

Intergovernmental Oceanographic Commission of UNESCO



Contribution of UNESCO/IOC to the Report of the Secretary General to the 64th Session of the General Assembly on Oceans and the Law of the Sea

Paris - January 2009

IOC contribution to the annual Secretary-General's report on Oceans and the Law of the Sea

Introduction.....	3
Maritime Space.....	3
The continental shelf beyond 200 nautical miles	
Marine Science and Technology	3
Global Ocean Observing System	
International Oceanographic Data and Information Exchange	
Advisory Body of Experts on the Law of the Sea	
Early warning systems	
Protection and Preservation of the Marine Environment.....	6
Harmful algal blooms	
Control of harmful organisms and pathogens in ballast water	
Climate Change.....	6
Ocean Acidification	
Developments in other forums	
International Cooperation and Coordination.....	7
Regular process for global reporting and the assessment of the state of the marine environment, including socio-economic aspects Oceans and Coastal Areas Network	
Capacity Building.....	8

INTRODUCTION

During the 2008, the work of the Intergovernmental Oceanographic Commission of UNESCO/IOC has been based on the Resolutions adopted by the XXIV IOC Assembly, the XLI IOC Executive Council and the XXXIV General Conference of UNESCO, in addition to the UN General Assembly Resolutions 61/222 and 62/215

The inputs from the IOC projects, programs and activities related to 2008 are the following:

MARITIME SPACE

The continental shelf beyond 200 nautical miles

The IOC sent a Circular Letter to all its Member States on 23 July 2008 informing them on the States Parties to the UN Convention on the Law of the Sea's Decision (SPLOS/72, paragraph (a)) defining a simpler process to fulfill the requirements of Annex II of the Convention, as well as the Decision SPLOS/72.

IOC held a Technical Briefing on: "UNCLOS and the Outer Limits of the Continental Shelf" for providing awareness-raising for policy-makers and members of the Delegations of the Member States to UNESCO on 18 April 2008. IOC also has been providing Advice on this issue to Delegations of UNESCO and IOC Member States that have requested it, in close cooperation with UNEP GRID-Arendal's programme..Several African member states have benefitted from these activities.

MARINE SCIENCE AND TECHNOLOGY

Global Ocean Observing System

IOC has continued to develop the Global Ocean Observing System, GOOS in partnership with the WMO, UNEP and the International Council for Science, ICSU. Steady progress was made in 2008, as close to 3,300 Argo profiling floats are now in operation worldwide measuring temperature and salinity between the surface and 2,000 meters depth. Increases were also seen in the System's sea level stations. More than 260 sea level stations now report observations in real time or near real time also benefitting regional tsunami and hazard warning systems and the maritime industry.

Selected highlights of the GOOS activities in 2008 include (i) the 11th session of the GOOS Scientific Steering Committee; (ii) the first session of the Panel for Integrated Coastal Observations (PICO) which provides scientific and technical guidance of the Coastal Module of GOOS and to the Global Terrestrial Observing System coordinated by FAO; (iii) the 13th session of the Ocean Observations Panel for Climate providing scientific guidance for the open ocean module of GOOS and to the Global Climate Observing System coordinated by WMO; and (iv) the 4th GOOS Regional Forum which provides an opportunity for the GOOS Regional Alliances grouping national institutions in a given region, to meet, exchange information and share best practices. The meetings oversee, govern and provide guidance on the developments of GOOS and its Open Ocean and coastal modules.

International Oceanographic Data and Information Exchange

During the year 2008 the IODE Programme focused its work in 5 areas: (i) establishment of the ocean data standards pilot project; (ii) establishment of the oceandataportal project; (iii) start of implementation of the IOC Strategic Plan for Oceanographic Data and Information Management; (iv) completion of the ODINAFRICA project; and (v) further development of ODIN networks in all ocean regions

The Ocean Data Standards Pilot Project (ODS) aims to achieve broad agreement and commitment to adopt a number of standards related to ocean data management and exchange. The Ocean Data Portal (ODP) will provide seamless access to collections and inventories of marine data from the NODCs in the IODE network and will allow for the discovery, evaluation (through visualisation and metadata review) and access to data via web services. In essence it will create a global web-based ocean data and information space.

2008 was also the final year of the third phase of ODINAFRICA, the Ocean Data and Information Network for Africa, a 4-year project, funded by the Government of Flanders (Belgium). ODINAFRICA-II aimed to improve data flows into the national oceanographic data and information centres created by the project in the participating countries, develop data and information products required for integrated management of the coastal areas of Africa, and increase the delivery of services to end users. Involving 25 African countries, ODINAFRICA also developed a major regional product, the African Marine Atlas. The Atlas incorporates existing geo-referenced datasets available in the public domain (but tailored to meet specific requirements), and also data products created from national and international marine data collections by scientists participating in the ODINAFRICA network of capacity building projects.

The excellent example of ODINAFRICA generated requests from other regions to develop similar networks. In 2008 the ODINCARSA (Ocean Data and Information Network for the Caribbean and South America), ODINECET (Ocean Data and Information Network for European Countries in Economic Transition) were continued successfully. New networks were established for the Western Pacific region (ODINWESTPAC) and for Pacific small islands (ODIN-PIMRIS).

IOC Advisory Body of Experts on Oceans and the Law of the Sea

The XLI IOC Executive Council adopted the *Guidelines for the Implementation of Resolution XX-6 of the IOC Assembly Regarding the Deployment of Profiling Floats in the High Seas within the Framework of the Argo Programme* through EC-Resolution XLI-4, as result of the discussions held at the VIII meeting of IOC/ABE-LOS.

The IOC/ABE-LOS Chairman, Elie Jarmache, presented at the XLI IOC Executive Council two publications: **“The IOC Procedure for the application of Article 247 of the United Nations Convention on the Law of the Sea by the Intergovernmental Oceanographic Commission of UNESCO”** endorsed by IOC Resolution XXIII-8 and the **“National Marine Policies: Basic Texts”**, a compilation of the National Marine Policies which are serving as frameworks for developing further National legislation for the sustainable use of the maritime space and its resources. This compilation is a different high-level policy-setting legal and administrative instruments that operate as national ocean policies.

Early warning systems

Tsunamis are a constant and unpredictable hazard putting coastal communities, infrastructure, use and management at risk. In 2008 (*up to and incl Nov2008*) worldwide three local tsunamis were recorded by the different Tsunami Warning Systems. All four systems now focus on optimizing and improving their performance. They also improve the levels of consistency between participating members and among them, particularly in the detection and verification parts. For the production, formulation and dissemination of advisories, alerts, alarms and nationally mandated warnings common procedures are developed, and performance measures introduced. To advance the detail and targeting of the warnings, inundation modelling generating risk and hazard maps is increasingly being introduced at the national level and standardized. General Guidelines for Risk Assessments from tsunamis are being developed. Internationally agreed standards on tsunami signage is being implemented by most member states ((ISO 20712-1 (Safety Flags and Water Safety Signs) & ISO 20712-3 (Design Guidance)).

IOC has charged its Working Group on Tsunamis and Other Hazards Related to Sea-Level Warning and Mitigation Systems (TOWS-WG) to review the governance and organization of the Intergovernmental Co-ordination Groups (ICG's) of all Tsunami Warning Systems to ensure common

operation explore synergy effects and mainstream in particular the upstream activities, i.e. detection and verification, into existing ocean observing systems. All ICGs currently are reviewing their work to provide appropriate terms of reference for adoption by the IOC Assembly in 2009.
http://ioc-unesco.org/index.php?option=com_oe&task=viewDocumentRecord&docID=2036

Following the UN General Assembly Resolution UNGA 62-91, para 13, member states increasingly nominate the required Tsunami National Contacts TNC and Tsunami Warning Focal Points TWPF to improve the formal communication between and with the governing bodies and with the operational entities.

The Indian Ocean Tsunami Warning Mitigation System (IOTWS):

Several countries have started operating their national systems, i.e. India, Malaysia, Indonesia and Australia. The earthquake off Sulawesi on Nov 16 with a Mw= 7.6 generated a minor tsunami, just five days after the Indonesian system InaTEWS went into full operation, again providing a strong reminder of the unpredictable hazard of tsunamis and the need for continuous and imminent preparedness to meet its consequences. A scheme to improve the coverage in the Indian Ocean has been agreed upon, and the establishment of the Regional Tsunami Watch Providers will be one of the major decisions for the next meeting of the ICG in April 2009 in Thailand. Numerous activities for capacity building and training in awareness, preparedness and warning centre operations on all levels have helped to improve the engagement to support and sustain the national efforts.

Pacific Tsunami Warning System (PTWS):

The system, initially designed as a central system for far-field tsunamis is addressing the requirements for near-field sources and regional sub-systems. A particular focus is on the Southeast Pacific, where the Pisco earthquake off Peru in 2007 highlighted the need for improvements, and the Southwest Pacific and the South China Sea. Together with technical upgrades of the observing components and improving the emergency communication systems, particularly in the South Pacific, the new Strategic Plan will help to further improve the protection of lives and livelihoods in the entire Pacific Ocean. More than 20 countries around the Pacific Rim participated in a pre-arranged tsunami scenario drill from 28 to 30 October, 2008. Testing the capabilities of the IOC-initiated Pacific Tsunami Warning and Mitigation System (PTWS), the drill aimed to evaluate the system, increase preparedness and improve coordination throughout the region. The Pacific Tsunami Warning Center in Hawaii and the Japan Meteorological Agency in Tokyo jointly or individually have been providing interim cover for the IOTWS and CARIBE-EWS and the Northeast Atlantic.

Tsunami and other Coastal Hazards Warning System for the Caribbean Sea and Adjacent Regions (CARIBE-EWS):

Considerable progress was made in enhancing national ownership and improving stakeholder involvement on the national and regional level through the technical working groups and through training courses for operational staff. Installation of technical equipment as required in the Implementation Plan is accelerating. The regional infrastructure for detection and verification of earthquakes and tsunamis has been agreed upon, and for capacity building and outreach as well as training the establishment of the Tsunami Information Centre for the Caribbean is subject to additional funding commitments.

The Tsunami Early Warning and Mitigation System in the North Eastern Atlantic, the Mediterranean and Connected Seas (NEAMTWS):

At its fifth session in Athens, the Intergovernmental Coordination Group for the warning system welcomed the confirmed offers by France, Portugal, Greece and Turkey to provide regional watch coverage for the NEAMTWS region as from 2010 while the suggested regional role for the National Earthquake Center in Rome, INGV, still needs approval by the government. An interim Task Team, whose mandate has been extended for another year, developed detailed recommendations to speed up the process e.g. in providing guidance on interoperability and secure long term operation and maintenance. Most of the potential Regional Watch Providers installed the software system (SeisComp3) developed by the National Research Centre for Geosciences of Germany and started testing the interlinked system and the comparison of national solutions in earthquake determination.

Special efforts are being made to provide the North African countries with adequate services and participate in the ICG process.

PROTECTION AND PRESERVATION OF THE MARINE ENVIRONMENT

Harmful algal blooms

IOC has continued to facilitate the development of improved observing and forecasting capabilities to help mitigate the effects of harmful algal events at the national level. Three international core research projects of the IOC-SCOR Global Ecology and Oceanography Programme, GEOHAB, have been launched. Other science activities to strengthen national capacity to mitigate effects and protect resources and markets included a continued lead as a provider of training in harmful algae observations.

Development of an integrated Harmful Algal Information System continued during 2008. The System, which is envisaged to become the leading system for providing data and information on toxic algae bloom in the world's coastal seas, is based upon data received from national monitoring operations and scientific expertise provided by national experts. This tool is being developed in cooperation with the International Council for the Exploration of the Sea, the North Pacific Marine Science Organization, the International Society for the Study of Harmful Algae, the Ocean Biogeographic Information System and the Encyclopaedia of Life.

Harmful organisms and pathogens in ballast water

The IOC is jointly with ICES and IMO improving the knowledgebase for control of harmful organisms and pathogens in ballast water. The ICES-IOC-IMO Working Group on Ballast of Ships and other Vectors had its annual meeting in Copenhagen, Denmark, 10-12 March 2008, to critically review and report on the status of ballast water research with an emphasis on new developments in ballast water treatment technology, risk assessment, ballast water sampling devices, and selection of ballast water exchange zones to contribute to guidelines currently in preparation by IMO. Also, the group continuously review shipping vectors, prepares a Ballast Water Sampling Manual and works on a draft Code of Best Practice for the Management of Ships Hull Fouling and a Code of Best Practice for Port Sampling. The draft manuals and codes of practice are to be final by the entry into force of the IMO Ballast Water Convention, but circulate in Member States as drafts while being completed in order to serve as background for countries already now designing or implementing national legislation on ballast water and invasive species.

CLIMATE CHANGE

Ocean Acidification

The 4th Assessment Report of the Intergovernmental Panel on Climate Change states that progressive acidification of oceans is expected to have negative impacts on marine shell-forming organisms and their dependent species. The Intergovernmental Oceanographic Commission of UNESCO, together with the International Atomic Energy Agency's Marine Environmental Laboratory, the Scientific Committee on Oceanic Research, and the International Geosphere-Biosphere Program, hosted the 2nd international symposium "The Ocean in a High CO₂ World" from 6-9 October 2008 at the Oceanography Museum of Monaco under the High Patronage of His Serene Highness Prince Albert II. The meeting brought together 250 scientists from 32 countries to assess what is known about ocean acidification impacts on marine chemistry, ecosystems, fisheries and food webs, and the socio-economic perspectives of these impacts. A research priorities report and summary for policymakers will be released in February 2009.

Developments in other forums

In November, UNESCO-IOC sponsored an international workshop to develop best practices for ocean acidification research and data reporting. This workshop brought together 40 scientists from 10 countries to reach international agreements on methods, protocols, and data and information sharing. The Guide to Best Practices will be published in July 2009.

IOC co-organised with International Council for the Exploration of the Sea, ICES and with the North Pacific Marine Science Organization, PICES the *International Symposium on the Effects of Climate Change in the World's Oceans*. This Symposium was held in Gijón (Spain) in May 2008 and was attended by 400 experts from 48 countries. IOC worked in the preparation of the scientific program which included 4 workshops and 10 thematic sessions. Scientific sessions accommodated a total of 215 oral presentations (10 plenary talks and 20 invited speakers included). Parallel to the oral presentations, two poster sessions exhibited 133 posters during the entire Symposium.

The *International Symposium on the Effects of Climate Change on the World's Oceans* was the first worldwide scientific meeting addressing this important issue. As such it represented an important step in mobilizing the scientific community in this new phase of the climate change challenge, to develop the understanding of the effects of climate change on the world's oceans with the aim of mitigating them and to guide the adaptation of societies to climate change. The importance of close cooperation between marine researchers working in different disciplines related with climate change and the sustainability of marine ecosystems were highlighted. A selection of the most outstanding symposium papers will be published in a volume of the ICES Journal of Marine Science in Spring/Summer 2009.

INTERNATIONAL COOPERATION AND COORDINATION

Regular process for global reporting and assessment of the state of the marine environment, including socio-economic aspects

The implementation of the "Assessment of Assessments", the start-up phase towards a regular process for the global reporting and assessment of the state of the marine environment, including socio-economic (General Assembly Resolution 60/30) continued through the organization of the fourth meeting of the Group of Experts (GoE) which was held at the IMO Headquarters, 4-6 November 2008, London (see <http://www.unga-regular-process.org/>). The meeting focused on finalizing the chapters of the AoA report prior to the peer-review process. The GoE discussed the procedures for conducting the peer-review process and defined a list of experts

The draft report presented in this meeting includes a detailed examination of a large number of marine assessments. The reviewed assessments were chosen partly on the basis of a database of more than 120 assessments developed by UNEP's World Conservation Monitoring Centre, on behalf of the lead agencies, and partly by the GoE on the basis of their own knowledge and of discussions with regional organisations. Summaries of these examinations were prepared for 21 regions (defined solely for the purpose of this exercise) and for a number of supra-regional issues which affect the world's oceans. The draft report covers: a) a description of the Assessment of Assessments process; b) the definitions and analytical framework that has been used; c) the findings on assessment products and processes that have been drawn from the examination of assessments; d) best practice, derived from these findings, in establishing and conducting assessments of the marine environment; e) and a framework and options for the future of the Regular Process. In addition, during the 4th GoE meeting, a first draft of the Summary for Decision Makers (SDM) was prepared and discussed by the group.

In accordance with what the Group of Experts considers to be best practice, a list of recognized experts in the relevant fields was compiled to carry out a comprehensive review of the whole AoA report (5 chapters and annexes). Reviewers were also identified for the regional and supra-regional summaries (see annex II of the 4th GoE meeting report at <http://www.unga-regular-process.org/>). More than 80 reviewers accepted to take part in the peer-review process which started the 1st of December 2008 and will continue until the 31st of January. In parallel, IOC/UNESCO and UNEP as lead agencies

of the AoA, have invited UN Member states to provide their comments on the existing draft (<http://www.unga-regular-process.org/>).

The GoE will consider all comments received and will discuss and sign off the final version of the report at the 5th meeting of the GoE in March 2008, at WMO, Geneva.

The Ad Hoc Steering Group will consider the report at its final meeting in Paris, 15-17 April 2009.

In accordance with UNGA Resolutions A60/30 and A/63/L.42, the report of the AoA will be transmitted by the lead agencies to the UN General Assembly that will consequently establish an *Ad hoc working group of the whole* scheduled to take place in New York in September 2009 to consider the report and to recommend a course of action to the General Assembly at its sixty-fourth session based on the outcomes of the fourth meeting of the Ad Hoc Steering Group.

CAPACITY BUILDING

The third and final workshop for directors in the Western Indian Ocean was conducted in Maputo, Mozambique, 10-14 April. First workshop for directors in the Central and Eastern Indian Ocean (IOCINDIO) was conducted 10-14 May in Hyderabad, India. On 6-10 October a regional project development workshop on coastal erosion was held in Loango, Republic of Congo.

A tsunami inundation and modelling training course was conducted 27 Oct - 7 Nov in Hyderabad, India. A regional project development workshop on coastal erosion, was conducted 18-21 November in Cartagena de Indias, Colombia. An applied hydrodynamic modelling in the Western Indian Ocean region was conducted 24 Nov - 5 Dec in Nairobi, Kenya. Finally, from 9 to 13 December, a bid-writing workshop for marine-related institutes in the Indian Ocean and Western Pacific was conducted in Sabah, Malaysia.