Environment Agency (EEA 2005). Both nitrogen and phosphorus loads affect the environmental quality of the Baltic Sea LME. The Swedish MARE project is developing a system to achieve cost efficient nutrient abatement without undesired side-effects, like changing the distribution of cyanobacteria blooms. The earlier 50% reduction goal is being replaced by scientifically justifiable targets that are also cost efficient for participating countries. Approximately 20% of phosphorus loads originate from point sources and can be reduced simply through improved waste water treatment. The socio-economic costs of nutrient load reduction are region-specific. It is expected that legislative actions, along with the economic incentives provided by the European Union, can be used to coordinate the reduction of nutrient inputs to inland and marine waters. It is expected that the “good ecological quality” target will not soon be met in many areas of the Baltic Sea LME. Spatial models already in use in several Baltic Sea countries could help to identify sensitive areas on which to focus abatement measures.

The Baltic Sea LME has a large catchment area, with land use activities having a strong effect on water quality. Other threats to the Baltic Sea LME are overfishing, particularly of cod and other demersal species, toxins and invasive species. The working structure of the Baltic Sea LME Project is multilayered, with participating international managing bodies and governance institutions such as the Helsinki Commission, the European Commission, the International Baltic Sea Fishery Commission, ICES, providing scientific and coordination expertise to the project, as well as coordination centers, lead national laboratories, local implementation units and institutes in the participating countries. Ships of opportunity provide an operational monitoring system for the Baltic Sea, its state, and recent changes. A new CPR survey is to be conducted by Poland between Gdynia and Karlskrona. For reports and presentations on the Baltic Sea Project, see www@ices.dk.

4.2 BENGUELA CURRENT LME

Dr Michael O’Toole, the Regional Coordinator, described the main activities and some of the results of the Benguela Current LME (BCLME) Programme. He provided details on the initiation of the Benguela Current Commission (BCC), with a Secretariat and Ecosystem Advisory Committee, established by the three countries (Angola, Namibia and South Africa) for the BCLME. The Benguela Current Commission agreement was signed in Cape Town on August 29, 2006, an event marking the first time a Commission has been established for the assessment and management of LME goods and services (see Annex III). Application for GEF funds relate mainly to building institutional capacity within the newly formed BCC. The Commission will encourage national policy reform and build long term capacity to implement an ecosystem approach to BCLME governance and conservation.

Dr O'Toole's presentation covered marine resource utilization and impacts, environmental variability, and extreme events, including five Benguela Niños, HABs, low oxygen events, sulphur eruptions and catastrophic fish mortalities. A continuous plankton recorder is to be deployed in the Benguela Current LME; an early warning system for monitoring outbreaks of harmful algal blooms through monitoring buoys is already in place. Significant shifts, both human and climate-driven, have occurred in the area of fisheries. Dr O'Toole examined the development and implementation of the ecosystem approach to fisheries management, through trans-boundary fish stock assessments, the monitoring of top predators as indicators of ecosystem change, and trends in fish catches (1950-1999). The sardine and rock lobster collapse in the 1960s and 1970s, and the recent migration of pelagic fish and rock lobster in the southern Benguela Current, had major socio-economic impacts: a decimated processing and canning industry, and job losses. Regarding pollution and ecosystem health, a key policy action of the BCLME Programme is the assessment of environmental variability, ecosystem impacts and improvement of predictability in this complex and variable ecosystem. Permanent, continuously operating real-time regional ocean prediction systems such as the Global Ocean Observing System (GOOS) are increasingly required to support the variety of critical activities outlined above.

4.3 THE GUINEA CURRENT LME: REFLECTIONS ON THE LME APPROACH

Dr Chidi Ibe, Director of the 16-nation Guinea Current LME (GCLME) Project, reviewed the status of the project and highlighted the importance of the 5 modules. Coastal monitoring is underway and making progress in the 16 countries of the GCLME. A range of activities is needed to provide managers with information about ecosystem conditions, tracking perturbations and resources at risk. Given the abundant stressors on the GCLME, Dr Ibe reported that the LME approach has already helped address the need to standardize and make comparable data heretofore spatially and temporally fragmented. Currently, data are obtained from time series assessments based on the 5 modules. These methodologies are leading to a management system that will include regulatory, institutional and decision-making aspects.

Regarding the Fish and Fisheries module, two fish assessment surveys have been completed with the R/V NANSEN. Historical data from non African countries is being accessed and is becoming part of a regional data base. While fisheries regulation is still in its early days of implementation, progress is being made on establishing MSY levels, improved identification of target species of commercial fisheries and an ecosystem-wide precautionary approach to distant water fishing. Licenses are no longer being issued except for tuna. As a conservation measure, Angola has stopped all horse mackerel fishing. A coordinated monitoring and surveillance programme is being developed to control illegal fishing operations, recognizing that a healthy ecosystem is a resource for healthy economies. Efforts have been initiated to improve the quality of degraded habitats. Common effluent standards for pollution monitoring have been adopted and a regional oil spill plan is being developed. A mangrove reserve has been established in southeastern Nigeria, and others are soon to follow, in Cameroon and Angola. ICAM efforts are progressing with zoning restrictions to preserve habitat. A setback line is being implemented to deal with coastal erosion. For additional information, visit the GCLME website at: <http://gclme.org>.

At the institutional levels of the GCLME Programme, the Regional Coordination Unit (RCU) is fully functional, with an effective Steering Committee governing the project in place, and a Council of Ministers. Regional Activity Centers have been established as hubs for the technical programs. To move these institutions and instruments towards sustainability, the host countries for the RCU and the Coordination Units must supply location and utilities. Host countries are to support the Regional Activity Centers. Regional Scientific and Technical Advisory Committees and National Inter-Ministerial Committees at a high level are to provide decision-making support. The Project has evolved from the Gulf of Guinea LME Pilot Programme (1995–1999), to the Accra

Declaration (1998), and to a Ministerial Level Meeting of all 16 countries of the GCLME in Abuja, Nigeria in September 2006 that endorsed the establishment of an interim Guinea Current Commission (IGCC). Already the Ministerial Committee has issued several reports, on *Sardinella*, biodiversity and erosion in the Congo, erosion in Gabon, and mangrove and pollution in Angola. The IGCC is mandated to act on behalf of the countries and has authority to receive relevant data on FAO fisheries, IMO data on ballast water, and on the GPA (UNEP). The establishment of the IGCC is providing a solid path to socioeconomic and human development (see Annex IV).

4.4 BAY OF BENGAL LARGE MARINE ECOSYSTEM (BOBLME) UPDATE

Dr Ned Cyr, of NOAA, provided a background on the Bay of Bengal Large Marine Ecosystem (BOBLME) Project. The LME includes the coastal areas of 8 countries: Bangladesh, India, Indonesia, Malaysia, Maldives, Myanmar, Sri Lanka and Thailand. Some 400 million people live in the catchment and coastal areas, many subsisting at or below the poverty level and heavily depending on part-time and small scale fishing for their livelihood. The FAO-executed Bay of Bengal Programme (BOBP) has provided technical assistance and advice in the area for more than 25 years, focusing on the support of fishing communities and the sustainable development of fisheries with increased attention to fisheries management and environmental issues. In 1998, GEF approved a PDF-Block B for the Sustainable Management of the Bay of Bengal Large Marine Ecosystem, with FAO as Executing Agency, the World Bank as Implementing Agency, and GEF, SIDA and NOAA as Development Partners. Seven priority issues were identified, which included the overexploitation of living marine resources, critical habitats and land-based pollution. The PDF-B selected sharks, Indian mackerel and hilsa as priority trans-boundary species. An objective of the BOBLME Project is to enhance food security and reduce poverty for coastal communities. The Programme will develop a Strategic Action Plan (SAP), to protect the ecosystem and manage the living resources in a sustainable way. Following the tsunami event, the BOBLME project received GEF pipeline approval (April 2005) for a level of US\$ 12 million. The expected cash and in-kind co-funding (from national Bay of Bengal governments, NOAA, FAO and development agencies) is expected to bring the total funding to US\$ 30.5 million. Dr Jorge Csirke, of FAO, said that endorsement for the BOBLME project is still missing a signature (Myanmar) but that formal endorsement by the governments of all 8 countries is expected to come soon. Once national counterpart co-financing and donor co-financing arrangements are finalized, an "appraisal" workshop is to be held with the participating countries, tentatively scheduled for late in 2006. The workshop is to be used as a forum to discuss evolving priorities in light of the tsunami. Once the project starts up, a regional workshop will be held to agree on the priorities for project year 1 and to prepare the national and regional work plans. A Project Appraisal Document is to be submitted to the World Bank Board for final approval by the end of December 2006 so that the project can start in early 2007.

4.5 CARIBBEAN SEA LME

Dr Lucia Fanning, Project Manager for the Caribbean Sea LME (CSLME), described the LME as a semi-enclosed tropical sea bounded by North America, Central and South America and the Lesser Antilles chain of islands. The area includes a wide variety of tropical ecotones, including a large proportion of the world's coral reef resources, associated natural resources and biodiversity. The LME region is highly diverse and complex from a geopolitical and cultural perspective, as it includes 33 states and 19 associated territories of the USA, UK, France and the Netherlands, with countries of differing size and levels of economic development. The region is highly dependent for its livelihood on marine resources, especially fisheries and tourism-related activities. Food security and resource sustainability are important concerns, given the area's high dependence on fish as a source of protein. Dr Fanning reported on the progress of the project, now at the PDF-B stage, with a level of funding just under US\$1 million to support project planning. Most fisheries resources are

over-exploited. Most of the effort goes into lobster, shrimp and conch. The focus has been on fishery resources with very limited information on trophic linkages and the environment. Caribbean fisheries are small-scale and artisanal, mostly multi-species and trans-boundary, utilizing widely-scattered landing sites and small, open engine powered boats. Management is fragmented due to the high number of participating states and territories. The major issue needing to be addressed is the governance of the fisheries resource. Approaches by governments and organizations to reverse the trends of overexploitation and degradation have been piecemeal and uncoordinated. While ocean-wide large pelagics are assessed by ICATT, the status of pelagics within the LME is unknown.

The CSLME project builds upon and complements already existing projects and initiatives that emphasize the technical and institutional aspects of sustainable living marine resource use, focusing on governance, science and institutional issues in a trans-boundary marine context. The overall goal of the project is the sustainable management of the shared living marine resources of the Caribbean Sea LME and adjacent areas, through an integrated management approach that will meet WSSD targets for sustainable fisheries. The specific objectives of the LME project are: (i) To identify, analyze and reach consensus on, major issues, root causes and actions required to achieve sustainable management of the shared living marine resources of the Caribbean Sea LME; (ii) To improve the shared knowledge base for sustainable use and management of the trans-boundary living marine resources; (iii) To implement legal, policy and institutional reforms, and to achieve sustainable trans-boundary management of the living marine resources; (iv) To develop mechanisms for LME-level monitoring, evaluation and reporting.

The first Steering Committee meeting took place in August 2006, followed by a TDA training and workshop in September 2006 to address trans-boundary issues and monitoring and assessment needs. The CSLME project will explore the suitability of various governance mechanisms to sustainably manage each key resource such as: large pelagics, shrimp, flying fish, lobster, conch, coral reef fisheries, coral reef resources, seabirds and marine invasive species. Pilot programmes will provide the opportunity to explore regional and sub-regional governance mechanisms, supported by sound science-based information.

4.6 YELLOW SEA LME

Dr Qisheng Tang gave an overview of the Yellow Sea LME Project (YSLME), and assessment and fisheries conditions. After more than a decade of planning and negotiation, the Yellow Sea LME Project, “Reducing Environmental Stress in the Yellow Sea Large Marine Ecosystem” was initiated in 2005 with GEF funding support. The goals are to reverse the decline of the Yellow Sea ecosystem, restore food fish for the sustenance of growing populations, and conserve the integrity of the ecosystem. The YSLME Project aims to develop ecosystem-based, environmentally sustainable management practices for the Yellow Sea and its watershed; to prepare a Transboundary Diagnostic Analysis (TDA), National Yellow Sea Action Plans (NYSAPs), and a Strategic Action Plan (SAP); and to establish a regional framework for cooperation. Four components were developed for the YSLME project: The first component, “Regional Strategies for Sustainable Management of Fisheries and Mariculture”, addresses the need for sustainable fisheries management and fisheries recovery plans, agreed to on a regional basis. Since the 1990s, the proportion in Chinese fishery yields is 45% capture fisheries vs. 55% aquaculture, with the cultivation of scallops, oysters, crabs, shrimp, seaweed and fish. The second component, “Effective Regional Initiatives for Biodiversity Projection,” addresses the need for regional coordination to preserve globally significant biodiversity. The third, “Actions to Reduce Stress to the Ecosystem, Improve Water Quality and Protect Human Health,” develops management practices based on an understanding of ecosystem behavior. The fourth, “Development of Regional Institutional and Capacity Building,” focuses on national and regional institutions, the preparation

of investment portfolios, and project coordination. Five Regional Working Groups are focusing on Fisheries, Biodiversity, Ecosystem, Pollution, and Investment.

Activities in 2005-2006 included two Steering Committee meetings, two regional technical meetings, ten meetings of the Regional Working Groups (RWG), and one special technical meeting to plan for the cooperative study cruises. A parliamentary conference was held in March 2006 in Qingdao, China. Dr Tang outlined the project's current partners and reviewed marine fisheries production in China, species composition of mariculture in the Yellow Sea LME, decadal analyses of spring species composition in biomass yields, biomass changes in the central to southern part of the Yellow Sea, changes in wintering stock biomass and annual landings of anchovy, with decadal changes in age structure and size structure (1986–2005). He reviewed the trophic level of important species and their decline, fluctuations in herring abundance, and the 36-year cycle of wetness oscillation in eastern China. He outlined the seasonal changes in the nutrient condition of Yellow Sea waters, including low oxygen areas. He hoped to establish an ecosystem-based monitoring and assessment program, and to plan for cooperative study cruises that will provide basin-wide data to be added to existing data bases and will contribute to the preparation of a Yellow Sea TDA. The project has been successful in obtaining additional funding for process-oriented research. Additionally, a study of LME goods and services would be included, with contributions from China-GLOBEC studies on ecosystem dynamics and the sustainable use of marine living resources. In his closing remarks, Dr.Tang announced that the Chinese government had agreed to host the 2nd global Conference on LMEs, to be held in Qingdao, China in September 2007. Information on the Conference can be found at: www.imber.info/jobs-announcements/LMEs_second_announcement.pdf.

5. PROMOTING LME APPROACHES TO FISHERIES CONSERVATION

The GEF-IOC is supporting a Medium-Size Proposal (MSP) for promoting ecosystem-based approaches to fisheries conservation and LMEs. The MSP has 6 components: (1) training by colleagues from the University of British Columbia in the application of ECOSIM and ECOPATH modeling for 64 LMEs; (2) a fisheries ecosystem capacity building project, which is an electronic networking project for members of International Fisheries Societies conducted by the American Fisheries Society; (3) training in the application of Nitrogen flux models to all 64 LMEs under the direction of Sybil Seitzinger, NEFSC/Rutgers University; (4) the development and expansion of an information portal for LMEs by the University of Rhode Island; (5) training on modeling focused on biological particle size spectra as potential indicators of ecosystem condition, under the direction of Princeton University, the University of California-Berkeley, the International Center for Theoretical Physics (ICTP), the International Institute for Applied Systems Analysis (IIASA) and NOAA; and (6) a project by FAO to re-arrange 2001-2005 FAO global capture statistics into LMEs.

5.1 ECOPATH-ECOSIM LME WORKSHOPS

Dr Villy Christensen reported on the University of British Columbia's activities regarding the two year GEF-supported mid-size project (MSP), "Promoting Ecosystem-based Approaches to Fisheries Conservation in LMEs". One component of the project is designed to strengthen the capacities of the countries participating in GEF-LME projects, by providing training and building scientific capacity in ecosystem-based fisheries assessment and management. Scientists from developing countries and countries with economies in transition have been trained through workshops conducted with wide representation from GEF-LME projects. The workshops focus on modeling methods that consider the importance of the food-web and the ecosystem's carrying capacity for marine fish stocks. The tools of choice, Ecopath and Ecosim, are used as models to provide an assessment of ecosystem carrying capacities and are the most widely used tools for this purpose internationally. LME modeling courses and workshops were conducted in May 2004 in

Vancouver, Canada; in October 2005 in Latvia (Baltic Sea LME Project); in December 2005 in cooperation with the Benguela Current LME Programme; and in April 2006 in Ghana in cooperation with the Guinea Current LME Project. The training course focused on model construction, utilization and interpretation and is to be followed by an advanced training course on using models for fisheries management based on models from the region, to be arranged in 2007. A training course for the Southeast Asia region is to be conducted in cooperation with the Yellow Sea LME project in early 2007. A major part of the project activity is to develop ecosystem models and to estimate the potential ecosystem carrying capacity for all 64 LMEs. The models will be based on information contained in a variety of global databases: on biomass of benthos, plankton and mesopelagics, on marine mammals and birds, on fish diversity, growth parameters and diets, on primary production, on fishing effort, catches and prices, and on FAO country catch information. The Sea Around Us website containing the LME results of the project so far is at www.seararoundus.org.

5.2 GEF-DATA BASE FISHERIES MANAGEMENT IT NETWORK

Dr Gus Rassam and Jessica Geubtner, representing the American Fisheries Society (AFS) described the AFS effort to build an extensive international data base of ecosystem oriented fisheries management practices, useful to GEF-recipient countries, and also to survey the needs and capacity of each developing country in scientifically-sound and responsible approaches to fisheries management. The survey covers the needs of fisheries scientists, managers, extension professionals, and policy makers, in terms of resources, management, research and country perception. LME-specific questions are included. The survey is ready for circulation. Information about these efforts can be found on the AFS website at www.afs.org. The 5th World Fisheries Congress is to take place in Japan in 2008, and Dr Rassam hoped for LME participation in that event. They reported on AFS activities relating to the two-year mid-size project (MSP), "Promoting Ecosystem-based Approaches to Fisheries Conservation in LMEs". The goal of the AFS component of this project is to strengthen the ecosystem-based approach to fisheries conservation and sustainability. The Global Fisheries Ecosystem Management Network (GFEMN) managed by AFS has 42 participating countries and lists members, and affiliations as well as international fisheries jobs and news. More Information on the GFEMN is available on its web site at: <http://www.fisheries.org/html/gfemn/index.shtml>. The GFEMN has members in North America, South America, Europe, Asia, Africa, and Oceania and includes universities, governmental agencies, agencies of the private sector and NGOs among its member affiliations and organizations.

5.3 NITROGEN FLUX MODELS AND TRAINING

Human activities related to food and energy production have greatly increased the amount of nutrient pollution entering the coastal environment from land-based sources. The resulting nutrient enrichment has contributed to changes in coastal ecosystems which have led to the degradation of fisheries habitats. These deteriorations include increased algal growth and turbidity, loss of habitat (e.g., seagrasses), increase in extent and duration of anoxic and hypoxic water, harmful algal blooms, and coral reef degradation, among others. Over the next 50 years, human population, agricultural production, and industrialization are predicted to increase especially rapidly in many developing regions of the world, leading to increased nutrient (nitrogen and phosphorus) inputs to the coastal zone. In order to optimize use of land for food and energy production while at the same time conserving coastal habitats, it is important to understand the links between land-based activities and nutrient inputs to coastal systems. Rivers are the major pathway by which nutrients are transported from watersheds to coastal systems. GIS-based river nutrient export models provide a tool to elucidate and manage these links. This component of the MSP is supporting capacity building in developing countries and countries with economies in transition through the transfer of advanced methods, practices and tools for coastal nutrient management. Scientists from developing

countries and countries with economies in transition were trained through the IOC Eutrophication Network in the methods and application of a nitrogen-based model used to forecast eutrophication conditions in coastal waters of selected LMEs. Specifically this project used a new and innovative Nitrogen Export from Watersheds Model (NEWS N-Export Model) that predicts inorganic N export by rivers to the coast as a function of watershed N inputs (point and diffuse sources), hydrology, and other factors. Individuals from seven Large Marine Ecosystem (LME) regions participated over a 2-year period in two workshops being held at IOC. These participants learned to use the river nutrient export model and apply it to their particular LME region. They met, and exchanged information with, other workshop participants. In addition to attending the workshop, the participants developed science-based summary documents for each participant's home region. Inter-workshop activities are implemented through electronic communication of an IOC-UNESCO IT Eutrophication Network of participating scientists. For a description of the training and workshops provided in the application of Nitrogen flux models to all 64 LMEs under the direction of Dr Sybil Seitzinger of Rutgers University, see also 3.0. The finalized workshop document contains model estimates of N export by watershed, and N sources contributing to that export by watersheds for 1990 and for predicted scenarios in 2050. See the website at: <http://marine.rutgers.edu/~rlee/GEFLMEREport/SeitzingerYr1RptGEFLMERutgers.pdf>.

5.4 INFORMATION PORTAL

Christopher Damon, of the University of Rhode Island (URI) Department of Natural Resources Science, and of the URI Environmental Data Center, developed and expanded an information portal for Large Marine Ecosystems (LMEs). The Portal (<http://www.lme.noaa.gov>) was designed to capitalize on the rapid evolution of Internet technology and make a wide range of data available to the public through an easy-to-operate, virtually instantaneous interface. In preference to a traditional style webpage that relies heavily on centralized data, the new Internet Portal technology was designed to decentralize data holdings and distribute web maintenance tasks. The result is a comprehensive site of LME-specific information, with content and data updates being driven by, and for, user needs. Some of the primary tools available through the Portal are: 1) map, data, and information search based on location, keywords, topic, or date; 2) personalized map creation using an imbedded Internet Map Server; 3) the saving of data queries and maps for future use; and 4) LME programme managers will be able to add relevant data and maps to the website for others to use. The Internet Map Service (IMS) has become the preferred method of sharing spatial data with the public. This technology is a means of publishing GIS projects on a website for interactive use by anyone with high-speed Internet access, without the need to have formal GIS training or expensive GIS software.

At the request of the Guinea Current LME (GCLME) Program, Christopher Damon and Dr P.C. Nwilo, Coordinator of the GCLME Environmental Information Management System(EIMS), University of Lagos, Nigeria, reviewed the technical capabilities (data processing, management and analysis) of EIMS, and determined how the NOAA LME Information Portal might better serve the needs of the GCLME Programme. The EIMS Center is a fully functional GIS analysis and training facility. In its short time of operation, the Center has already amassed much of the technical and personnel requirements that will be needed to address the complex environmental management issues facing the GCLME. Ultimately, the Center will house and serve its own GCLME-specific Portal. Geospatial data integration is central to the LME concept: physical, biological, social and economic data in fisheries, resource management, and pollution assessment need to be assembled and analyzed so that ecosystem-scale policies can be designed and implemented. If the core data do not integrate, transboundary issues central to the LME assessment and management approach cannot be addressed.

5.5 MODELING OF BIOLOGICAL PARTICLE SIZE SPECTRA

The overall goal of this component of the MSP was to develop a size-based ecosystem model that mechanistically resolves population and community-level interactions in marine ecosystems and to use this model to understand the factors that determine the biomass spectrum. Of particular interest was the determination as to whether the spectrum could be used as an indicator of stress or disturbance in Large Marine Ecosystems and whether the model could provide ecological insights into dynamics important to marine resource management in LMEs, by allowing connections between physical dynamics, biological dynamics, and the biomass spectrum to be made over the broad range of spatial and temporal scales. A recently completed training was provided by Princeton University, the University of California-Berkeley, the International Center for Theoretical Physics (ICTP), the International Institute for Applied Systems Analysis, and NOAA. The workshop on modeling was focused on biological particle size spectra as potential indicators of ecosystem condition, along with discussions of indicators of upwelling LME conditions and coastal community fishery resources assessment and policy issues. The workshop was conducted by Dr Charles Stock and Zack Powell, and was attended by representatives from the Baltic Sea, the Benguela Current and the Guinea Current LME projects supported by the GEF. The workshop was held at the ICTP in Trieste in March 2006. The participants then attended a workshop reviewing the approach to ecosystem-based management with a focus on the crossover from science to socioeconomic benefits, under various governance regimes. This was an example of linking theoretical LME science with practical management practices, and promoting the sustainable use of marine resources.

5.6 FAO STATISTICS

Dr Jorge Csirke reported on the proposal to re-arrange the 2001–2005 FAO global capture statistics into LMEs. The work builds upon the methodology described in Garibaldi and Limongelli, 2003, “Trends in oceanic captures and clustering of large marine ecosystems: two studies based on the FAO capture database”, published as an FAO Fisheries Technical Paper. Data would be compiled for the period 2001–2005 by 12 species groupings. The total number of LMEs for which data would be available would range between 52 and 54. The Time line for the project is eleven months and the project would be completed in September 2007.

6. REVIEW OF LME ACTIONS IN THE ARCTIC

Kenneth Sherman reviewed the boundaries of the 17 LMEs of the Arctic Region. The Arctic LMEs are diverse and dynamic systems under stress from global warming and the melting of sea ice. Marine species are few, but each species has high numbers. Advances in the melting of Arctic ice have implications for zooplankton, fisheries, fish stocks, marine mammals and marine birds that appear to be shifting northward. The boundaries of the Arctic LMEs underwent significant scientific review by the Protection of the Arctic Marine Environment (PAME) Working Group of the Arctic Council. Participant countries include Norway, Canada, Iceland, Russia and the United States. A working map including several boundary modifications was prepared and accepted by PAME to guide the 2006 to 2008 Work Plan (see PAME website at: <http://www.pame.is>)

Hein Rune Skjoldal, from the Institute of Marine Research in Bergen, Norway, reviewed the ecological conditions in Arctic LMEs, first assessing oil and gas activities, and the high concern for oil spill risk from oil tankers, then describing species and subspecies of the Northern Atlantic and the Pacific, and their food webs. Academician Gennady Matishov, director of the Murmansk Marine Biological Institution, reviewed decades of Russian ecosystem monitoring and Arctic

research, beginning with a June 4, 1937 publication in *Science* on the biological status of the Barents Sea coastal areas. Monitoring on Arctic icebreakers was always limited to the summer months. The 2004 Climatic Atlas of Arctic Seas includes a database of the Barents, Kara, Laptev and White Seas. A Climatic Atlas of the Sea of Azov is due to be published in 2006. There are many anomalies due to climate change. He reviewed commercial fish species data for the Barents and Norwegian Seas. He noted that the Arctic holds 25% of the world's estimated oil and gas reserves. Climate change is having a visible impact. Research is underway on marine mammals and radioactive pollution. In the Russian Arctic, environmental priorities and marine activity are focused on coastal ecosystem monitoring, fisheries resources, the control of alien fauna, the development of mariculture, the control of accidental oil spills and chemical and radioactive contamination.

7. GIWA ASSESSMENTS AND THE UNEP-LME APPROACH

Professor Gotthilf Hempel described the Global International Waters Assessment (GIWA) activity as a five year GEF project under the wings of UNEP and coordinated by a core team at the University of Kalmar, Sweden. The GIWA Project, which formally ended in June 2005, resulted in the publication of 24 regional reports, with an additional 11 being published online, and a summary document entitled "Challenges to International Waters: Regional Assessments in a Global perspective". GIWA marine regions match LME boundaries, and were chosen on the basis of their eligibility for GEF funding. The GIWA Regional Reports describe river basins with their adjacent coastal waters, shelf seas and boundary currents in terms of five major concerns: freshwater shortage, unsustainable use of aquatic living resources, pollution and eutrophication, habitat modification, and global climate change. The five major concerns are sub-divided into 22 environmental and socioeconomic issues. The reports ranked the various concerns, analysed their root causes and proposed policy options. The two major issues identified were the unsustainable use of fresh water for irrigation, and the over-exploitation of fisheries. Another concern is the increasing eutrophication of coastal waters. The root causes were population growth, economic development, poor governance, and policy and market failures. The ranking matrix and uniform methodology provided a basis for visual comparison between regions (e.g. tropical, polar, upwelling). The Regional Reports were prepared by regional teams and local focal points and received the contribution of 1500 scientists (including natural scientists and socioeconomic scientists) and administrators from all parts of the world. Professor Hempel described the GIWA exercise as a preparation for a global assessment extending beyond the GEF-eligible regions covered by GIWA. The GIWA assessments and findings will be edited, revised in the light of more recent LME information, and integrated into a UNEP-Regional Seas LME report, to be published in 2006, which will incorporate the University of British Columbia's (Sea Around Us) 52-year fishery profiles, the University of Rhode Island's maps and descriptions of hydrographic gradients and fronts, and the use of satellite imagery data as it relates to primary productivity.

8. POLLUTION AND ECOSYSTEM HEALTH INDICATORS FOR LMES AND THE GPA

Kevin Summers of the U.S Environmental Protection Agency (EPA) reviewed the US EPA indicators and their usefulness in rating the environmental quality of LMEs along the US coast. Originally the EPA operated very near shore, but the Agency has now in cooperation with NOAA expanded its efforts offshore to the full extent of the LME boundaries. Coastal condition can be measured in terms of status and trends on the basis of science and on local, state and tribal capacity to monitor the LME area. He outlined the selection criteria for indicators of pollution and ecosystem health: (i) They must be regionally responsive, i.e. they must reflect changes in ecosystem

condition, and respond to stressors of concern across most resource classes and habitats within the monitored region. (ii) They must be unambiguously interpretable. (iii) They must be simply quantified. (iv) They must exhibit a low measurement error. (v) They must have sufficiently low natural year to year variation to detect ecologically significant changes within a reasonable time frame. (vi) The sampling must have minimal environmental impact. These suggested criteria led to EPA indices of water quality, sediment quality, habitat quality, benthic species quality, and fish contaminants. Experts through a stop light approach determine the qualitative condition for each index to be poor, fair or good. On the basis of these indices, the “report card” for the U.S. LMEs is produced. A Baltic Coastal Condition Report using the same coastal condition indices is in preparation.

The application of the 5 module indicators of changing ecosystem conditions (productivity, fish and fisheries, pollution and ecosystem health, socioeconomics and governance) will provide important baseline information from which to measure movement by governmental stewardship agencies toward the restoration of degraded habitats, reduction of coastal pollution, and recovery of depleted fish stocks. The modular indicators are presently being operationalized by a growing number of countries participating in GEF-supported Large Marine Ecosystem projects in Africa, Asia, Latin America and eastern Europe. These suites of indicators are consistent with measurements needed to quantify progress in the implementation of the ecosystem-based approach to the UNEP Regional Seas Programme and the UNEP Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities (GPA). See Annex V for the Beijing Declaration.

9. THE CONTRIBUTION OF LME INDICATORS TO CLIMATE CHANGE ASSESSMENTS: GEOSS AND IOOS

Ned Cyr, from NOAA-NMFS, described the 4 degree temperature increase in the Bering Sea LME, which has significant ecological impacts on marine ecosystems, including ecosystem productivity change, loss of sea ice, coastal response to sea-level rise, nutrient-climate interactions, coral bleaching and ocean acidification. The ecosystem objectives of GEOSS, GOOS and IOOS observing systems are to improve the management and protection of coastal and marine ecosystems. As such, there are opportunities for collaboration between LME Projects and GEOSS/GOOS. GOOS and LMEs have a regional focus, and both programmes are intended to be permanent structures with sustainable funding by national institutions. LME Programmes operate in countries most in need of assistance with capacity building to initiate observing programmes such as GOOS. Dr Cyr illustrated this by using the example of the Benguela Current LME. He suggested that GEOSS representatives consult with scientists and experts from fisheries, aquaculture, coastal zone management and Earth observation communities to identify opportunities for the enhanced utilization of Earth observations.

10. BLACK SEA LME

Dr Yegor Volovik, of the UNDP-GEF Black Sea Ecosystem Recovery Project (BSERP), discussed Black Sea efforts now winding down phase 2 (2004-2007) of a 15 year GEF-LME Project. The 6 countries bordering the Black Sea LME are Bulgaria, Georgia, Romania, Russia, Turkey and Ukraine. Eleven more countries are part of a GEF-sponsored Black Sea watershed project to eliminate pollution inputs to the Black Sea drainage basin. The ecosystem has seen deep water anoxic conditions, ctenophore increases and a pelagic fishery collapse. The most significant threat, and main focus of the Black Sea Project, is the issue of eutrophication, requiring three coordinated actions: (i) To reduce the nitrogen and phosphorus loads to the Black Sea; (ii) To

enhance the services provided by wetlands and benthic (seabed) plant communities for the assimilation of nutrients; and (iii) To improve the management of critical habitats, allowing for the economic recovery of fisheries and improvements to the marine ecosystem. There is a need to better quantify the nutrient discharges to the LME, determine how the nutrients are cycled through the system, and what factors control eutrophication in the system. Eutrophication in the Black Sea LME has resulted from the failure of a wide range of sectors to understand the relationship between their activities and the decline of marine and coastal ecosystems. For a reversal of this situation there is a need to make available cost-effective practical alternatives to current practices and to put in place appropriate laws and enforcement practices with environmental quality objectives. The effective reduction of eutrophication in the Black Sea LME requires the full cooperation of all 17 countries within the Basin. The present project builds on the cooperation already established between the Black Sea Commission and the International Commission on the Protection of the Danube River, extending this further to include the proposed Dnipro Commission. Attention is also being given to trans-boundary contamination by hazardous substances. The work undertaken has been far-reaching and has involved the cooperation of national and local governments, regional organizations, donors, the private sector, and NGOs. A key partner has been the Commission on the Protection of the Black Sea against Pollution (Bucharest convention). A TDA and an SAP were first developed in 1996. The TDA is to be updated by late 2006, with the gathering and interpretation of information on environmental impacts and the socioeconomic consequences of each identified issue. The reformulation of the SAP, to be completed in 2007, will include a review of the long-term vision, select environmental indicators and set priority actions for improving and sustaining the health of the Black Sea LME.

Capacity-building activities, environmental monitoring, pilot projects, best fishing practices, and community actions, are critical. A key activity of the BSERP is an assessment programme that will determine the current status and dynamics of the Black Sea LME, and measure the progress made by the end of the Project's Phase 2 (2004-2007). These activities are coordinated by a specially-established Study Group led by regional and international scientists. The programme includes an Impact Study of the Danube River input into the Black Sea LME; four planned cruises on the Northwest shelf of the Black Sea LME; an atmospheric deposition study; a vessel traffic oil pollution information system; and a nutrient content assessment of livestock manure near the coasts of Romania and Bulgaria. There is missing data on primary productivity and fish. The Project is at the tail end of a 15 year long support by GEF. The results of the research undertaken in 2003-2006 show clear signs that the Black Sea LME is recovering, although at a rather slow rate. There is a slow recovery of biodiversity in the northern part of the LME. However, the recovering ecosystem is still very vulnerable, and if issues are not properly addressed the positive dynamics could be reversed.

11. CANARY CURRENT LME PROJECT

Dr Andrew Cooke described the Canary Current Large Marine Ecosystem (CCLME) as an upwelling and wind-driven ecosystem, with a high productivity of plankton and pelagic fish. The seven countries involved in the project are Morocco, Mauritania, Senegal, Gambia, Guinea-Bissau, Guinea and Cape Verde. The project goal is to reverse the depletion of fisheries and conserve the ecosystem from overfishing and pollution. He reported on the project design and preliminary TDA, which resulted from a Steering Committee meeting and two TDA workshops held in October 2005 and July 2006. Committees have been established on the basis of national consultation, resulting in the preparation of national reports. The first workshop identified the main trans-boundary issues to be the decline of pelagic and demersal resources, loss of critical habitat and biodiversity, environmental fluctuations and water quality in urban coastal areas, shipping, petroleum and agricultural pollution. The Project is on target for Phase 1 (2007-2012). The topic of demo projects

led to a discussion on the importance of core monitoring programs. Discussion focused on the need for cohesive monitoring in the LMEs extending from Morocco to South Africa.

12. AGULHAS CURRENT LME AND SOMALI CURRENT LME

Dr Brad Brown, on behalf of the Agulhas-Somali LME project, outlined its progress. The Project document has been revised to include small scale fisheries, socioeconomic conditions and efforts towards a joint TDA with the South West Indian Ocean Fishery Commission (SWIOF) and land-based sources of pollution projects. The final project document was prepared so that it could be signed by the 8 countries involved: Comoros, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, South Africa and Tanzania. The project is due to begin at the end of 2006.

13. GULF OF MEXICO LME PROJECT

Dr Gerardo Gold Bouchot, the Project Coordinator, mentioned the workshop that took place in August 2006 and identified a list of trans-boundary issues for the Gulf of Mexico LME, which were then prioritized. The issues identified were the depleted level of fishery stocks, the shift from single species to ecosystem-based management, eutrophication and HABs, habitat modification, and the value of ecosystem goods and services. A TDA and SAP are being drafted for review, based on thematic reports.

14. LME PROJECTS AND GOOS AND GEOSS IN AFRICA

Justin Ahahanzo, the GOOS-AFRICA Coordinator at the IOC, reviewed the progress of Africa GOOS and its strong links to the operational LMEs in Africa. He announced three GOOS workshops, organized by the Benguela Current LME Project and the IOC. The first two workshops took place in Cape Town, South Africa. The first, on 6-10 November 2006, discussed operational oceanography and the uses of remote sensing in Africa. The second, on 13 November 2006, was the second pan-African LME forum and was attended by African ministers who issued a Cape Town Declaration supporting the advances made by the African LME projects (see Annex VI). There has been GOOS participation in the Canary Current LME project and involvement in the preparation of the Agulhas-Somali PDF-B document. Offshore observation systems in Africa are useful for determining offshore oil and gas, shipping and trade, mining, fisheries, integrated coastal zone management, seaside tourism, public safety and health, and early warning systems for floods, droughts, and sea level rise. The third meeting in Cape Town was an international workshop of representation of the GOOS Regional Associations, who reviewed progress and planned future actions in support of the regional operations of GOOS around the world.

15. THE NEW GESAMP

Rene Coenen, IMO technical secretary of GESAMP, the Group of Experts on the Scientific Aspects of Marine Environmental Protection, outlined a science for sustainable oceans. GESAMP was first established in 1969, and has since its inception published 47 scientific reports on issues ranging from land-based pollution to aquaculture and coastal populations. Ocean sustainability requires a scientific understanding of marine ecosystems and the human activities that affect them. This year, GESAMP is declaring itself to be “back in business” after an independent external evaluation (2000–2002), and a new strategic vision (2003-2004), with plans to establish a pool of experts available for scientific reviews, and to design a dynamic website. It is currently sponsored by the UN, UNEP, FAO, UNESCO-IOC, UNIDO, WMO, IMO, and IAEA. Its mission has been re-

crafted to “provide authoritative, independent, interdisciplinary scientific advice to organizations and governments to support the protection and sustainable use of the marine environment.” GESAMP aims to integrate and synthesize regional and thematic assessments to support global assessments, and to identify new and emerging issues. Support for GESAMP comes from the Swedish Government and UN agencies. GESAMP participated in the LME meeting to ask for nominations to its pool of experts, to hear from LME Project leaders and their most pressing needs for scientific advice, and to extend an invitation to identify themes of mutual interest at the 34th regular session of GESAMP, scheduled in December 2006 at UNESCO-IOC headquarters.

16. BONUS, A NETWORK OF SCIENCE AGENCIES

Kaisa Kononen, from the Science Academy of Finland, described “Bonus for the Baltic Sea Science”, a network of funding agencies. A recent meeting of the European Union (EU) in Lisbon identified the fragmentation of European research, with 95% of European research funding coming from national funding organizations. She posed two questions: can such an approach support sustainable development in the Baltic Sea? Are the results synthesized and disseminated effectively? Research funding organizations in the European Union were invited to create consortia to bring about the conditions for joint research programmes in a “bottom up” approach. This is now being attempted in the Baltic Sea drainage basin with BONUS 169, and it is being funded by the EU at a level of 3 million euros for 4 years (2004-2007). The objective is to form a partnership of key agencies funding research that deepens the understanding of conditions for science-based management of environmental issues in the Baltic Sea LME. It is hoped that this will become a demonstration programme bridging science and policy, and that it can be applied elsewhere. The mega-plan was developed through ICES and involves the contributions of 800 scientists. Information and BONUS publications are available at www.bonusportal.org.

ANNEX I

AGENDA

DAY 1 - 3 July 2006

TIME	TOPIC	SPEAKER(S)
9:00 - 12:00 noon	IOC Welcome & Marine Ecosystems Assessments Overview	Patricio Bernal Umit Unluata
	LME/Regional Seas & NOAA Partnership	UNEP Representative
	LME/IUCN Partnership and Perspective on Eutrophication	Carl Gustaf Lundin Kenneth Sherman
	Baltic Sea LME and Eutrophication	Jan Thulin
	Effects of Climate Change on the Humboldt Current LME	TBD
	Effects of Climate Change in the East Bering Sea & Gulf of Alaska LMEs and PAME	Kenneth Sherman
12:00 - 1:00 pm	LUNCH	
1:00 - 5:00 pm	LMEs and Climate Change in the Benguela Current LME and the IBCC	Mick O'Toole
	Ecosystem Indicators for Climate Change & Anthropogenic Forcing of LMEs in Regional Seas	Kenneth Sherman
	Guinea Current LME Project: Assessment & Management Actions	Chidi Ibe Chika Ukwe
	Bay of Bengal LME Project Update	Ned Cyr
	Caribbean Sea LME Project Implementations	Robin Mahon Lucia Fanning
	Yellow Sea LME Project Assessment & Fisheries Conditions	Qisheng Tang
	GEF-ECOPATH/ECOSIM LME Workshops	Villy Christensen
	GEF-Database Fisheries Management IT Network	Gus Rassam Jessica Geubtner, AFS
5:00 pm	ADJOURN	

DAY 2 – 4 July 2006

TIME	TOPIC	SPEAKER(S)
9:00 am – 12:00 pm	Review of LME Delineation Actions: Arctic LMEs; Insular Pacific LMEs	Marie-Christine Aquarone
	Comparative LME Assessments & the Bergen Ecosystem Approach to Fisheries Conference	Hein Rune Skjoldal
	LMEs of Arctic Regional Seas	Gennady Matishov
	GIWA Assessments & the UNEP-LME Report	Kenneth Sherman Gotthilf Hempel Sherry Heileman
	Land Based Sources of Pollution and LMEs	UNEP Representative
	Pollution & Ecosystem Health Indicators for LMEs in Regional Seas	Kevin Summers
	The Contribution of LME Indicators to Climate Change Assessments-GEOSS & IOOS	Ned Cyr
12:00 – 1:00pm	LUNCH	
1:00 – 5:00 pm	Humboldt Current LME Project & Equitability of Industrial & Artisanal Fisheries Interactions in LMEs	Pablo Huidobro Chika Ukwe
	Canary Current LME Transboundary Issues & the Strategic Action Program	Andrew Cooke
	Agulhas Current LME and Somali Current LME as Part of a Regional LME Drainage Basin Assessment	Magnus Ngoile Brad Brown
	The TDA & SAP for the Gulf of Mexico LME Project	Gerardo Gold-Bouchet
	LME Projects and GOOS & GEOSS in Africa	Justin Ahanhanzo
	GESAMP Status	Rene Coenen
	Bonus-169 Status	Kaisa Kononen
	Discussion: Advancing the LME Approach for a Transboundary International Waters (IT) Assessment	Kenneth Sherman
	Preparing the Indicators Report	ALL
	Round Table Discussion/Planning Session 2006-2008	ALL
5:00 pm	ADJOURN	

(FINAL Agenda – 6/22/06)

ANNEX II

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ANNEX III

THE BENGUELA CURRENT COMMISSION

South Africa, Namibia And Angola Sign Marine Management Pact

South Africa, Angola and Namibia signed an agreement in August 2006 to formally establish the Benguela Current Commission, allowing for their joint management of the Benguela Current's marine resources.

The Benguela Current extends from east of Port Elizabeth, South Africa and north to Angola's Cabinda province. Government Ministers from South Africa, Namibia and Angola launched an institutional structure that will link the three countries in the management of the Benguela Current Large Marine Ecosystem (LME), one of richest and most productive marine ecosystems on earth. The Benguela Current Commission is the culmination of over 10 years of efforts by scientists from Angola, Namibia and South Africa who began to share their knowledge and understanding of this rich stretch of ocean in 1995. The three countries will collectively manage transboundary environmental issues such as shared fish stocks and will work together to mitigate the impacts of marine mining and oil and gas production on the marine environment. With the support of the Global Environment Facility (GEF), which finances environmentally sustainable projects, and the implementing agency, the United Nations Development Programme (UNDP), this collaborative effort has now resulted in the Benguela Current Commission, the first of its kind in the world. The objective of the agreement is to facilitate the understanding, protection, conservation, and sustainable use of the Benguela Current LME by Angola, Namibia, and South Africa. This action by the three countries establishes a governance precedent.

Now in its fifth year, the Benguela Current Large Marine Ecosystem Programme has already allocated more than US\$10 million in support of 75 scientific and economic research projects in the region. One of the concrete results of the scientific collaboration is the implementation of early warning systems to monitor the effects of climate change on the LME, which are seen in increased storm activity and the gradual migration of fish stocks. For the past few years, fisheries scientists have noticed a marked shift eastwards to several species endemic to the continent's west coast, including rock lobsters and sardines, as well as several bird species, which are now breeding hundreds of miles further east than they did several years ago. Global climate change is being looked at as a possible cause behind this migration, which has potentially devastating consequences not only for marine and bird life but for the west coast fishing industries that support thousands of jobs.

ANNEX IV

THE GUINEA CURRENT COMMISSION

The Abuja Declaration

We, the Ministers of Environment of Angola, Benin, Cameroon, Congo, Côte d'Ivoire, Democratic Republic of Congo, Equatorial Guinea, Gabon, Ghana, Guinea, Guinea Bissau, Liberia, Nigeria, Sao Tome and Principe, Sierra Leone and Togo, gathered in Abuja, Nigeria, 21 – 22 September, 2006 on the occasion of the First Meeting of Ministers responsible for the implementation of the Guinea Current Large Marine Ecosystem (GCLME) Project;

- Conscious of the fundamental importance of the health of the Guinea Current Large Marine Ecosystem, including its coastal areas and contiguous drainage basins to the well being of the coastal populations, the economies and food security of the coastal states and the socio-cultural life of the Guinea Current Region;
- Noting the degrading state of the coastal and marine environment in the GCLME Region caused by severe depletion of shared resources and the ensuing loss of biodiversity, pollution from land and sea-based activities, the physical destruction of sensitive habitats including the effects of coastal erosion, etc,
- Aware of the direct correlation between ecological degradation and escalating poverty, galloping food insecurity and deteriorating health of our coastal populations,
- Noting the trans-boundary nature of the environmental and resource management issues/problems and reaffirming our commitment to resolving the challenges arising from the identified issues/problems at both national and sub-regional levels, based on the Large Marine Ecosystem Approach which seeks to create an ecosystem-wide assessment and management framework for the sustainable use of living and non-living resources,
- Recognizing the imperative of achieving sustainable development through, *inter alia*:
 - o Integration of environmental concerns in planning, accounting and budgeting processes;
 - o Capacity building, accentuated stakeholders' participation, public awareness and outreach campaigns;
 - o Management of trans-boundary water bodies and forests and biodiversity conservation;
 - o Development of environmental information management and decision support systems and the promotion of information and data exchange;
- Further recognizing the need to sustain these initiatives through increased networking and regional co-operation.
- Conscious of the need to attain the objectives of the Abidjan Convention (1981), implement the Coastal and Marine Environment component of the NEPAD Environmental Action Plan, and achieve the WSSD Goals in the region
- Recalling the Accra Ministerial Declaration (10 July, 1998) by the Environment Ministers of the Pilot Phase countries which endorsed a regional approach to the Environmentally Sustainable Development of the Coastal and Marine Environment of the West and Central Africa.

- Further recalling Decision II of the Brazzaville Declaration (26 May, 2006) of the African Ministerial Conference on Environment calling on African government to support the LME Projects in Africa as tools for revitalization and successful implementation of both the Abidjan and Nairobi Conventions (1981 and 1985 respectively).

Acknowledging the remarkable progress made by the project since its inception in January 2005, is the completion of the Trans-boundary Diagnostic Analysis process and especially in strengthening regional coordination mechanisms for consultation and joint actions,

- Applauding GEF, UNDP, UNEP, UNIDO, US-NAOAA, NEPAD, FAO, IMO, WWF and other international and national NGOs, as well as other stakeholders including the Private Sector, for their contributions to the positive evolution of the project towards its defined objectives and goals;

Do hereby agree as follows:

1. To institutionalize regional cooperation at the technical level through the creation of an Interim Guinea Current Commission (IGCC) in the framework of the Abidjan Convention (1981) as provided in paragraph 37 of the approved Guinea Current LME Project Document signed by all the participating countries;
2. The IGCC will build capacity for the successful implementation of the West and Central African Action Plan of the Abidjan Convention including the development of appropriate Protocols, afford a vantage platform for the execution of the Coastal and Marine Environment Component of the NEPAD Environmental Action Plan and drive the attainment of the World Summit on Sustainable Development (WSSD) Goals in the region;
3. The GCLME Project Regional Coordination Unit (RCU) with its complement of staff will serve concurrently as the Executive Secretariat of the Interim Guinea Current Commission. The IGCC will eventually take leadership of the Project and its coordination.. The IGCC will play the key role in completing the development of the Strategic Action Plan (SAP) as the Project is implemented and will be responsible for negotiating subsequent phases of the GCLME project and agreements with cooperating institutions;
4. The functioning of the IGCC would be assured largely from project funds. However, member countries should provide adequate and timely material and financial support, beyond those already pledged, for the expansion and consolidation of project activities;
5. A permanent Guinea Current Commission (GCC) would be constituted and adopted by the countries at Summit (Heads of State and Government) level, to serve as the highest decision making organ during the process of completion and implementation of the full SAP by 2009.
6. The institutional, legal and financial arrangements, including a financial mechanism for the longer term sustainability of the GCC (and its sub-Commission for Fisheries) would be further negotiated by the countries and other stakeholders during the present project life (2005 - 2009) and in particular during the Donors' Conference to be hosted by the African Development Bank (ADB) in 2008 as part of the implementation of the full SAP for the 16 countries.
7. Invite international cooperating partners including specialized donor agencies and the Private Sector to assist the GCLME countries and the IGCC in addressing identified and emerging priority environmental issues and their root causes.
8. Call on the countries and all other stakeholders to pursue with vigour the implementation of this Declaration.

Adopted in Abuja, 22nd September, 2006

ANNEX V

THE GUINEA CURRENT COMMISSION



United Nations Environment Programme

برنامج الأمم المتحدة للبيئة • 联合国环境规划署
PROGRAMME DES NATIONS UNIES POUR L'ENVIRONNEMENT • PROGRAMA DE LAS NACIONES UNIDAS PARA EL MEDIO AMBIENTE
ПРОГРАММА ОРГАНИЗАЦИИ ОБЪЕДИНЕННЫХ НАЦИЙ ПО ОКРУЖАЮЩЕЙ СРЕДЕ

Beijing Declaration on furthering the implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities

We the representatives of 104 governments and the European Commission, with the valued support and concurrence of delegates from international financial institutions, international and regional organizations, the private sector, non-governmental organizations, other stakeholders and major groups,

Having met in Beijing from 16 to 20 October 2006 at the second session of the Intergovernmental Review Meeting on the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities,

Acknowledging that people are dependent on the oceans and coasts and their resources for their survival, health and well-being, that a significant number of people derive their food security and economic livelihood from the coastal and marine environment and that many of those areas, in particular low-lying coastal areas and small island developing States, are vulnerable to the rise in the sea level and climate-related natural disasters as well as effects on the marine environment of ocean acidification resulting from land-based activities,

Noting the steady urbanization of coastal areas, with close to 40 per cent of the world's population living within 100 kilometres of the coast, and concerned about the findings of the United Nations Environment Programme's Global Marine Assessment and its report "The state of the marine environment: trends and processes", in particular as regards the severe and increasing occurrence of nutrient over enrichment of coastal waters, the continuing and projected increase in the discharge of untreated municipal, industrial and agricultural wastewater, and the substantial increase of atmospherically transported emissions,

Recognizing the growing damage that those trends are causing to people and the environment, including stress on marine ecosystems, loss of corals and wetlands, contamination of marine sources of human food and prejudice to the amenity of beaches and the health of bathing waters,

Noting the continuing need for improved monitoring to identify threats at regional, national and local levels and to assess the impact and effectiveness of measures to address such problems,

Recognizing that the Global Programme of Action is an effective tool for integrating environmental concerns into development planning and strategies at the regional and national levels and that, as such, it contributes substantially to the achievement of the internationally agreed development goals, including those contained in the Millennium Declaration¹ and those highlighted in Agenda 21², the Barbados Programme of Action³, the Johannesburg Plan of Implementation⁴ and the Mauritius Strategy for the Sustainable Development of Small Island Developing States⁵,

Emphasizing the importance of the Global Programme of Action in addressing the interaction of land and ocean and integrating freshwater with coastal and marine management approaches, thereby protecting human health and livelihoods while fostering the application of ecosystem approaches,

Noting that the need for sufficient financial resources and for capacity-building are major challenges faced by developing countries for the successful implementation of the Global Programme of Action,

Recognizing the important contribution of the United Nations Environment Programme Regional Seas Programme, the Global Environment Facility and international financial institutions in implementing the Global Programme of Action and concurrently recognizing the financial constraints faced in such implementation and the consequent need for resource mobilization and support,

Noting the progress made by some countries in building institutional capacity and developing legislative frameworks and environmental policies regarding the sustainable management of the marine and coastal environment,

Supporting the Bali Strategic Plan for Technology Support and Capacity-building, adopted by the Governing Council of the United Nations Environment Programme/Global Ministerial Environment Forum at its twenty-third session, in view of the fundamental role of capacity-building in the implementation of the Global Programme of Action,

Acknowledging the important contribution of multi-stakeholder partnerships, including those concluded at the current session of the Intergovernmental Review Meeting on the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, to the implementation of intergovernmental commitments to advance action on internationally agreed and recognized goals,

Recognizing the successful results and achievements in the progression from planning to implementation of the Global Programme of Action in the period 2002–2006 and, in particular, the contribution of the United Nations Environment Programme's Global Programme of Action Coordination Office,

¹ See General Assembly Resolution 55/2.

² Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992 (United Nations publication, Sales No. E.93.I.8 and corrigenda), vol. I: Resolutions adopted by the Conference, resolution 1, annex II.

³ Report of the Global Conference on the Sustainable Development of Small Island Developing States, Bridgetown, Barbados, 25 April-6 May 1994 (United Nations publication, Sales No. 4.94.I.18 and corrigenda), chap. 1, resolution 1, annex II.

⁴ Plan of implementation of the World Summit on Sustainable Development (Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August-4 September 2002 (United Nations publication, Sales No. E.03.II.A.1 and corrigendum), chap. I, resolution 2, annex.

⁵ Report of the International Meeting to Review the Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States, Port Louis, Mauritius, 10-14 January 2005 (United Nations publication, Sales No. E.05.II.A.4 and corrigendum), chap. I, resolution 1, annex II.

Resolve:

1. To recommit ourselves to the Global Programme of Action as a flexible and effective tool for the sustainable development of oceans, coasts and islands;

2. To commit ourselves to furthering the implementation of the Global Programme of Action in 2007–2011:

- (a) By applying ecosystem approaches;
- (b) By valuing the social and economic costs and benefits of the goods and services that coasts and oceans provide;
- (c) By establishing partnerships at the national, regional and international levels;
- (d) By cooperating at the regional and interregional levels;
- (e) By mainstreaming the Global Programme of Action into national development planning and budgetary mechanisms;
- (f) By supporting the United Nations Environment Programme Global Programme of Action Coordination Office in undertaking its task of facilitating, furthering and promoting the implementation of the Global Programme of Action;

3. To express appreciation for the efforts of the United Nations Environment Programme in helping to advance the agenda with respect to the sustainable development of oceans, coasts and islands and invite it to strengthen its support to the further implementation of the Global Programme of Action through increased contributions from its Environment Fund, enhanced cooperation and coordination with multilateral environmental agreements and improved cooperation with all stakeholders and relevant organizations, including multilateral development banks, at the global and regional levels;

National actions

4. To strengthen efforts to develop and implement our regional and national programmes of action and mechanisms for the protection of the marine environment from land-based pollution sources and activities, in concert with the relevant implementing legislation and financing, and to mainstream the objectives of the Global Programme of Action into development planning and implementation, including the United Nations country level programmes, the United Nations Development Assistance Framework, poverty reduction strategy papers, common country assessments and country assistance strategies, to reduce and manage the risks and impacts of coastal and marine pollution;

5. To commit to the continued currency and relevance of the Global Programme of Action as a fundamental framework for the protection of the coastal and marine environment and to commit ourselves to taking the Global Programme of Action's objectives and to mainstreaming them across our governments, and also to advancing them, as appropriate, in the relevant intergovernmental organizations and in the various multilateral environmental agreements to which we are Parties and in which we participate;

6. To promote the effective implementation of international and regional conventions, agreements and protocols to which we are Parties, relevant to the achievement of the goals of the Global Programme of Action;

7. To improve cooperation and coordination at all levels in order to deal with issues related to watersheds, coasts, seas and oceans in an integrated manner and to incorporate the integrated management and sustainable use of river basins, seas and oceans into relevant national policies and programmes, in particular by implementing integrated approaches to water resources management, to coastal zone management and coastal area management, to coastal area and river basin management, and to physical alteration and destruction of habitats;

8. To develop and implement national plans of action for the Global Programme of Action, in close coordination with the national integrated water resources management and water efficiency plans, as set forth in the Johannesburg Plan of Implementation;
9. To further the application of ecosystem approaches to watershed, coast, oceans and large marine ecosystem and island management, and to strengthen national, regional and global cooperation to help achieve increased application by 2010 of the ecosystem approach, as set forth in the Johannesburg Plan of Implementation;⁶
10. To increase our efforts to integrate and mainstream economic valuation of the goods and services that oceans, coasts and watersheds provide into our accounting and decision-making, taking full account of all services that the environment provides, including their direct and indirect value to societies and ecosystems;
11. To devote additional effort, finance and support to address point and non-point source nutrients, including municipal, industrial and agricultural wastewater, as major and increasing source categories directly affecting human health, well-being and the environment, including marine ecosystems and their associated watersheds;
12. To develop and implement durable mechanisms to ensure the long-term financial sustainability and implementation of regional and national programmes of action and mechanisms for the protection of the marine environment from land-based pollution sources and activities;
13. To improve monitoring systems at all levels so as to enable governments, major groups and the public to contribute to building a common understanding and knowledge of the damage being done to the marine environment and the measures needed to protect it and for the follow-up of the implementation of the Global Programme of Action;
14. To actively promote the involvement and participation of local and regional authorities, communities and other relevant stakeholders in the development and implementation of programmes of action and strategies, in particular at the local level, for the implementation of the Global Programme of Action;

Regional actions

15. To strengthen the United Nations Environment Programme regional seas conventions and programmes, as well as other regional conventions, agreements and programmes for the protection of the marine and coastal environment, to serve as effective mechanisms to further the implementation of the Global Programme of Action and the protection and sustainable use of the marine environment, through means such as the development and implementation of protocols addressing land-based pollution sources and activities;
16. To work through the United Nations Environment Programme regional seas programmes and other regional and interregional bodies and processes to apply ecosystem approaches to watershed, coast, ocean and large marine ecosystem and island management, and to develop and strengthen strategic partnerships and improve interregional action, cooperation, scientific understanding, environmental education, exchange and sharing of knowledge, technology and experience;

International actions

17. To call upon United Nations agencies, United Nations inter-agency groups, such as UN-Oceans and UN-Water, the United Nations Development Group, the International Maritime

Organization, and multilateral environmental agreements, in particular the Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat, the Convention on Biological Diversity and the Stockholm Convention on Persistent Organic Pollutants, to increase the integration of the Global Programme of Action into their policies, plans and programmes, consistent with their mandates;

18. To call upon international and regional financial institutions and donor countries to continue to support the implementation of the Global Programme of Action at the appropriate levels and to increase their contribution to ensuring its long-term sustainability through financial and technical support and by building the capacity of developing countries, particularly small island developing States, to develop and implement their national programmes of action;

19. To welcome the national, regional and international partnerships, discussed during the second session of the Intergovernmental Review Meeting on the Implementation of the Global Programme of Action, aimed at mainstreaming the work and objectives of the Global Programme of Action into their respective workplans, activities, policies and programmes at the appropriate levels and to welcome the creation of new partnerships with all sectors of civil society and the strengthening of existing ones, as critical mechanisms for the successful implementation of the Global Programme of Action;

20. To support the continuity and the mainstreaming of the Global Programme of Action into the major fields of global development activity and promote it as a means to create the integrated processes, intellectual leadership and partnerships that are necessary to achieve global goals and strategies in linked watershed, coastal and ocean areas through ecosystem-based approaches;

21. To improve the implementation of the Global Programme of Action through cooperating with other international initiatives, in order to develop joint activities around the integrated management of watersheds;

22. To invite the States that have not done so, to consider becoming Parties to international and regional conventions, agreements and protocols, as appropriate, relevant to the achievement of the goals of the Global Programme of Action.

United Nations Environment Programme actions

23. To endorse the Global Programme of Action programme of work for the period 2007–2011, commend it to the United Nations Environment Programme Governing Council/Global Ministerial Environment Forum and encourage the Governing Council/Global Ministerial Environment Forum to devote greater financial resources to its implementation, particularly at the regional level;

24. To welcome the “Guidance to the Implementation of the Global Programme of Action for 2007–2011”⁷ produced by the United Nations Environment Programme’s Global Programme of Action Coordination Office, as a tool aimed at supporting implementation of the Global Programme of Action in a manner consistent with emerging issues in the international environment and sustainable development context;

⁷ UNEP/GPA/IGR.2/3.

25. To request the United Nations Environment Programme Governing Council/Global Ministerial Environment Forum to endorse the present Declaration and the outcome of the second session of the Intergovernmental Review Meeting on the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities as valuable

contributions to the implementation of Agenda 21 and other internationally agreed development goals, including those contained in the Millennium Declaration and the Johannesburg Plan of Implementation;

26. To request the Executive Director of the United Nations Environment Programme to convene the third session of the Intergovernmental Review Meeting on the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities in 2011, in collaboration with the relevant organizations and institutions, and to seek the support of the United Nations Environment Programme in organizing the meeting and implementing its outcome;

27. To express special gratitude and appreciation to the Government and people of the People's Republic of China for hosting the second session of the Intergovernmental Review Meeting on the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities.

ANNEX VI

PAN AFRICAN LME FORUM

DECLARATION

The Pan African Forum is a major African event that brings together the leadership of marine and coastal areas of the countries of sub-Saharan African LME Programmes.

Through the establishment of the Benguela Current Commission and the Guinea Current Commission, the Ministers responsible for fisheries, environment, energy, mining and tourism have committed their countries to the recovery of depleted fish stocks, restoration of degraded habitats, and reduction and control of coastal pollution. These are the first two LME Commissions worldwide to focus on reducing risks to the sizeable contributions from the goods and services these LME make to the African GDP.

The most recent collapse of fisheries in the Benguela Current ecosystem is understood as the combination of over-fishing, and climate change. They call for immediate joint action predicated on, and supported by, science – based assessments, and on the concerns of socio-economic stakeholders and governments.

The African LME Programmes require improved mechanisms for funding from financial institutions and donors in order to rebuild fish stocks, restore marine ecosystems and move towards an ecosystem approach to management and development. With the assistance of the Global Environmental facility (GEF) and other donors, major progress has already been made by the concerted efforts of the countries. In pursuance of these objectives, the Pan African LME Forum recommends action to:

- Strengthen strategic partnerships amongst African coastal states, regional and international organisations and agencies, aimed at recovery of the degraded African Large Marine Ecosystems
- Adopt best practices and examples of approaches to the recovery and sustainability of LME transboundary goods and services.
- Foster closer cooperation and partnerships between civil society, maritime industries and the LME Programmes of Africa, in collaboration with GOOS Africa and other international efforts, to monitor and assess global environmental conditions.
- Promote the LME modular approach of productivity, fish and fisheries, pollution, ecosystem health, socio-economics and governance as a means to increase the benefits provided by African LMEs.
- Initiate a co-ordinated assessment of African LMEs in relation to adaptation mechanisms for mitigating the effects of Climate Change.
- Develop and strengthen co-operation between African LME programmes to advance recovery of depleted fisheries resources and recover and sustain marine ecosystems.

- Mobilise financial resources to support the mitigation of ecological and socio-economic disruptions of the LMEs caused by Climate Change.
- Develop a harmonised approach to support NEPAD policies on fisheries and environment, and cooperation with existing regional governance mechanisms including the Abidjan and Nairobi conventions, regional fisheries bodies and river basin authorities.
- Promote implementation of the WSSD and UN Millennium Goals through integrated management and sustainable development of the African LMEs.
- Strengthen efforts to support African countries in enhanced benefits capture from LME fisheries through improved regulation of access, MCS, combating IUU and other measures.

13th November 2006

Cape Town, South Africa

ANNEX VII

A WEBSITE FOR THE POWERPOINTS FROM THE IOC 8th CC MEETING

The powerpoint presentations of the meeting have been assembled on a web site at:

<http://woodsmoke/edc.uri.edu/portal/> Click on 2006 – 8th Consultative Committee Meeting, Paris.

ANNEX VIII

LIST OF ACRONYMS

ACC SOCA	U.N. Administrative Committee on Coordination's Subcommittee on Oceans and Coastal Areas
BENEFIT	Benguela Environment Fisheries Interaction and Training Program
BOBLME	Bay of Bengal Marge Marine Ecosystem
BCC	Benguela Current Commission
BCLME	Benguela Current Large Marine Ecosystem
CBD	Convention on Biological Diversity
CBOs	Community Based Organisations
CCAMLR	Commission for the Convention of Antarctic Marine Living Resources
COOP	Coastal Ocean Observation Panel
ECOPATH/ECOSIM	Mass-Balance Food Web Modelling Using "ECOSIM"
ENVIFISH	Environmental Conditions and Fluctuations in recruitment and Distribution of Small Pelagic Fish Stocks
FAO	Food and Agriculture Organization (UN)
FSA	Fish Stock Agreement
GCLME	Guinea Current Large Marine Ecosystem
GEF	Global Environment Facility
GPA	Global Programme of Action for the Protection of the Marine Environment
GESAMP	Group of Experts on the Scientific Aspects of Marine Pollution
GIWA	Global International Waters Assessment
GLOBEC	Global Ocean Ecosystem Dynamic
GOOS	Global Ocean Observing System (IOC-WMO-UNEP-ICSU)
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
HELCOM	Helsinki Commission
IBCC	Interim Benguela Current Commission
IBSFC	International Baltic Sea Fisheries Commission
ICES	International Council for the Exploration of the Sea
ICM	Integrated Coastal Management
IDYLE	Interactions and Spatial Dynamics of Renewable Resources in Upwelling Ecosystems
IFOP	Instituto de Fomento Pesquero
IMARPE	Instituto del Mar del Peru
IUCN	World Conservation Union
IW:LEARN	International Waters Learn
JCP	Baltic Joint Comprehensive Environmental Action Programme
LME	Large Marine Ecosystem
LMR	Living Marine Resources Module
MHLC	Multilateral High Level Conferences on South Pacific Tuna Fisheries
MPA	Marine Protected Areas
NGO	Non-governmental Organization
NOAA-NMFS	National Oceanographic and Atmospheric Administration; National Marine Fisheries Service
ONRIFO	Office of the Naval Research International Field Office
ONR	Office of Naval Research, US
OSPAR Com.	The Oslo and Paris Commission (for the Protection of the Marine Environment of the North-East Atlantic)

PCU	Programme Coordinating Unit
PDF-B	Project Development Facility, Phase B Planning Grant
PEMSEA	Partnership for Environmental Management of the Seas of East Asia
POPs	Persistent Organic Pollutants
ROOFS	Regional Ocean Observing Forecasting System
SAP	Strategic Action Programme
SEAFO	South East Atlantic Fisheries Organisation
SEA-WATCH	Buoy System for Physical, Chemical and Biological marine
SIDS	Small Islands Development States
SPACC	Small Pelagic Fishes and Climate Change (GLOBEC)
TDA	Transboundary Diagnostic Analysis
UNCED	United Nations Conference on Environment and Development
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
VIBES	Viability of Exploited Pelagic Fish Resources in the Benguela Ecosystems in relation to the Environment and Spatial Aspects
WSSD	World Summit on Sustainable Development, Johannesburg, South Africa, 2002
YSLME	Yellow Sea Large Marine Ecosystem

In this Series, entitled

Reports of Meetings of Experts and Equivalent Bodies, which was initiated in 1984 and which is published in English only, unless otherwise specified, the reports of the following meetings have already been issued:

1. Third Meeting of the Central Editorial Board for the Geological/Geophysical Atlases of the Atlantic and Pacific Oceans
2. Fourth Meeting of the Central Editorial Board for the Geological/Geophysical Atlases of the Atlantic and Pacific Oceans S. Fourth Session of the Joint IOC-WMO-CPPS Working Group on the Investigations of 'El Niño' (**Also printed in Spanish**)
4. First Session of the IOC-FAO Guiding Group of Experts on the Programme of Ocean Science in Relation to Living Resources
5. First Session of the IOC-UN(OETB) Guiding Group of Experts on the Programme of Ocean Science in Relation to Non-Living Resources
6. First Session of the Editorial Board for the International Bathymetric Chart of the Mediterranean and Overlay Sheets
7. First Session of the Joint CCOP(SOPAC)-IOC Working Group on South Pacific Tectonics and Resources
8. First Session of the IODE Group of Experts on Marine Information Management
9. Tenth Session of the Joint CCOP-IOC Working Group on Post-IDOE Studies in East Asian Tectonics and Resources
10. Sixth Session of the IOC-UNEP Group of Experts on Methods, Standards and Intercalibration
11. First Session of the IOC Consultative Group on Ocean Mapping (**Also printed in French and Spanish**)
12. Joint 100-WMO Meeting for Implementation of IGOSS XBT Ships-of-Opportunity Programmes
13. Second Session of the Joint CCOP/SOPAC-IOC Working Group on South Pacific Tectonics and Resources
14. Third Session of the Group of Experts on Format Development
15. Eleventh Session of the Joint CCOP-IOC Working Group on Post-IDOE Studies of South-East Asian Tectonics and Resources
16. Second Session of the IOC Editorial Board for the International Bathymetric Chart of the Mediterranean and Overlay Sheets
17. Seventh Session of the IOC-UNEP Group of Experts on Methods, Standards and Intercalibration
18. Second Session of the IOC Group of Experts on Effects of Pollutants
19. Primera Reunión del Comité Editorial de la COI para la Carta Batimétrica Internacional del Mar Caribe y Parte del Océano Pacífico frente a Centroamérica (**Spanish only**)
20. Third Session of the Joint CCOP/SOPAC-IOC Working Group on South Pacific Tectonics and Resources
21. Twelfth Session of the Joint CCOP-IOC Working Group on Post-IDOE Studies of South-East Asian Tectonics and Resources
22. Second Session of the IODE Group of Experts on Marine Information Management
23. First Session of the IOC Group of Experts on Marine Geology and Geophysics in the Western Pacific
24. Second Session of the IOC-UN(OETB) Guiding Group of Experts on the Programme of Ocean Science in Relation to Non-Living Resources (**Also printed in French and Spanish**)
25. Third Session of the IOC Group of Experts on Effects of Pollutants
26. Eighth Session of the IOC-UNEP Group of Experts on Methods, Standards and Intercalibration
27. Eleventh Session of the Joint IOC-IHO Guiding Committee for the General Bathymetric Chart of the Oceans (**Also printed in French**)
28. Second Session of the IOC-FAO Guiding Group of Experts on the Programme of Ocean Science in Relation to Living Resources
29. First Session of the IOC-IAEA-UNEP Group of Experts on Standards and Reference Materials
30. First Session of the IOCARIBE Group of Experts on Recruitment in Tropical Coastal Demersal Communities (**Also printed in Spanish**)
31. Second IOC-WMO Meeting for Implementation of IGOSS XBT Ship-of-Opportunity Programmes
32. Thirteenth Session of the Joint CCOP-IOC Working Group on Post-IDOE Studies of East Asia Tectonics and Resources
33. Second Session of the IOC Task Team on the Global Sea-Level Observing System
34. Third Session of the IOC Editorial Board for the International Bathymetric Chart of the Mediterranean and Overlay Sheets
35. Fourth Session of the IOC-UNEP-IMO Group of Experts on Effects of Pollutants
36. First Consultative Meeting on RNODCs and Climate Data Services
37. Second Joint IOC-WMO Meeting of Experts on IGOSS-IODE Data Flow
38. Fourth Session of the Joint CCOP/SOPAC-IOC Working Group on South Pacific Tectonics and Resources
39. Fourth Session of the IODE Group of Experts on Technical Aspects of Data Exchange
40. Fourteenth Session of the Joint CCOP-IOC Working Group on Post-IDOE Studies of East Asian Tectonics and Resources
41. Third Session of the IOC Consultative Group on Ocean Mapping
42. Sixth Session of the Joint IOC-WMO-CCPS Working Group on the Investigations of 'El Niño' (**Also printed in Spanish**)
43. First Session of the IOC Editorial Board for the International Bathymetric Chart of the Western Indian Ocean
44. Third Session of the IOC-UN(OALOS) Guiding Group of Experts on the Programme of Ocean Science in Relation to Non-Living Resources
45. Ninth Session of the IOC-UNEP Group of Experts on Methods, Standards and Intercalibration
46. Second Session of the IOC Editorial Board for the International Bathymetric Chart of the Caribbean Sea and the Gulf of Mexico
47. Cancelled
48. Twelfth Session of the Joint IOC-IHO Guiding Committee for the General Bathymetric Chart of the Oceans
49. Fifteenth Session of the Joint CCOP-IOC Working Group on Post-IDOE Studies of East Asian Tectonics and Resources
50. Third Joint IOC-WMO Meeting for Implementation of IGOSS XBT Ship-of-Opportunity Programmes
51. First Session of the IOC Group of Experts on the Global Sea-Level Observing System
52. Fourth Session of the IOC Editorial Board for the International Bathymetric Chart of the Mediterranean
53. First Session of the IOC Editorial Board for the International Chart of the Central Eastern Atlantic (**Also printed in French**)
54. Third Session of the IOC Editorial Board for the International Bathymetric Chart of the Caribbean Sea and the Gulf of Mexico (**Also printed in Spanish**)
55. Fifth Session of the IOC-UNEP-IMO Group of Experts on Effects of Pollutants
56. Second Session of the IOC Editorial Board for the International Bathymetric Chart of the Western Indian Ocean
57. First Meeting of the IOC *ad hoc* Group of Experts on Ocean Mapping in the WESTPAC Area
58. Fourth Session of the IOC Consultative Group on Ocean Mapping

59. Second Session of the IOC-WMO/IGOSS Group of Experts on Operations and Technical Applications
60. Second Session of the IOC Group of Experts on the Global Sea-Level Observing System
61. UNEP-IOC-WMO Meeting of Experts on Long-Term Global Monitoring System of Coastal and Near-Shore Phenomena Related to Climate Change
62. Third Session of the IOC-FAO Group of Experts on the Programme of Ocean Science in Relation to Living Resources
63. Second Session of the IOC-IAEA-UNEP Group of Experts on Standards and Reference Materials
64. Joint Meeting of the Group of Experts on Pollutants and the Group of Experts on Methods, Standards and Inter-calibration
65. First Meeting of the Working Group on Oceanographic Co-operation in the ROPME Sea Area
66. Fifth Session of the Editorial Board for the International Bathymetric and its Geological/Geophysical Series
67. Thirteenth Session of the IOC-IHO Joint Guiding Committee for the General Bathymetric Chart of the Oceans (**Also printed in French**)
68. International Meeting of Scientific and Technical Experts on Climate Change and Oceans
69. UNEP-IOC-WMO-IUCN Meeting of Experts on a Long-Term Global Monitoring System
70. Fourth Joint IOC-WMO Meeting for Implementation of IGOSS XBT Ship-of-Opportunity Programmes
71. ROPME-IOC Meeting of the Steering Committee on Oceanographic Co-operation in the ROPME Sea Area
72. Seventh Session of the Joint IOC-WMO-CPPS Working Group on the Investigations of 'El Niño' (**Spanish only**)
73. Fourth Session of the IOC Editorial Board for the International Bathymetric Chart of the Caribbean Sea and the Gulf of Mexico (**Also printed in Spanish**)
74. UNEP-IOC-ASPEI Global Task Team on the Implications of Climate Change on Coral Reefs
75. Third Session of the IODE Group of Experts on Marine Information Management
76. Fifth Session of the IODE Group of Experts on Technical Aspects of Data Exchange
77. ROPME-IOC Meeting of the Steering Committee for the Integrated Project Plan for the Coastal and Marine Environment of the ROPME Sea Area
78. Third Session of the IOC Group of Experts on the Global Sea-level Observing System
79. Third Session of the IOC-IAEA-UNEP Group of Experts on Standards and Reference Materials
80. Fourteenth Session of the Joint IOC-IHO Guiding Committee for the General Bathymetric Chart of the Oceans
81. Fifth Joint IOG-WMO Meeting for Implementation of IGOSS XBT Ship-of-Opportunity Programmes
82. Second Meeting of the UNEP-IOC-ASPEI Global Task Team on the Implications of climate Change on Coral Reefs
83. Seventh Session of the JSC Ocean Observing System Development Panel
84. Fourth Session of the IODE Group of Experts on Marine Information Management
85. Sixth Session of the IOC Editorial Board for the International Bathymetric chart of the Mediterranean and its Geological/Geophysical Series
86. Fourth Session of the Joint IOC-JGOFS Panel on Carbon Dioxide
87. First Session of the IOC Editorial Board for the International Bathymetric Chart of the Western Pacific
88. Eighth Session of the JSC Ocean Observing System Development Panel
89. Ninth Session of the JSC Ocean Observing System Development Panel
90. Sixth Session of the IODE Group of Experts on Technical Aspects of Data Exchange
91. First Session of the IOC-FAO Group of Experts on OSLR for the IOCINCWIO Region
92. Fifth Session of the Joint IOC-JGOFS CO₂ Advisory Panel Meeting
93. Tenth Session of the JSC Ocean Observing System Development Panel
94. First Session of the Joint CMM-IGOSS-IODE Sub-group on Ocean Satellites and Remote Sensing
95. Third Session of the IOC Editorial Board for the International Chart of the Western Indian Ocean
96. Fourth Session of the IOC Group of Experts on the Global Sea Level Observing System
97. Joint Meeting of GEMSI and GEEP Core Groups
98. First Session of the Joint Scientific and Technical Committee for Global Ocean Observing System
99. Second International Meeting of Scientific and Technical Experts on Climate Change and the Oceans
100. First Meeting of the Officers of the Editorial Board for the International Bathymetric Chart of the Western Pacific
101. Fifth Session of the IOC Editorial Board for the International Bathymetric Chart of the Caribbean Sea and the Gulf of Mexico
102. Second Session of the Joint Scientific and Technical Committee for Global Ocean Observing System
103. Fifteenth Session of the Joint IOC-IHO Committee for the General Bathymetric Chart of the Oceans
104. Fifth Session of the IOC Consultative Group on Ocean Mapping
105. Fifth Session of the IODE Group of Experts on Marine Information Management
106. IOC-NOAA *Ad hoc* Consultation on Marine Biodiversity
107. Sixth Joint IOC-WMO Meeting for Implementation of IGOSS XBT Ship-of-Opportunity Programmes
108. Third Session of the Health of the Oceans (HOTO) Panel of the Joint Scientific and Technical Committee for GLOSS
109. Second Session of the Strategy Subcommittee (SSC) of the IOC-WMO-UNEP Intergovernmental Committee for the Global Ocean Observing System
110. Third Session of the Joint Scientific and Technical Committee for Global Ocean Observing System
111. First Session of the Joint GCOS-GOOS-WCRP Ocean Observations Panel for Climate
112. Sixth Session of the Joint IOC-JGOFS CO₂ Advisory Panel Meeting
113. First Meeting of the IOC/WESTPAC Co-ordinating Committee for the North-East Asian Regional - Global Ocean Observing System (NEAR-GOOS)
114. Eighth Session of the Joint IOC-WMO-CPPS Working Group on the Investigations of "El Niño" (**Spanish only**)
115. Second Session of the IOC Editorial Board of the International Bathymetric Chart of the Central Eastern Atlantic (**Also printed in French**)
116. Tenth Session of the Officers Committee for the Joint IOC-IHO General Bathymetric Chart of the Oceans (GEBCO), USA, 1996
117. IOC Group of Experts on the Global Sea Level Observing System (GLOSS), Fifth Session, USA, 1997
118. Joint Scientific Technical Committee for Global Ocean Observing System (J-GOOS), Fourth Session, USA, 1997
119. First Session of the Joint 100-WMO IGOSS Ship-of-Opportunity Programme Implementation Panel, South Africa, 1997
120. Report of Ocean Climate Time-Series Workshop, Joint GCOS-GOOS-WCRP Ocean Observations Panel for Climate, USA, 1997

121. IOC/WESTPAC Co-ordinating Committee for the North-East Asian Regional Global Ocean Observing System (NEAR-GOOS), Second Session, Thailand, 1997
122. First Session of the IOC-IUCN-NOAA *Ad hoc* Consultative Meeting on Large Marine Ecosystems (LME), France, 1997
123. Second Session of the Joint GCOS-GOOS-WCRP Ocean Observations Panel for Climate (OOPC), South Africa, 1997
124. Sixth Session of the IOC Editorial Board for the International Bathymetric Chart of the Caribbean Sea and the Gulf of Mexico, Colombia, 1996 **(also printed in Spanish)**
125. Seventh Session of the IODE Group of Experts on Technical Aspects of Data Exchange, Ireland, 1997
126. IOC-WMO-UNEP-ICSU Coastal Panel of the Global Ocean Observing System (GOOS), First Session, France, 1997
127. Second Session of the IOC-IUCN-NOAA Consultative Meeting on Large Marine Ecosystems (LME), France, 1998
128. Sixth Session of the IOC Consultative Group on Ocean Mapping (CGOM), Monaco, 1997
129. Sixth Session of the Tropical Atmosphere - Ocean Array (TAO) Implementation Panel, United Kingdom, 1997
130. First Session of the IOC-WMO-UNEP-ICSU Steering Committee of the Global Ocean Observing System (GOOS), France, 1998
131. Fourth Session of the Health of the Oceans (HOTO) Panel of the Global Ocean Observing System (GOOS), Singapore, 1997
132. Sixteenth Session of the Joint IOC-IHO Guiding Committee for the General Bathymetric Chart of the Oceans (GEBCO), United Kingdom, 1997
133. First Session of the IOC-WMO-UNEP-ICSU-FAO Living Marine Resources Panel of the Global Ocean Observing System (GOOS), France, 1998
134. Fourth Session of the IOC Editorial Board for the International Bathymetric Chart of the Western Indian Ocean (IOC/EB-IBCWIO-IW3), South Africa, 1997
135. Third Session of the Joint GCOS-GOOS-WCRP Ocean Observations Panel for Climate (OOPC), France, 1998
136. Seventh Session of the Joint IOC-JGOFS CO2 Advisory Panel Meeting, Germany, 1997
137. Implementation of Global Ocean Observations for GOOS/GCOS, First Session, Australia, 1998
138. Implementation of Global Ocean Observations for GOOS/GCOS, Second Session, France, 1998
139. Second Session of the IOC-WMO-UNEP-ICSU Coastal Panel of the Global Ocean Observing System (GOOS), Brazil, 1998
140. Third Session of IOC/WESTPAC Co-ordinating Committee for the North-East Asian Regional - Global Ocean Observing System (NEAR-GOOS), China, 1998
141. Ninth Session of the Joint IOC-WMO-CPPS Working Group on the Investigations of 'El Niño', Ecuador, 1998 **(Spanish only)**
142. Seventh Session of the IOC Editorial Board for the International Bathymetric Chart of the Mediterranean and its Geological/Geophysical Series, Croatia, 1998
143. Seventh Session of the Tropical Atmosphere-Ocean Array (TAO) Implementation Panel, Abidjan, Côte d'Ivoire, 1998
144. Sixth Session of the IODE Group of Experts on Marine Information Management (GEMIM), USA, 1999
145. Second Session of the IOC-WMO-UNEP-ICSU Steering Committee of the Global Ocean Observing System (GOOS), China, 1999
146. Third Session of the IOC-WMO-UNEP-ICSU Coastal Panel of the Global Ocean Observing System (GOOS), Ghana, 1999
147. Fourth Session of the GCOS-GOOS-WCRP Ocean Observations Panel for Climate (OOPC); Fourth Session of the WCRP CLIVAR Upper Ocean Panel (UOP); Special Joint Session of OOPC and UOP, USA, 1999
148. Second Session of the IOC-WMO-UNEP-ICSU-FAO Living Marine Resources Panel of the Global Ocean Observing System (GOOS), France, 1999
149. Eighth Session of the Joint IOC-JGOFS CO2 Advisory Panel Meeting, Japan, 1999
150. Fourth Session of the IOC/WESTPAC Co-ordinating Committee for the North-East Asian Regional – Global Ocean Observing System (NEAR-GOOS), Japan, 1999
151. Seventh Session of the IOC Consultative Group on Ocean Mapping (CGOM), Monaco, 1999
152. Sixth Session of the IOC Group of Experts on the Global Sea level Observing System (GLOSS), France, 1999
153. Seventeenth Session of the Joint IOC-IHO Guiding Committee for the General Bathymetric Chart of the Oceans (GEBCO), Canada, 1999
154. Comité Editorial de la COI para la Carta Batimétrica Internacional del Mar Caribe y el Golfo de Mexico (IBCCA), Septima Reunión, Mexico, 1998
IOC Editorial Board for the International Bathymetric Chart of the Caribbean Sea and the Gulf of Mexico (IBCCA), Seventh Session, Mexico, 1998
155. Initial Global Ocean Observing System (GOOS) Commitments Meeting, IOC-WMO-UNEP-ICSU/Impl-III/3, France, 1999
156. First Session of the *ad hoc* Advisory Group for IOCARIBE-GOOS, Venezuela, 1999 **(also printed in Spanish and French)**
157. Fourth Session of the IOC-WMO-UNEP-ICSU Coastal Panel of the Global Ocean Observing System (GOOS), China, 1999
158. Eighth Session of the IOC Editorial Board for the International Bathymetric Chart of the Mediterranean and its Geological/Geophysical Series, Russian Federation, 1999
159. Third Session of the IOC-WMO-UNEP-ICSU-FAO Living Marine Resources Panel of the Global Ocean Observing System (GOOS), Chile, 1999
160. Fourth Session of the IOC-WMO-UNEP-ICSU-FAO Living Marine Resources Panel of the Global Ocean Observing System (GOOS). Hawaii, 2000
161. Eighth Session of the IODE Group of Experts on Technical Aspects of Data Exchange, USA, 2000
162. Third Session of the IOC-IUCN-NOAA Consultative Meeting on Large Marine Ecosystems (LME), France, 2000
163. Fifth Session of the IOC-WMO-UNEP-ICSU Coastal Panel of the Global Ocean Observing System (GOOS), Poland, 2000
164. Third Session of the IOC-WMO-UNEP-ICSU Steering Committee of the Global Ocean Observing System (GOOS), France, 2000
165. Second Session of the *ad hoc* Advisory Group for IOCARIBE-GOOS, Cuba, 2000 **(also printed in Spanish and French)**
166. First Session of the Coastal Ocean Observations Panel, Costa Rica, 2000
167. First GOOS Users' Forum, 2000
168. Seventh Session of the Group of Experts on the Global Sea Level Observing System, Honolulu, 2001
169. First Session of the Advisory Body of Experts on the Law of the Sea (ABE-LOS), France, 2001 **(also printed in French)**
170. Fourth Session of the IOC-WMO-UNEP-ICSU Steering Committee of the Global Ocean Observing System, Chile, 2001
171. First Session of the IOC-SCOR Ocean CO₂ Advisory Panel, France, 2000
172. Fifth Session of the GCOS-GOOS-WCRP Ocean Observations Panel for Climate (OOPC), Norway, 2000 **(electronic copy only)**
173. Third Session of the *ad hoc* Advisory Group for IOCARIBE-GOOS, USA, 2001 **(also printed in Spanish and French)**
174. Second Session of the Coastal Ocean Observations Panel and GOOS Users' Forum, Italy, 2001
175. Second Session of the Black Sea GOOS Workshop, Georgia, 2001
176. Fifth Session of the IOC/WESTPAC Co-ordinating Committee for the North-East Asian Regional – Global Ocean Observing System (NEAR-GOOS), Republic of Korea, 2000
177. Second Session of the Advisory Body of Experts on the Law of the Sea (IOC/ABE-LOS), Morocco, 2002 **(also printed in French)**

178. Sixth Session of the Joint GCOS-GOOS-WCRP Ocean Observations Panel for Climate (OOPC), Australia, 2001 (**electronic copy only**)
179. *Cancelled*
180. Second Session of the IOC-SCOR Ocean CO₂ Advisory Panel, Honolulu, Hawaii, U.S.A, 2002 (**electronic copy only**)
181. IOC Workshop on the Establishment of SEAGOOS in the Wider Southeast Asian Region, Seoul, Republic of Korea, 2001 (SEAGOOS preparatory workshop) (**electronic copy only**)
182. First Session of the IODE Steering Group for the Resource Kit, USA, 19–21 March 2001
183. Fourth Session of the IOC-IUCN-NOAA Consultative Meeting on Large Marine Ecosystems (LMEs), France, 2002
184. Seventh Session of the IODE Group of Experts on Marine Information Management (GEMIM), France, 2002 (**electronic copy only**)
185. Sixth Session of IOC/WESTPAC Coordinating Committee for the North-East Asian Regional - Global Ocean Observing System (NEAR-GOOS), Republic of Korea, 2001 (**electronic copy only**)
186. First Session of the Global Ocean Observing System (GOOS) Capacity Building Panel, Switzerland, 2002 (**electronic copy only**)
187. Fourth Session of the ad hoc Advisory Group for IOCARIBE-GOOS, 2002, Mexico (**also printed in French and Spanish**)
188. Fifth Session of the IOC Editorial Board for the International Bathymetric Chart of the Western Indian Ocean (IBCWIO), Mauritius, 2000
189. Third session of the Editorial Board for the International Bathymetric Chart of the Western Pacific, China, 2000
190. Third Session of the Coastal Ocean Observations Panel and GOOS Users' Forum, Vietnam, 2002
191. Eighth Session of the IOC Consultative Group on Ocean Mapping, Russian Federation, 2001
192. Third Session of the Advisory Body of Experts on the Law of the Sea (IOC/ABE-LOS), Lisbon, 2003 (**also printed in French**)
193. Extraordinary Session of the Joint IOC-WMO-CPPS Working Group on the Investigations of 'El Niño', Chile, 1999 (**Spanish only; electronic copy only**)
194. Fifth Session of the IOC-WMO-UNEP-ICSU Steering Committee of the Global Ocean Observing System, France, 2002
195. Sixth Session of the IOC-WMO-UNEP-ICSU Steering Committee of the Global Ocean Observing System, South Africa, 2003
196. Fourth Session of the Coastal Ocean Observations Panel, South Africa, 2002 (**electronic copy only**)
197. First Session of the JCOMM/IODE Expert Team On Data Management Practices, Belgium, 2003 (*also JCOMM Meeting Report No. 25*)
198. Fifth Session of the IOC-IUCN-NOAA Consultative Meeting on Large Marine Ecosystems (LMEs), Paris, 2003
199. Ninth Session of the IOC Consultative Group on Ocean Mapping, Monaco, 2003 (**Recommendations in English, French, Russian and Spanish included**)
200. Eighth Session of the IOC Group of Experts on the Global Sea level Observing System (GLOSS), France, 2003 (**electronic copy only**)
201. Fourth Session of the Advisory Body of Experts on the Law of the Sea (IOC/ABE-LOS), Greece, 2004 (**also printed in French**)
202. Sixth Session of the IOC-IUCN-NOAA Consultative Meeting on Large Marine Ecosystems (LMEs), Paris, 2004 (**electronic copy only**)
203. Fifth Session of the Advisory Body of Experts on the Law of the Sea (IOC/ABE-LOS), Argentina, 2005 (**also printed in French**)
204. Ninth Session of the IOC Group of Experts on the Global Sea level Observing System (GLOSS), France, 2005 (**electronic copy only**)
205. Eighth Session of the IOC/WESTPAC Co-ordinating Committee for the North-East Asian Regional – Global Ocean Observing System (NEAR-GOOS), China, 2003 (**electronic copy only**)
206. Sixth Meeting of the Advisory Body of Experts on the Law of the Sea (IOC/ABE-LOS), Spain, 2006 (**also printed in French**)
207. Third Session of the Regional Forum of the Global Ocean Observing System, South Africa, 2006 (**electronic copy only**)
208. Seventh Session of the IOC-UNEP-IUCN-NOAA Consultative Meeting on Large Marine Ecosystems (LMEs), Paris, 2005 (**electronic copy only**)
209. Eighth Session of the IOC-UNEP-IUCN-NOAA Consultative Meeting on Large Marine Ecosystems (LMEs), Paris, 2006 (**electronic copy only**)