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**INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION**  
(of UNESCO)

**INFORMATION DOCUMENT**

**THE OCEAN SCIENCES SECTION FUNCTIONS, ACTIVITIES  
AND WORK PLAN WITHIN THE IOC MEDIUM TERM STRATEGY 2008–2013**

Summary. The enclosed Work-Plan is drafted in pursuance of Resolution EC-XXXIX.1. It is associated with and contributes to the UNESCO Draft Medium-term Strategy (34 C/4) and provides the degree of specificity necessary to guide IOC's Ocean Science Section (OSS) within the High-level Objectives overarching the mid-term strategy, by defining the functions where the OSS will be pro-active, i.e. through the promotion and coordination of scientific programmes (**science innovation and management**), stimulating co-operation between researchers and organisations to explore new directions (**science synergy**), providing guidelines and scientific criteria for ecosystem management (**scientific services**), publishing results, educating general public and giving visibility to OSS activities (**outreach**) and transferring knowledge and assisting policy makers (**capacity building**). This document is based also in the recommendations emanating from the report of the *ad hoc* Advisory Group for the IOC Ocean Sciences Section.

## INTRODUCTION

The Medium-Term Strategy for 2008-2013 (34 C/4) sets out the strategic vision and programmatic framework for UNESCO's action over these six years in all its domains of actions at the global, regional and country levels. This Medium-Term Strategy defines a common framework for all UNESCO Sectors and was followed by sectoral plans such as the IOC Medium-term strategy 2008-2013, which identifies 4 High-level Objectives (HLO) in accordance with UNESCO strategy and within the IOC mission statement. During the XXIVth session of the IOC Assembly, the Ocean Sciences Section (OSS) presented a perspective on how the current scientific programmes under the OSS contribute to the different IOC HLO.

The roadmap given in the 34 C/4 has to be translated into three consecutive programme and budget documents, beginning with document 34 C/5 (2008-2009) and followed by 35 C/5 (2010-2011) and 36 C/5 (2012-2013). These documents have to be prepared in work-plan format within the UNESCO Result Based Management practice.

In addition to the above-mentioned framework, the work-plan must also be in conjunction with the IOC Mission, the political priorities of the member states and within the agenda of major international global objectives (e.g. Millennium Development Goal 7), such as climate change and variability, biodiversity and management of Marine Protected Areas, and other emerging issues (e.g. the seasonally recurring dead-zones in the coastal oceans) where IOC may provide coordination and expertise. These emerging issues are also part of the Agenda of the High Level Committee on Programmes (HLCP) of the Chief Executive's Board (CEB) of the United Nations. Climate Change and issues linked to the environment have been part of the agenda in the past years.

The purpose of this document is to present a brief description of the functions and activities carried out by the OSS, to define a realistic but ambitious work-plan to be achieved in the next two biennia and to summarize the essential steps and actions to be undertaken (Annex 1). This work-plan will reinforce the role of science within IOC by increasing the science innovation and management, science synergy and scientific services.

## IOC MISSION AND HIGH LEVEL OBJECTIVES

The IOC Mission is established in Article 2.1 of the IOC Statutes:

*The purpose of the Commission is to promote international cooperation and to coordinate programmes in research, services and capacity-building, in order to learn more about the nature and resources of the ocean and coastal areas and to apply that knowledge for the improvement of management, sustainable development, the protection of the marine environment, and the decision-making processes of its Member States.*

*The Commission will collaborate with international organizations concerned with the work of the Commission, and especially with those organizations of the United Nations system which are willing and prepared to contribute to the purpose and functions of the Commission and/or to seek advice and cooperation in the field of ocean and coastal area scientific research, related services, and capacity-building.*

Thus, IOC has a key role to play as a global knowledge broker involving the promotion of science innovation, nurturing programmes, transferring, disseminating and sharing information, data and knowledge, best practices, assessment and scientific services related to Oceanography. This process must be done in an inclusive and participatory way, including views of the scientific community, academia, Member States, scientific enterprises from the North and the South, scientific workers' perspectives, including cultural diversity principles.

In agreement with IOC Resolution EC-XXXIX.1, the medium term strategy for achieving the above vision is implemented and made operative through 4 High-level objectives (HLO) as follow:

- HLO 1 – Prevention and reduction of the impacts of natural hazard
- HLO 2 – Mitigation of the impacts and adaptation to climate change and variability
- HLO 3 – Safeguarding the health of oceans ecosystems
- HLO 4 – Management procedures and policies leading to the sustainability of coastal and ocean environment and resources

These four HLOs were developed through consultations with stakeholders within and outside of IOC, based on the need to collate and to focus the marine programme to a few areas taking into account the main oceanographic priorities. The four objectives rely on solid science foundations, which are needed to produce credible and independent advice for societal purposes and for a better management and sustainability of marine ecosystems.

Therefore, scientific and technological knowledge and research are vital to our understanding of the integrated ocean system, which depends on advances in science, technology and research. IOC will be a driver for such advances and expects to be perceived as a benefactor of such scientific approach. The following table shows how sciences and IOC helps each other in a complementary manner.

What can Science do for IOC	What can IOC do for Science
Every application in assessment is built on scientific results that require process understanding	Identify gaps in observations research
Connecting disciplines and addressing complex issues	Provision of long time series of observations
Create models in order to provide and improve forecasting capabilities	Provide <i>in-situ</i> data for validation, harmonized formats, etc
Develop new observation and measurement techniques	Bridge gaps between science and application
Data handling, processing and visualization	Link observations across societal benefit areas

## FUNCTIONS AND AREAS OF ACTIVITY OF OSS

The IOC Ocean Science Section plays a lead role in creating the conditions for doing good science and building a network of scientific logistic facilities at global scale and regional scale. Current activities of the OSS are clustered around the IOC Mission, the high level objectives adopted for the period 2008-2013 and the priority areas of research determined by the *ad hoc* Advisory Group for the IOC Ocean Sciences Section (climate change, ocean health and coastal research, assessment and management and modelling). OSS actively contributes to make all science efforts as extensive and global as possible, but also tries to contribute to build scientific capabilities in the developing world, especially in Africa, in line with UNESCO's priorities.

OSS **functions** to fulfil IOC Mission and to guide IOC within the HLO and successfully deliver outcomes and results include:

- **science innovation and management:** promotion and coordination of scientific programmes
- **science synergy:** stimulating co-operation between researchers and organisations to explore new directions

- **scientific services:** providing guidelines and scientific criteria for ecosystem management
- **outreach:** publishing results, educating general public and giving visibility to OSS activities
- **capacity building:** transferring knowledge and assisting policy makers

Therefore, IOC OSS is at the forefront of many important international developments and events and is responsible for the execution of many essential activities related with the promotion and coordination of best marine science and oceanographic research. These include the coordination and monitoring of the programmes during their entire lifetime, likely the most visible function of IOC OSS. But equally important are the assessment based in scientific knowledge, promotion of symposia, setting standards and guidelines, organising training courses and other critical tasks essential for the successful implementation of UNESCO and the IOC mid term strategy.

The following paragraphs describe a set of **activities** where IOC OSS is most pro-active:

IOC laid special thrust to **nurture scientific programmes and promote scientific excellence** in the sector of oceanography. This has contributed to start up new innovative scientific programmes and to improve the excellence of marine research. The establishment of a global regular process to assess the marine environment in an integrated manner (Assessment of Assessments) is an example of this role of IOC in nurturing programmes and promoting excellence.

In highly dynamic fields, such as science in general and oceanography in particular, it is necessary to follow up the recent discoveries, new findings and trends. **Analysis of trends and emerging issues** has become an essential tool for the preparation of research projects. OSS is proactive in identifying new challenging areas of research and in creating fora of discussion when needed.

The **coordination and evaluation of activities and programmes** under the OSS is a continuum process that requires the permanent attention of OSS professionals. IOC organizes regular meetings to coordinate and discuss the progress, evaluate the outputs and results and re-orientate targets and work-plans if it seems necessary. The programmes under direct responsibility of the OSS are carefully selected and coordinated during the entire lifetime; in these, the gender equality and - if the programmes are operating at global scale - the participation of representatives of Africa and developing countries in the governing bodies is strongly encouraged.

The conclusion of global programmes very often leads to a phase of **synthesis and publication** of the new findings and the most representative results. OSS facilitates the publication of scientific material subject to peer review process, with the aim to guarantee the standards of quality and international relevance of the contents. OSS will encourage the review process and will try in the short- term to apply this principle extensively to most of IOC publications.

IOC has a long tradition in **setting standards and guidelines** in a wide scope of marine disciplines. Standards apply to data and ensure quality assurance, common terminology and formats, and compatibility of data between different techniques and technologies. Adoption of common standards makes the data fully comparable and facilitates data exchange and aggregation. Guidelines apply to methods and ensure consistency in survey methodology, consistency in data interpretation, and common methods for extrapolation, interpolation and aggregation of data across spatial scales. Guidelines provide a clear direction in the protocols and interventions and provide a basis for monitoring, evaluation and future planning.

The processing, archiving, accessing, analysing and disseminating of large volumes and diverse types of data require a secure, robust and accredited **data-management** system. Since

the beginning, OSS has supported the data-management as a core activity of IOC, which acts as repository of global databases encompassing a broad perspective of the observation of ocean properties in many aspects, including biology.

Nowadays, management of marine ecosystems and other complex decisions must be based and supported by the best scientific knowledge. **Management based in scientific knowledge and assessment** is a priority in IOC and OSS contributes to analyse, compare and synthesise the management options for given scenarios. Scientific models are crucial to correct and adopt the right decisions when premises change as well as to generate better forecasts scenarios and delivering them in due time.

OSS is active in planning and promoting **Symposia and Scientific Conferences**. These fora constitute an effective and practical manner for the scientific community to communicate progress in their research field, discuss practical applications of new technological developments, interchange experiences, identify synergies and find new research directions and hypotheses. It is under this conceptual approach that OSS promotes high level conferences on the most actual topics, such as the recent *International Symposium on the Effects of Climate Change on the World's Oceans* and *The Ocean in a High CO2 World-II*, both held in 2008.

**Outreach** is essential to many aspects of IOC activities. Its objective is to promote and increase the general awareness of the benefits of oceanographic research. OSS has developed a wide range of outreach activities, from own web-sites and newsletters addressed to specialist, to more basic products and publications directed towards a more general audiences, such as education entities, non-governmental organizations, and official development assistance agencies (including decision makers and policy makers).

IOC promotes **international cooperation** at institutional level to enhance the international cohesion in science and development. OSS maintains institutional relationships with a wide compendium of UNESCO Sectors and Divisions, UN Agencies, International Councils, global programmes, NGO, among others, and participates in more than a dozen of alliances that regulate diverse topics requiring international agreements (e.g. ocean governance) and concerted actions.

OSS embraces the IOC **Capacity Development** principles and it is understood in a wide sense, e.g. the assessment of policy makers in best practices and alternatives to the management of marine ecosystems by their member states, as well as transferring scientific knowledge to less developed countries to improve their capabilities for economic development, social well-being and human quality of life.

## **WORKPLAN, MONITORING, AND REPROGRAMMING**

The IOC XXIV Assembly reaffirmed that the priorities of the IOC Ocean Sciences Section should be addressed to respond the IOC Medium Term Strategy (proposed in document IOCXXIV/2 Annex 5). These priorities together with the IOC Mission and other priority areas of research determined by the *ad hoc* Advisory Group for the IOC Ocean Sciences Section constitute the three main guidelines and the framework where the current programmes and actions of the OSS lay down.

The IOC Mission, the HLOs, and the priority areas of research will be achieved through a series of programmes and actions (building blocks) that collectively constitute the IOC OSS scientific work-plan. It proposes to restructure and group the diversity of programmes and actions under the HLOs, to reinforce relationships with other United Nations system agencies and partners (including civil society organizations, academia and the scientific community). Another purpose of the scientific workplan is to prepare the IOC to respond to the increasing demand of scientific and technical assessment on emerging issues. The workplan also suggests reinforcing of the OSS structure by initiating and/or incorporating activities in strategic topics requiring international attention and coordination, with a view to strengthen development cooperation and scientific

innovation. Finally the workplan considers the potential of the OSS to build scientific capacity and how this may be transferred to other countries.

As noted in a previous section, the IOC medium term strategy is implemented and made operative through four High-level objectives (HLO). The achievement of the four IOC HLOs relies mainly on broad initiatives such as global scientific programmes, which are essential to explore new ideas and new techniques and to guarantee that new findings, methods and models are delivered at global scale in timely manner. The table below provides an overview of the OSS scientific programmes contributing to each HLO (some are implemented directly by the Ocean Science Section, whereas others are supported mainly through co-sponsorships with other UN agencies or organizations).

### IOC MEDIUM TERM STRATEGY (2008-2013)

<i>IOC High Level Objectives</i>	<i>Ocean Science Programmes</i>
<b>HLO 1:</b> <i>Prevention and reduction of the impacts of natural hazards</i>	<b>ICAM</b>
<b>HLO 2:</b> <i>Mitigation of the impacts of and adaptation to climate change and variability</i>	<b>WCRP OOPC (jointly with GOOS) IOCCP Ocean Acidification ACCC/ICAM IOC-GEF/WB WG on Coral Bleaching and Local Ecological Responses GLOBEC (ending in 2009)</b>
<b>HLO 3:</b> <i>Safeguarding the health of ocean ecosystems</i>	<b>HAB NEWS (PHASE 2: NEWS2USE) GCRMN Marine Biodiversity and MPA GRAMÉ (Assessment of Assessments)</b>
<b>HLO 4:</b> <i>Management procedures and policies leading to the sustainability of coastal and ocean environment and resources</i>	<b>GRAMÉ (AoA) ICAM MSP</b>

Programmes are organized to attain specific goals within a given time line and are actively supervised by a programme manager. In support of the HLOs, the IOC OSS catalyzes, coordinates and communicates marine scientific research through (i) the establishment and implementation of working groups, panels and networks to address specific issues of marine scientific research; (ii) sponsorship of global research programs; (iii) provision of secretariat support, as requested, for UN interagency activities; and (iv) communications, publications, and outreach.

To support IOC mission and to achieve the objectives of the programmes (and so the HLOs), the OSS plans to persevere in their functions and activities. The Annex 1 outline the main IOC OSS activities (grouped by HLO) for the biennia 2010-2011 and 2012-2013 by which the objectives, functions and mission of IOC will be safeguarded and delivered.

Central to the work-plan is ensuring that all facets are effectively monitored and that results are rigorously evaluated and the work-plan of each programme modified as necessary. A separate monitoring and evaluation through the use of performance indicators is currently under development and will provide detailed performance standards in line with the UNESCO Result Based Management practice. This monitoring process will be lead by an advisory group that includes professionals of the IOC, members of the programmes and in some case outside scientists.

To align the lifetime of programmes within the UNESCO mid term strategy, each program needs to be evaluated at the end of each biennium. A first review of the current programmes was already done, including also a consideration of the main existing gaps. Accordingly with this, a re-programming for the next biennia is recommended as follows:

**New Activities.** The OSS structure will be reinforced by initiating new and/or incorporating activities in strategic topics requiring international attention and coordination, such as the regulation and status of transboundary marine protected areas, monitoring of the ocean floor including the extended continental shelf and the sustainability of marine biodiversity. The short-term goal is to prepare IOC to play a leading role in these areas consistent with the actions and interests of Member States.

**Activities to be continued or reinforced:** The OSS work-plan proposes the restructuring and grouping of the various ongoing programmes and actions around key themes, the reinforcement of the relationships with other UN agencies and external bodies, and the preparation of the IOC to respond to the increasing demand for scientific and technical assessments on emerging issues. Thus, activities in Climate Change, Ocean health and status (Marine Assessment) will be reinforced in the period 2010-2013 (end of current IOC Medium-term Strategy), including though the development of activities supporting the knowledge base of climate change, and the implementation of the Regular Process for Global reporting on the state of the Marine environment

**Activities to be reduced, terminated or reoriented:** The ICAM programme will continue to focus its work on the application of Indicators for ICAM, Marine Spatial Management, and Coastal Hazards/risks mitigation. This will be complemented by additional ICAM activities contributing to the ocean and climate cluster, building on the piloting of regional projects on adaptation to climate change in coastal zones.

## **STAFF ALLOCATION AND OTHER NEEDS**

OSS has noted that the list of activities carried out by the section is growing. To achieve the aims and objectives that are set out above, IOC OSS will have to identify and use resources of many different kinds. Whilst in principle IOC has the capacity to implement the above work-plan, it is however clear that additional extra-budgetary resources, including through the development of new funding mechanisms, is needed to accomplish our aims in a comprehensive manner.

The staffing situation of the OSS has been almost stagnant over the last 3 biennia, and presently consists of the following professional staff:

- One Head of Section (P5 grade)
- One Programme Specialist (P4 level) in charge of ICAM Programme, MSP and AoA.
- One ALD (P4 level) in charge of the relations with UN agencies and other institutions.

Two additional posts are supported through extrabudgetary funds:

- One Programme Specialist (P4 grade, fixed term post) in charge of HAB and nutrients;
- One Programme specialist (P4 grade, temporary post) in charge of Climate change, carbon and ocean acidification programmes.

A staffing strategy and operational budget plan need to be developed to promote investment in the work of the Secretariat, taking into account the inevitable pressures provided by reduced regular budget staff resources and operating funds.

In this respect, the policy of OSS would be targeted to identify priorities and resources to address human, institutional and infrastructure capacity to implement the necessary tools and bring

the user community into a balance among the services delivered vs. the resources provided. For instance, in order for IOC to fulfill its role in the implementation of GRAME at its initial phase, the Assessment of Assessments requests from Member States to identify financial resources, including staff secondment and more resources for regular staff and consultants for this purpose.

In conclusion, OSS needs to hire new scientific and administrative staff and expects to continue to do so over the next biennia. Member States are requested to commit sufficient resources to the IOC Ocean Sciences Section through regular budget, extrabudgetary contributions and staff secondments in order to fully implement the IOC and UNESCO Medium-Term Strategy and achieve the High Level Objectives.

<b>HLO 1: Prevention and reduction of the impacts of natural hazards</b>	<b>HLO 2: Mitigation of the impacts of and adaptation to climate change and variability</b>	<b>HLO 3: Safeguarding the health of ocean ecosystems</b>	<b>HLO 4: Management procedures and policies leading to the sustainability of coastal and ocean environment and resources</b>
<b>A1 Nurturing scientific programmes and promoting scientific excellence</b>			
	<p><i>A GLOBEC-IMBER transition team was established in 2008 to accommodate in IMBER the new developments in marine ecosystem research after the completion of GLOBEC at the end of 2009. IOC OSS, as cosponsor of GLOBEC, needs to consider the best manner to collaborate and have a mutual benefit in achieving the scientific goals of IMBER.</i></p>	<p><i>Foster improved understanding of the factors controlling the population dynamics of harmful microalgae in cooperation with SCOR through GEOHAB.</i></p> <p><i>Promote improved ability to model impacts of nutrient loading on coastal ecosystems through NEWS2USE.</i></p> <p><i>The establishment of a Network of World Sampling sites and marine centers of reference is a strategic goal with international projection that can be catalyzed under the IOC umbrella.</i></p>	<p><i>Initiate actions to the establishment of a global programme on regulation and status of transboundary marine protected areas and the sustainability of marine biodiversity.</i></p> <p><i>Cooperation with CPPS in implementing an integrated coastal and oceanic observatory system along the Pacific coast of Latin America.</i></p>
<b>A2 Analysis of emerging issues and trends</b>			
<p><i>Records on dead-zones in the coastal oceans indicate that these are seasonally recurring processes that need international attention.</i></p>	<p><i>The IOCCP will provide a central source of information for the international scientific community on Ocean Acidification</i></p> <p><i>Upwelling systems are embracing large extensions of major oceans and are closely linked to atmospheric conditions. They also determine the climatic conditions of adjacent continental land. In the current scenario of climate change there are controversial hypotheses on future trends for declining or strengthening the intensity as well as the seasonality of upwelling. An expert group to resolve this controversy will be funded.</i></p>	<p><i>Monitor member state needs and priorities through IPHAB and regional IOC HAB networks.</i></p> <p><i>IOC will host in 2010 and in collaboration with GESAMP a workshop on the occurrence and potential impacts of micro-plastics in the marine environment.</i></p>	<p><i>Trends, scenario, indicators on ocean ecosystem health developed as part of the Integrated Ocean Assessment delivered under the Regular Process/AoA</i></p>

A3 Coordination and evaluation of activities and programmes			
	<p><i>IOCCP will participating jointly with CLIVAR and the joint SOLAS-IMBER Carbon Coordination Group in the Global Ocean Ship-based Repeat Hydrographic Investigations Panel (GO-SHIP) to develop a strategy for a sustained program of interdisciplinary repeat hydrography, post-CLIVAR and provide update to the WOCE Hydrographic Manual.</i></p> <p><i>Integrated surface CO2 networks- the development of multi-platform near real-time surface CO2 programs building on the SOCAT project and based on the Surface CO2 Network strategy developed for Oceanobs09</i></p> <p><i>Changing Times Inventory-IOCCP will coordinate with Oceansites and develop an online inventory of all ocean biogeochemistry time series stations to promote better coordination and communication among researchers.</i></p> <p><i>Ocean acidification Observing Network- support international coordination for ocean acidification observations leading to the development of a coordinated network by 2013.</i></p>	<p><i>Provide an international coordination framework for HAB activities carried out by GOs, NGOs and member states through IPHAB and IOC Science and Communication Centers on Harmful Algae.</i></p> <p><i>Supporting the implementation of the Regular Process through the establishment and coordination of an UN inter-agency Secretariat.</i></p>	<p><i>Development of project proposals, implementation and coordination of projects relating to integrated coastal area management, Marine spatial planning and coastal hazards mitigation.</i></p> <p><i>Supporting the development and execution of GEF Transboundary International Waters projects at global and regional level.</i></p>

<b>A4</b>	<b>Synthesis and publishing</b>			
		<p><i>Publishing the Surface Ocean CO2 Atlas (SOCAT).</i></p> <p><i>White paper for OceanObs'09.</i></p> <p><i>ICES Journal of Marine Science: Our changing oceans: Conclusions of the 1st International Symposium on the Effects of Climate Change on the World's Oceans.</i></p>	<p><i>GEOHAB synthesis papers and special issue of scientific journals.</i></p> <p><i>White paper on OceanObs'0.9</i></p>	<p><i>Preparation of the 1<sup>st</sup> Global Ocean assessment report under the regular process.</i></p>
<b>A5</b>	<b>Setting standards and guidelines</b>			
	<p><i>Dissemination of the ICAM Coastal Hazards Guidelines.</i></p>	<p><i>Development of Ecosystem-based adaptation guidelines in coastal areas.</i></p> <p><i>In cooperation with IMO develop internationally agreed best practices for ocean acidification research.</i></p> <p><i>Formation of a joint ICES-IOC working group on International Nutrients Scale System.</i></p>	<p><i>Development of transboundary water assessment techniques in the context of the Regular Process and Global Environment Facility (GEF) projects.</i></p>	
<b>A6</b>	<b>Data management</b>			
		<p><i>Develop a publicly available global surface ocean CO2 database.</i></p>	<p><i>Develop as the authoritative global source of data the Harmful Algal Information System jointly with IODE.</i></p>	<p><i>The legacy of global programmes such as OBIS that reach the end of their lifetime and the data bank will be adopted by OSS.</i></p>
<b>A7</b>	<b>Management based in scientific knowledge and assessment</b>			
		<p><i>Implementation of a regional project on climate change adaptation in coastal environments (possibly Latin America or South Asia).</i></p>	<p><i>Foster development of tools and models for assessing impacts on coastal ecosystems of nutrient loading through NEWS2USE.</i></p> <p><i>Deliver improved observation and modeling tools for forecasting of harmful algal events through GEOHAB.</i></p>	<p><i>Regional Projects and guidelines applied for the management of coastal and marine ecosystem.</i></p> <p><i>Application and dissemination of the IOC Guidelines on Marine Spatial Planning through regional-national initiatives and training activities.</i></p>

<b>A8 Symposia Planning</b>				
		<p><i>GO-SHIP hydrography workshop-mid-2010.</i></p> <p><i>Climate Change Effects on Fish and Fisheries: Forecasting impacts, assessing ecosystem responses, and evaluating management strategies (Japan, 2010).</i></p> <p><i>Effects of Climate Change on the World's Oceans (Korea, 2012).</i></p> <p><i>The Ocean in a High CO2 World-III (2012)</i></p>	<p><i>GEOHAB open science meeting.</i></p>	<p><i>Global policy dialogue on ocean governance through the Global Forum on Oceans, coasts and islands (Paris, 2010).</i></p>
<b>A9 Outreach, education and communication</b>				
		<p><i>Continue with the updating of IOC OSS websites related with Climate Change (Ocean Carbon and Ocean Acidification).</i></p> <p><i>Publish Quarterly Newsletter of the International Ocean Carbon Coordination Project</i></p> <p><i>Summary for Policy Makers on Ocean acidification</i></p> <p><i>Summary for Policy Makers on Ocean Fertilization in collaboration with SOLAS.</i></p>	<p><i>The websites on HAB, AoA, MSP, and ICAM will be updated on a quarterly basis.</i></p> <p><i>Publish the IOC newsletter Harmful Algae News to 2000 subscribers and on-line.</i></p>	<p><i>OSS will be pro-active in providing contents to the Ocean Atlas web site maintained by FAO as part of UN-Oceans.</i></p> <p><i>Development of web-based community tools to facilitate exchange amongst scientists and practitioners</i></p>
<b>A10 Institutional functions</b>				
		<p><i>Technical assessment delivered to IMO on ocean fertilization.</i></p> <p><i>Establishment of an UN-Oceans Task Force on Climate Change.</i></p> <p><i>IOC and WCRP will establish joint research topics of common interest</i></p>	<p><i>Strengthen regional cooperation and liaisons between the relevant regional organizations and programmes, UNEP, FAO, IAEA, ICES, PICES, SCOR, ISSHA</i></p> <p><i>IOC will reactive the support to GESAMP by hosting some specific workshops in 2010 and 2012.</i></p>	<p><i>Establish Institutional arrangements to support the Regular Process/AoA.</i></p> <p><i>Cooperation with LME in producing assessment for ecosystem management.</i></p> <p><i>Reinforce the IOC role within the UN-Oceans Task Force on Marine Protected Areas Beyond National Jurisdiction.</i></p>

<b>A11 Capacity development</b>			
<i>Piloting and Training of Coastal Hazard Assessment guidelines in regions, specially in Africa and Latin America.</i>	<i>WCRP-IOC working group on sea level rise will deliver scenarios of risk in less developed countries.</i>  <i>Guiding the implementation of ACCC programme in Africa.</i>	<i>Regional capacity efforts for marine assessments techniques (regular process).</i>  <i>Offer member state institutions staff training opportunities to enhance national capacity in research, monitoring and mitigation of the effects of harmful microalgae.</i>	<i>Strengthening local and national adaptation policies of coastal management plans in the Coastal Zones of West Africa. Piloting adaptation measures in 5 demonstration sites.</i>

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