



INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)

**Ninth Intergovernmental Session of the IOC Sub-Commission
for the Western Pacific (WESTPAC-IX)**

Busan, Republic of Korea
9–12 May 2012

EXECUTIVE SUMMARY

In accordance with Rule of Procedure 48.3, WESTPAC, as a primary Subsidiary Body of IOC, is required to report to a Governing Body on its sessions.

The IOC Executive Council at its Forty-Fifth Session will be invited to consider this Executive Summary.

For more detailed information on this session, please refer to the Summary Report of the Ninth Intergovernmental Session of WESTPAC.

- 1 The Ninth Intergovernmental Session of the IOC Sub-Commission for the Western Pacific (WESTPAC) was held in Busan, Republic of Korea, from 9 to 12 May 2012 with the agenda given in Annex I. The session was organized by the IOC Regional Office for WESTPAC (WESTPAC Office), and hosted by the Ministry of Land, Transport and Maritime Affairs (MLTM) and the Korea Ocean Research and Development Institute (KORDI) of the Republic of Korea. Some 70 delegates and representatives from WESTPAC Member States attended the Session.
- 2 Throughout the Session, **the Sub-Commission highlighted** the recent remarkable achievements made by WESTPAC in the development, coordination and promotion of marine scientific research, observations and capacity building with a view to assisting Member States to address issues affecting sustainable development of marine and coastal resources. It was **recognized** that the implementation of the WESTPAC revitalization strategy generated positive impacts, which was demonstrated not only by the established WESTPAC systematic framework and collaborative process, but also by the ever-growing number of substantial activities and increasing support, either in-cash or in-kind, from Member States. The increased commitments of Member States and the dynamic efforts of the WESTPAC Office for resources mobilization, programme development and their passion to serve WESTPAC's interests are considered among key factors behind WESTPAC's recent achievements.
- 3 Despite the significant progress made, WESTPAC's further development will be hampered by the shortage of and low-ranking staff at its WESTPAC Office. **The Sub-Commission expressed its deep concern** over the understaffed situation given the

unprecedented workload of the Office to deliver a rapidly growing range of WESTPAC activities.

WESTPAC's Present Strengths

4 **The Sub-Commission recognized** that WESTPAC has been greatly improved over recent years as a result of the implementation of WESTPAC revitalization strategy and effective measures with its present strengths reflected in:

- a systematic framework and collaborative process “WESTPAC Strategy and Programme Structure” for concerting the efforts of Member States through the development, establishment, implementation and completion of regionally-specific country driven programmes/projects;
- an advisory mechanism “WESTPAC Advisory Group” in operation to provide scientific and technical advice on the development, planning and implementation of WESTPAC activities;
- a complementary implementing mechanism “WESTPAC Working Group” in place to ensure the timely response of WESTPAC to marine-related emerging regional/international issues;
- a self-driven and sustainable capacity building initiative “IOC Regional Network of Training and Research Centres on Marine Science” under implementation to enhance national and regional capacities by utilizing the current and exploring potential capacity in the region.

5 **The Sub-Commission noted with appreciation** that, with those strategic planning and collaborative process, a number of regionally-specific projects/programmes have been developed, coordinated and implemented in alignment with IOC High-Level Objectives, which include:

- triennial WESTPAC International Scientific Symposia evolving as one of the largest regional multi-disciplinary platforms for marine scientists to advance their scientific knowledge, catalyse international and cross-disciplinary collaboration towards the improvement in management practices and decision-making process for the sustainable development of ocean and coastal resources;
- two regional ocean observing systems: North East Asian-Global Ocean Observing System (NEAR-GOOS) and South East Asian-Global Ocean Observing System (SEAGOOS) with its two pilot projects, Monsoon Onset Monitoring and its Social & Ecosystem Impacts (MOMSEI) and Ocean Forecast Demonstration System (OFDS);
- eight marine scientific projects/programmes: Harmful Algae Blooms; Coastal & Marine Biodiversity and Management; Ocean Remote Sensing; Coral Reef under Climate and Anthropogenic Perturbations; South China Sea Fluvial Sediments and its Environment Changes; Response of Marine Hazards to the Climate Change; Toxic Marine Organisms; DNA Taxonomy and Recruitment Monitoring of Coral Reef Marine Organisms;
- one IOC Regional Network of Training and Research Centres on Marine Science with one IOC Regional Training and Research Centre on Ocean Dynamics and Climate (ODC) in operation and several others under development; and

- two Working Groups: Working Group on Asian Dust and its Impact on Ocean Ecosystem in the Western Pacific (WESTPAC-ADOES), and Regular Process for Global Reporting and Assessment of the State of the Marine Environment (WESTPAC–Regular Process).

WESTPAC Programme Implementation during May 2010–May 2012

6 As shown in Programme and Budget, May 2010–May 2012, adopted by the Sub-Commission ([Rec. SC-WESTPAC-VIII.4](#)), the required funding for the last intersessional period totalled US\$ 3.601 million, including US\$ 0.37 Million from IOC regular source (including the sole professional staff at P4 level) and US\$ 3.231 million from IOC extrabudgetary sources (to be raised either in-cash or in-kind), thus each US dollar from IOC regular source leveraging 8.7 US dollars from extrabudgetary sources, either in-cash or in-kind, for WESTPAC.

7 It is estimated roughly 1403 marine scientists (423 are female), officials and managers directly took part in IOC/WESTPAC activities over the last intersessional period, mainly through its one International Scientific Symposium, four Joint Cruises, 11 Trainings/Summer Schools, and 27 Regional Workshops/Consultative Meetings. The major accomplishments among these activities include:

- The organization of the Eighth WESTPAC International Scientific entitled “Ocean Climate and Marine Ecosystems in the Western Pacific,” 28–31 March 2011, Busan, Republic of Korea, with the kind host of the Government of the Republic of Korea. The symposium featured eleven concurrent sessions and eight workshops with the participation of around 500 participants. Five prestigious scientists and one national agency were awarded the IOC Fiftieth Anniversary Certificate. The WESTPAC Young Scientist Award was established for the first time with four young scientists selected for their exemplary oral or poster presentations, and each awarded a free round trip ticket for their participation in the next WESTPAC International Scientific Symposium;
- The materialization of the self-driven, regionally specific capacity building initiative “IOC Regional Network of Training and Research Centres on Marine Sciences” with the establishment and operation of the first IOC Regional Training and Research Centre on Ocean Dynamics and Climate (ODC Centre) and several other regional training and research centres under development with Member States who have expressed their willingness and positive response. The ODC Centre has started to provide regular trainings with the first one on ocean models, 10–16 June 2011 with 69 trainees from 10 countries, and the second training course on ocean dynamics scheduled for 16–21 July 2012;
- The development of the South East Asian-Global Ocean Observing System (SEAGOOS) with two pilot projects initiated and implemented, respectively on “Monsoon Onset Monitoring and its Social & Ecosystem Impact (MOMSEI)” and “Ocean Forecasting Demonstration System (OFDS)” with joint cruises conducted, summer schools organized and the website for the Ocean Forecasting Demonstration System in operation;
- Strengthened capacity building efforts with a series of trainings, besides the regular training provided from the IOC Regional Network of Training and Research Centres, developed and conducted by respective programmes with focus on the rapid

assessment survey methodologies for detecting marine non-indigenous species, MOMSEI Summer School, impact of sediment and water quality on coral reef, taxonomy and ecology of the diatom *Pseudo-nitzschia* and immunological method for detection of domoic acid in plankton and shellfish;

- Enhanced cooperation with global and other regional programmes within and outside IOC. For instance, the joint organization of trainings on rapid assessment survey methodologies for detecting marine non-indigenous species with the North Pacific Marine Science Organization (PICES) and the UNEP Northwest Pacific Action Plan (UNEP-NOWPAP), the joint development with the Integrated Marine Biogeochemistry and Ecosystem Research (IMBER) of the capacity building proposal on the Integrated Marine Biogeochemistry and Ecosystem Research for the Asia and Pacific; the joint organization with the FAO/GEF Bay of Bengal Large Marine Ecosystem Project (BOBLME) of the second MOMSEI Summer School; the provision of assistance in the development of the procedures and guidelines for IOC-WMO Regional Marine Instrument Centres (RMICs) and in the organization of the JCOMM Marine Instrumentation Workshop for the Asia and Pacific; and the co-sponsoring and co-organization, on behalf of IOC, of the Eastern and South-Eastern Asian Seas Workshop of the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socio-Economic Aspects (Regular Process).

8 **The Sub-Commission noted** the increased commitments from the Member States and resources made available by them in support of WESTPAC activities. **The Sub-Commission expressed its appreciation** to the Government of Thailand for the provision of office space and facilities for the WESTPAC Office, and the secondment of additional full-time administrative assistants to the WESTPAC Office; the Government of Republic of Korea for hosting the 8th WESTPAC International Scientific Symposium in Busan, March 2011, and also for hosting the 9th Session; and all other Member States, in particular, China, Japan, Indonesia, Malaysia, Thailand, Vietnam for their continued in-cash and in-kind contributions, such as secondments, provision of research vessels and facilities, and hosting of WESTPAC workshops, and training courses in support of WESTPAC activities.

WESTPAC Programme and Budget for May 2012–May 2014

9 With full recognition of the recommendations made by the WESTPAC Advisory Group, **the Sub-Commission decided** that all the on-going projects and Working Groups be continued, and the WESTPAC Officers, WESTPAC Office, and project leaders' national focal points assist in any way possible for the implementation of these projects. However, the following projects need to be alerted in terms of their implementation status and deliverables:

- “DNA Taxonomy and Recruitment Monitoring of the Coral Reef Marine Organisms” is suspended until necessary funding is obtained;
- “Marine Hazards Forecasting and Mitigation in the Western Pacific” conduct its work as soon as possible, in particular, to establish its steering group and hold the regional training on tsunami models;
- “Ocean Data & Information Network for the Western Pacific” (ODINWESTPAC) conduct its work as soon as possible in accordance with the work plan approved at the last Session.

- “International Bathymetric Chart for the Western Pacific” (IBCWP), with consideration of the suggestion made on reforming as one WESTPAC Working Group with emphasis on the technical exchange on the marine cartography and the applications of bathymetric chart in marine and coastal area integrated management, establish the network, develop a complete working group proposal via correspondence and technical workshops, and submit the proposal to the next Session for approval.

10 **The Sub-Commission also adopted** the following WESTPAC new project and working groups:

- New WESTPAC project “Air-sea Interaction in the Kuroshio Extension and its Climate Impact” with a lifetime of three years, in view of this ocean current and its impacts on the wider North Pacific climate system, to (i) investigate feedback mechanisms between the sharp thermal front and storm track activity along the region; (ii) develop models and observation networks; and (iii) improve understanding of ocean and climate prediction in the region;
- New WESTPAC Working Group on “Mapping Harmful Jellyfishes in the Tropical Western Pacific” with a life time of two years, in view of its increasing social and ecosystem impacts and the lack of information in the region on this emerging issue. The objectives to be achieved are to review available data and define knowledge gaps for the analysis of the pattern and trend of the distribution and/or source of harmful jellyfishes in the tropical Western Pacific;
- New WESTPAC Working Group on “Marine Renewable Energy Technology Development in the Western Pacific” to provide baseline information, identify the challenges, share practices among Member States, and develop regional pilot project proposal(s) on the development of MRET in the region.

11 **The Sub-Commission approved** the WESTPAC Work Programme and Budget for May 2012–May 2014 ([Rec. SC-WESTPAC-IX.4](#)) with an estimated budget of totalling US\$ 4.261 million, including US\$ 30 K from IOC regular budget and US\$ 4.231 million from extrabudgetary sources, either in cash or in kind.

12 **The Sub-Commission considered** that the WESTPAC Programme and Budget for May 2012–May 2014 was used mainly as guidance on the activities that the Sub-Commission would like to jointly promote and seek funding from various sources as a result of continuously unstable financial situation of IOC. Based on current information received, only USD 30 K has been secured from IOC Regular Budget for the period of 2012–2013 due to the recent financial crisis experienced by UNESCO and IOC. In this sense, it can be foreseen that all activities of the Sub-Commission from May 2012–May 2014 will have to be carried out via extrabudgetary support from Member States, either in-cash or in-kind.

Celebration of the 25th Anniversary of WESTPAC

13 **The Sub-Commission stressed** the importance of celebrating the 25th Anniversary of WESTPAC to enhance the level of public awareness of the importance of collaboration and involvement in ocean science, take stock of advances and chart the future in marine science at the regional and national level, and demonstrate the value and importance of the Sub-Commission’s achievements in marine sciences, **and decided** to start the preparation of a series of commemorative activities to be conducted in late 2013 and 2014 in celebration

of the 25th Anniversary of the IOC Sub-Commission for the Western Pacific ([Rec. SC-WESTPAC-IX.2](#)).

IOC Regional Network of Training and Research Centres on Marine Science

- 14 **The Sub-Commission noted with the appreciation** the inauguration and operation of the IOC Regional Training and Research Centre on Ocean Dynamics and Climate established within the framework of IOC Regional Network of Training and Research Centres on Marine Science, and the willingness expressed by and positive response received from Indonesia, Malaysia, Republic of Korea and Thailand to contribute to the network through the establishment of IOC Regional Training and Research Centres on the domain of their focus; **invited** Member States to encourage their respective national oceanographic institutes and universities to actively participate in the Regional Network; and **requested** the Executive Secretary of IOC to take appropriate actions to promote this regional capacity building activity ([Rec. SC-WESTPAC-IX.3](#)).

Ninth WESTPAC International Scientific Symposium and Tenth Intergovernmental Session

- 15 **The Sub-Commission appreciated** the kind offer of the Government of Vietnam and the Government of Thailand, and **decided** that:

- The Ninth WESTPAC International Scientific Symposium be organized in Vietnam, 2014 ([Rec. SC-WESTPAC-IX.1](#)).
- The Tenth Intergovernmental Session of the IOC Sub-Commission for the Western Pacific be rescheduled, to be in phase with IOC reporting cycle, for early 2015, subject to the final endorsement of the relevant authorities ([Rec. SC-WESTPAC-IX.5](#)). One interim Executive Meeting, consisting of WESTPAC Officers, Advisory Group and WESTPAC Office be organized in the mid-2014 to discuss and adopt WESTPAC activities for the period from May 2014 to early 2015 given that the WESTPAC Work Programme and Budget for May 2012–May 2014 was prepared and adopted at this Session.

Election of WESTPAC Officers

- 16 **The Sub-Commission elected**, by acclamation, Dr Somkiat Khokiattiwong from Thailand, Dr Youn-Ho Lee from the Republic of Korea and Dr Vo Si Tuan from Vietnam respectively as Chairperson, First Vice-Chairperson and Second Vice-Chairperson of the Sub-Commission for the next intersessional period.

ANNEX I

AGENDA

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- 2.2 DESIGNATION OF RAPPORTEUR FOR THE SESSION
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- 3.1 REPORT ON INTERSESSIONAL ACTIVITIES
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4. POLICY ISSUES

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- 4.2 WESTPAC OCEAN RESEARCH PRIORITY PLAN
- 4.3 THE EIGHTH WESTPAC INTERNATIONAL SCIENTIFIC SYMPOSIUM IN 2011, REPUBLIC OF KOREA, WITH FOCUS ON LESSONS LEARNT
- 4.4 THE PREPARATIONS FOR THE NINTH WESTPAC INTERNATIONAL SCIENTIFIC SYMPOSIUM, VIETNAM 2014
- 4.5 CELEBRATING THE TWENTY-FIFTH ANNIVERSARY OF WESTPAC

5. REVIEW AND EVALUATION OF REGIONAL PROGRAMMES, PROJECTS AND WORKING GROUPS FOR MAY 2010–MAY 2012

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 - 5.1.1 Harmful Algal Blooms
 - 5.1.2 Ocean Remote Sensing
 - 5.1.3 Response of Marine Hazards to Climate Change
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 - 5.1.5 Marine and Coastal Biodiversity and its Management
 - 5.1.6 Coral Reef under Climate and Anthropogenic Perturbations
 - 5.1.7 Toxic Marine Organisms
 - 5.1.8 DNA Taxonomy and Recruitment Monitoring of the Coral Reef Marine Organisms
- 5.2 OCEAN OBSERVATIONS AND SERVICES
 - 5.2.1 North East Asian Regional-GOOS

- 5.2.2 South East Asian Regional-GOOS , including Monsoon Onset Monitoring and its Social and Ecosystem Impacts, Ocean Forecasting Demonstration System
- 5.2.3 Marine Hazards Forecasting and Mitigation in the Western Pacific
- 5.2.4 International Bathymetric Chart of the Western Pacific
- 5.2.5 Ocean Data & Information Network for the Western Pacific
- 5.3 CAPACITY BUILDING AND PUBLIC AWARENESS
 - 5.3.1 UNESCO/IOC Regional Network of Training and Research Centres on Marine Science in the Western Pacific
 - 5.3.2 IOC Regional Training and Research Centre on Ocean Dynamics and Climate
 - 5.3.3 IOC-WMO Regional Marine Instrument Centre for the Asia and Pacific
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 - 5.4.1 Working Group on Asian Dust and its Impact on Ocean Ecosystem
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- 6. REVIEW AND APPROVAL OF NEW PROJECT AND WORKING GROUP PROPOSALS**
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- 10. ELECTIONS**
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- 13. CLOSURE**

ANNEX II

ADOPTED RECOMMENDATIONS

Recommendation SC-WESTPAC-IX.1

WESTPAC International Scientific Symposium

The IOC Sub-Commission for the Western Pacific,

Recalling the decision of its First Session in 1990 that a major multi-disciplinary symposium should become a principal intersessional activity of the Sub-Commission,

Further recalling that WESTPAC International Scientific Symposium is the only scientific series to enhance exchange of marine scientific knowledge in the region,

Having reviewed the outputs and results of the previous symposia, particularly the Eighth WESTPAC International Scientific Symposium on the Ocean Climate and Marine Ecosystems in the Western Pacific, held in Busan, Republic of Korea, 28–31 March 2011,

Expressing its great appreciation to the Government of the Republic of Korea, through its Ministry of Land, Transport and Maritime Affairs, and Korea Ocean Research and Development Institute for having hosted the Symposium,

Having formulated WESTPAC Programme and Budget for May 2012–May 2014,

Bearing in mind the need for presentation and exchange of scientific results in an interdisciplinary forum,

Appreciates the generous offer of the Government of Vietnam to host the ninth Symposium in 2014;

Decides to establish an international scientific steering committee to provide guidance in the formulation of the Symposium Themes, Sub-Themes, Programme, including the scope, contents and structure, under the chairpersonship of the second vice chairperson of the Sub-Commission, Dr Vo Si Tuan;

Recommends that pertinent regional and international organizations be invited to support and participate in the Symposium; and

Encourages all Member States and related international organizations for active participation and contribution to ensure the success of the Symposium.

Recommendation SC-WESTPAC-IX.2

**The Twenty-Fifth Anniversary of
the IOC Sub-Commission for the Western Pacific**

The IOC Sub-Commission for the Western Pacific,

Noting that the twenty-fifth anniversary of the Sub-Commission will occur in 2014,

Recognizing the instrumental role of WESTPAC since its inception in 1989 and its achievements made in the development, promotion and coordination of regional programmes in the Western Pacific on marine scientific research, observations, services and capacity building in order to learn more about the nature and resources of the ocean and coastal areas, and 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,

Recognizing also the ever-increasing need, given the fact that the sustainable development of the region heavily relies on the ocean but the knowledge on oceans still remains low, for an intergovernmental presence in the region to improve knowledge exchange between marine scientific community and governmental agencies;

Decides that a series of commemorative activities be planned and organized in 2013–2014 to celebrate the twenty-fifth anniversary of the Sub-Commission, with objectives to: (i) take stock of advances in marine sciences and related international cooperation in the Western Pacific; (ii) promote and demonstrate to governments and to the public the value and importance of the Sub-Commission's achievements; and (iii) plan for its future directions in marine science, and related sciences and services;

Appreciates the preliminary list of commemorative activities prepared by the Sessional Working Group and considered at the Ninth Intergovernmental Session of the IOC Sub-Commission for the Western Pacific (WESTPAC-IX, Busan, Republic of Korea, 9–12 May 2012);

Urges Member States to consider national and/or regional initiatives and suggestions to be communicated to the Executive Secretary of IOC for inclusion in the preliminary plan; and

Encourages Member States to provide in-cash or in-kind contribution to the implementation of these commemorative activities.

Recommendation SC-WESTPAC-IX.3

**UNESCO/IOC Regional Network of
Training and Research Centres on Marine Science
In the Western Pacific**

The IOC Sub-Commission for the Western Pacific,

Recognizing the urgent need of Member States for high quality training in specialized fields of marine science in the WESTPAC region,

Bearing in mind the IOC Principles and Strategy for Capacity Building adopted at the Twenty-third Session of IOC Assembly in 2005 (IOC/INF-1211),

Recalling that the self-driven and sustainable regional capacity building initiative, titled “UNESCO/IOC Regional Network of Training and Research Centres on Marine Science”, together with corresponding Guideline and Procedure was adopted by the Sub-Commission at its Seventh Intergovernmental Session (WESTPAC-VII, Sabah, Malaysia, 26–29 May 2008) and subsequently endorsed by the IOC Executive Council at its Forty-first Session (IOC/EC-XLI, Paris, France, 24 June–1 July 2008), and that the regional network will be formed through the establishment of regional training and research centres within the national oceanographic institutes or universities which are willing to provide regular training and research opportunities to the trainees from all WESTPAC Member States on a free-of-charge basis,

Noting with appreciation the great efforts of WESTPAC Office in the promotion of the initiative, and the establishment of the Regional Training and Research Centre on Ocean Dynamics and Climate in the First Institute of Oceanography, State Oceanic Administration of China, which hosted the first regional training course on ocean models from 10 to 16 June 2011 in accordance with the approved Guideline and Procedures, and Agreement,

Further noting with appreciation the willingness expressed by and positive response received from Indonesia, Malaysia, Republic of Korea and Thailand to contribute to the network through the establishment of IOC Regional Training and Research Centres on the domain of their focus,

Invites Member States to encourage their respective national oceanographic institutes, and universities to actively participate in the Regional Network; and

Requests the Executive Secretary of IOC to follow-up those Member States’ initiatives and take necessary actions to further promote this regional capacity building activity.

Recommendation SC-WESTPAC-IX.4

WESTPAC Programme and Budget for May 2012–May 2014

The IOC Sub-Commission for the Western Pacific,

Noting the reports of the Technical Secretary for IOC Sub-Commission for the Western Pacific on intersessional activities and the WESTPAC Programme and Budget May 2012–May 2014, contained in Documents IOC/SC-WESTPAC-IX/6, 7 and 16,

Expressing its appreciation to the Royal Thai Government’s continuing support for the IOC Regional Office for WESTPAC (WESTPAC Office), and these Member States for their in-cash and in-kind contribution in support of the implementation of WESTPAC Programme and Budget for May 2010–May 2012,

Acknowledging the importance of the WESTPAC Office for the success of the programme implementation,

Noting IOC Resolution XXVI-12 adopted at the Twenty-sixth Session of IOC Assembly (IOC-XXVI, Paris, 22 June–5 July 2011) on IOC Biennial Priorities and Implementation Strategy and Draft Programme and Budget for 2012–2013, in which USD 74.2K was allotted to the WESTPAC for its activities over 2012–2013,

Further noting with great concern, however, the recent dramatic reduction of USD 44.2K in the allotment for WESTPAC activities over 2012–2013 as a result of the current financial crisis experienced by the UNESCO and IOC due to the withholding of the United States of America and Israel's assessed contributions to the UNESCO following the General Conference vote admitting Palestine as a Member State of UNESCO,

Recognizing the negative impact of the reduction on the implementation of WESTPAC programmes over 2012–2013,

Decides that the WESTPAC Programme and Budget for May 2012–May 2014 shall be aligned with the High-Level Objectives of the WESTPAC Strategy and the priority areas detailed within the Strategy;

Adopts the Draft WESTPAC Programme and Budget for May 2012–May 2014 given in the Annex to this Recommendation;

Urges Member States to continue and increase their support to WESTPAC and its Office through direct and in-kind contributions; and

Requests the Executive Secretary of IOC and other organizations co-operating with the Sub-Commission to allocate necessary resources and assist in obtaining extrabudgetary funds from governmental and donor agencies.

Project/Programme	Activities	Objectives	Expected outputs	Date and place	Funding Required, US\$		
					IOC (in-cash)		Other in-kind sources (national or internat'l)
					Regular	Extra budget	
POLICY AND COORDINATION							
Regional Ocean Research Priority Plan	1. Separate Thematic Groups meetings	Draft of each theme	First draft of the RORP	Late 2012 or early 2013	\	20 K	20 K (host)
	2. Organization of RORP drafting group	Finalization of RORP outline; Assignment of thematic groups	Consolidated draft of the RORP	2013 and 2014	\	20 K	20 K (host)
9th WESTPAC International Scientific Symposium	1. International Scientific Steering Committee	<ul style="list-style-type: none"> identify main themes and key sub-themes finalize the programme 	Symposium Programme	Late 2012 and 2013	\	10 K	10 K (host)
	2. Organization of the 9th Symposium	Successful organization of the 9 th Symposium	Proceedings and/or new proposals for WESTPAC	2014 Vietnam	\	10 K	40 K (Vietnam and others)
Executive meetings (WESTPAC Officers, Advisory Group)	Organization of mid-term joint meetings	key issues addressed during the intersessional period	activities reviewed, problems addressed, and guidance provided	Late 2012, and Mid of 2014	6 K	10 K	10 K (host and others)
Operation of WESTPAC Office	Development, coordination and implementation, and resources mobilization of WESTPAC activities;	Efficient and effective operation of the Sub-Commission and implementation of workplan	New activities developed, workplan implemented and quality service provided	May 2012- May 2014 Thailand	24 K	90 K	20 K (Thailand and others)
WESTPAC WORKING GROUPS							
WG001: Asian Dust and its Impact on Ocean Ecosystem (WG-ADOES)	1. 7 th workshop of ADOES	Exchange ideas of methodology, data analyzing and discussion related to this project.	Proceedings	To be determined	\	8 K	8 K (China)
WG002: Regular Process for Global Reporting and Assessment of the State of the Marine Environment (WG-Regular Process)	1. Development of the WESTPAC regional GRAME Strategy	Facilitate the implementation of the Regular Process, improve the communication of member states, and identify regional capacity building needs	WESTPAC regional GRAME Strategy (2012-2015)	Jun 2013	\	8 K	10 K (China)
	2. Co-organization of the Regional S& T Capacity Building workshop; and conduct of WG meeting	strengthen and promote the regional cooperation ; assist, as an initial attempt, in capacity building for the integrated assessments	Summary Report	Sep 2012 Bangkok NOWPAP, COBSEA	\	8 K	
	3. conduct of a training course	Impel the capacity building in carrying out integrated assessments in the region, make the participants better understand and contribute to the RP.	Summary report	2013 Dalian China	\	15 K	15 K (China)
WG003: Mapping the harmful jellyfishes	1. 1st Workshop (Kick-off)	Review the regional concerns on and identify the project	project requirement identified and information collection table formatted	Jul-Sep 2012 Thailand or China	\	6 K	

Project/Programme	Activities	Objectives	Expected outputs	Date and place	Funding Required, US\$		
					IOC (in-cash)		Other in-kind sources (national or internat'l)
					Regular	Extra budget	
WG003: Mapping the harmful jellyfishes	2. Data Collection	Collect available data	Preliminary dataset distributed	2013	\	\	
	3. 2nd Workshop	Review the data collected	Finalized regional dataset	Sep 2013	\	6 K	
	4. Data Analysis	History and trend study of harmful jellyfish in the region	History and trend; knowledge gaps;future study; publications/recommendation	Aug 2013- Mar 2014	\	\	
	5. 3rd Workshop	Review and discuss study results	Draft publications/new proposal	Apr-May, 2014	\	8 K	
	6. Reporting	Report to the IOC Sub-Commission	Report submitted	Before 31 May 2014	\	\	
WG004: Marine Renewable Energy Technology Development (MRET)	1. Development of the WESTPAC regional MRET Strategy	Preparation of the Regional Status on MRE	Annual reports on the progress of regional status on MRE	Late 2012 Malaysia	\	15 K	
	2. Organize regional pilot projects on MRET	Creation of learning and collaboration platform of MRET	Pilot project initiated	2014	\	5 K	10 K (Malaysia)
MARINE SCIENCE AND APPLICATIONS							
Harmful Algae Bloom (WESTPAC-HAB)	1. Strategic meeting	Discussion on future activities, especially on capacity building and formation of outreach materials	<ul style="list-style-type: none"> list of training courses drafts of outreach material 	2012 Korea (with the 15th IHAB conference)	\	15 K	
	2. Establishment of regional network	Facilitation of information exchange and dissemination	networking	2012-2014	\	\	
	3. Coordination for GEOHAB Asia	Facilitation of enrolment of scientists	Information distribution	Feb 2013	\	\	
	4. Capacity building	Regional and local training courses	Trained scientists and technicians	2012-2014	\	20 K	
	5. Development of HABSEA Portal	Information dissemination to scientists and public	Increased awareness of HAB science	2012-2014	\	\	
	6. Interaction with other HAB projects	Information exchange and collaboration of activities	Enhance effectiveness of activities	2012-2014	\	\	
	7. Production of outreach material	Information dissemination	Better understanding on HAB problems	2012-2014	\	\	3 K (Univ. of Tokyo)
	8. Preparation of textbook	Increase effectiveness of training	Increased skill of HAB monitoring	2013	\	\	25 K (Univ of Tokyo)
Toxic Marine Organisms and their toxins (WESTPAC-TMO)	1. The 3rd workshop	Public outreach materials; and translation of materials in local languages	<ul style="list-style-type: none"> Presentations in the workshop section and the conference Local electronic versions of book 	Oct 2012 Korea	\	\	Jointly with WESTPAC-HAB

Project/Programme	Activities	Objectives	Expected outputs	Date and place	Funding Required, US\$		
					IOC (in-cash)		Other in-kind sources (national or internat'l)
					Regular	Extra budget	
Toxic Marine Organisms and their toxins (WESTPAC-TMO)	2. The 4th workshop	Confirmation of the final version of webpage	Final version of Webpage	2013, Singapore	\	10 K	10 K (NUS, Singapore)
	3. Printing cost	Public awareness	<ul style="list-style-type: none"> 1000 colour copies of flyer A4 500 colour copies of poster A1 	Feb 2013	\	5 K	
	4. TMO webpage design	Project information	Webpage finalized and operation	Feb 2014		2 K	
Ocean Remote Sensing Programme (WESTPAC-ORSP)	1. 3 rd Workshop	Analyze initial mapping results of seagrass beds	Suitable mapping methods for seagrass beds discussed. Manual of seagrass mapping prepared.	Oct 2012 Kyoto	\	15 K	10 K (JSPS)
	2. 4 th Workshop	Analyze spatio-temporal change of seagrass beds	Better understanding on spatio-temporal change of seagrass beds Pamphlet prepared	2013	\	15 K	5 K (JSPS)
	3. Publication of pamphlet	Publish English pamphlet	Pamphlet for Illuminating local people and stake holders	2013-2014	\	5 K	5 K (JSPS)
	4. 5 th Workshop	Analyze spatio-temporal change of seagrass beds	Submission of manuscripts to a scientific journal	2014	\	10 K	5 K (JSPS)
Response of Marine Hazards to Climate Change (WESTPAC-ROSE)	1. Fourth Joint Cruise in the Western Pacific	Improve regional database on the marine hazards variability	Comprehensive in-situ observations are obtained in pre- and post-typhoon seasons	Western Pacific	\	\	500 K
	2. Fourth International Workshop on Response of Marine Hazards to Climate Change in the Western Pacific: From science to service	Discuss the next step of ROSE project, discuss the establishment of reanalysis data distribution system for the regional ocean forecast system	The joint-action to establish the reanalysis data distribution system		\	\	20 K
Air-sea Interaction in the Kuroshio Extension and its Climate Impact	1. Workshop	Discuss the studies in the Western Boundary Regions	Gain the basic scientific hypothesis of air-sea interaction in the KER	05/2012 Qingdao, China	\	5 K	20 K (China)
	2. Model works	Develop proper modeling approach to explore the air-sea interaction in the KER	Provide a high resolution regional coupled model system	08/2012-03/2015	\	\	100 K (China)
	3. International Cruise and observation in the KER	the international cooperation in the KER observation	Cooperation in the KER observation established; data collected	09/2013-06/2014 KER	\	\	1.5 M (China, Japan)

Project/Programme	Activities	Objectives	Expected outputs	Date and place	Funding Required, US\$		
					IOC (in-cash)		Other in-kind sources (national or internat'l)
					Regular	Extra budget	
Air-sea Interaction in the Kuroshio Extension and its Climate Impact	4. International Meeting	Summarize	Scientific knowledge shared, and scientific paper prepared and work plan finalized	05/2015 Qingdao, China	\	10 K	30 K (China)
South China Sea Fluvial Sediments and Environmental Changes (WESTPAC-FluSed)	1. Research cruise	Sediment cores and data collection	Case study of shelf in NW South China Sea: shallow seismic dataset, surface and suspended sediments; sediment gravity cores, and hydrological data.	May 2012 Gulf of Tonkin	\	\	50 K (China)
	2. Bilateral workshop in Vietnam	Exchange of scientific results	Strengthen bilateral collaboration: joint master and undergraduate programs, proceedings, field excursion in Vietnam.	Sept. 2012, Hanoi	\	\	15 K (China) 5 K (Vietnam)
	3. 5th FluSed workshop	Exchange of scientific results	Strengthen collaboration: joint writing manuscripts, data comparison, further cooperation discussion.	Nov. 2012, HoChiMinh City	\	4 K	15 K (China) 5 K (local host)
	4. Research cruise	Seismic data and sediments collection	Case study of the Sunda Shelf: shallow seismic dataset, surface and suspended sediments, and sediment gravity cores,.	Aug. 2013, Sunda Shelf	\	\	60 K (China) 60 K (others)
	5. 6th FluSed workshop	Exchange of scientific results	Strengthen collaboration: joint writing manuscripts, data comparison, further cooperation discussion.	Nov. 2013, Indonesia or Singapore	\	4 K	15 K (China) 5 K (local host)
Marine and Coastal Biodiversity and its Management (WESTPAC-MCBM)	1. Workshop: Coral restoration techniques in the WESTPAC region	Share and summarize all coral restoration methods available within WESTPAC	Report/ scientific papers	Sep 2012 Thailand	\	13 K	3 K (DMCR, Thailand and Chulalongkorn University)
	2. development of poster, and pamphlet related to coral conservation and restoration	promote and increase public knowledge and awareness on coral reef restoration and conservation	Report/ poster/ pamphlet	Dec 2012 Thailand	\	4 K	
	3. Workshop: coral/ reef organism taxonomy	Strengthen knowledge on marine biodiversity conservation among WESTPAC countries; promote capacity building and outreach	Summary Report	2013	\	9 K	3 K (DMCR, Thailand and Chulalongkorn University)

Project/Programme	Activities	Objectives	Expected outputs	Date and place	Funding Required, US\$		
					IOC (in-cash)		Other in-kind sources (national or internat'l)
					Regular	Extra budget	
Marine and Coastal Biodiversity and its Management (WESTPAC-MCBM)	4. Workshop: use of molecular technique for identification and conservation of marine biodiversity	Strengthen knowledge on marine biodiversity conservation among WESTPAC countries; promote capacity building and outreach	Summary Report	2013	\	9 K	3 K (DMCR, Thailand and Chulalongkorn University)
Coral Reef under Climate and Anthropogenic Perturbations (WESTPAC-CorReCAP)	1. 4th workshop	Evaluate the research progress, seek joint research proposals on coral reef study	Summary report and if possible, draft proposal for funding	Second half of 2012, place to be decided	\	5 K	10 K (e.g. China) and/or host organizat'ns
	2. Training activity	Promote the capacity development on coral reef studies	Summary report	First part of 2013, and topic to be decided	\	10 K	10 K (e.g. China) and international resources (e.g. APN)
	3. 5th workshop	Assess research progress on hot spots in relation to coral reefs	Summary report, and if possible, a joint publication	Second half of 2012 or first part of 2014	\	5 K	10 K (e.g. China) and/or host organizat'ns
DNA Taxonomy and Recruitment Monitoring of the Coral Reef Marine Organisms (DRMREEF)	\	\	\	\	\	\	Pending until funding is available
OCEAN OBSERVATIONS AND SERVICES							
North East Asian Regional-GOOS (NEAR-GOOS)	1. 15th NEAR-GOOS CC meeting	Review the implementations of action points agreed upon at the previous sessions and decide work plan and budget for the next session	Action plans and recommendations on new activities	Oct 2012 Incheon, Korea	\	2 K	8 K
	2. Communications with member states in the region for their involvement in the project	Establish the NEAR-GOOS Working Group on Products and re-construct the NEAR-GOOS Working group on Data Management and etc.		During the intersessional period	\	\	
	3. WG on new NEAR-GOOS products	Improve oceanographic data products and services in the region	Recommendation on new products	2013	\	2 K	8 K
	4. WG on Data Management	Operate NEAR-GOOS databases efficiently and effectively	Improvement of databases operating	2013	\	\	8 K
North East Asian	5. 16th NEAR-GOOS CC	Review the implementations of	Action plans and	2013	\	2 K	8 K

Project/Programme	Activities	Objectives	Expected outputs	Date and place	Funding Required, US\$		
					IOC (in-cash)		Other in-kind sources (national or internat'l)
					Regular	Extra budget	
Regional-GOOS (NEAR-GOOS)	meeting	action points agreed upon at the previous sessions and decide work plan and budget for the next session	recommendations on new activities				
	6. 17th NEAR-GOOS CC meeting	Same as the above	Action plans and recommendations on new activities	2014	\	2 K	8 K
South East Asian Regional-GOOS (SEAGOOS)	Monsoon Onset Monitoring over Andaman Sea and its Social and ecosystem impacts (MOMSEI)						
	1. 4th Cruise	Monsoon onset observation	Data and cruise report	Apr 2013 Andaman Sea, Bay of Bengal, tropical eastern Indian Ocean	\	\	100 K (China, Indonesia, Thailand)
	2. 5th Cruise	Monsoon onset observation	Data and cruise report	Apr 2014 Andaman Sea, Bay of Bengal, tropical eastern Indian Ocean	\	\	120 K (China, Indonesia, Thailand)
	3. 6th MOMSEI Expert Workshop	Annual progress review and coordination	Report	Oct 2012 Myanmar	\	2 K	20 K
	4. 7th MOMSEI Expert Workshop	Annual progress review and coordination	Report	Oct 2013 China	\	10 K	
	5. 3rd MOMSEI Summer School	Capacity building	Report	Sep 2012 China	\	\	15 K
	6. 4th MOMSEI Summer School	Capacity building	Report	Sep 2013 Indonesia	\	\	15 K
	Ocean Forecast Demonstration System in the Southeast Asian Seas						
	1. Joint UKM-UMT-FIO Cruises for Peninsular Malaysia Eastern's Shelf (PMES),	To gather and observe various aspect of the region ocean in the region of interest for ocean forecasting system validation	Oceanographic data and enhanced understanding of regional oceanographic processes	Jun 2012 Nov 2012 (Jun, Jul & Nov 2013) PMES	\	\	200 K (UKM, UMT, Malaysia and FIO, China)
	2. Joint PMBC-FIO Cruise for Gulf of Thailand in summer 2012, one	To gather oceanographic data by CTD (including oxygen, chlorophyll, and turbidity etc.) and ADCP for	Understanding of oceanographic aspects and processes of GoT	Jul-Aug 2012	\	\	100 K (PMBC, Thailand and

Project/Programme	Activities	Objectives	Expected outputs	Date and place	Funding Required, US\$		
					IOC (in-cash)		Other in-kind sources (national or internat'l)
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	cruise.	validation of model.					FIO, China)
	3. Development of High Regional Ocean Forecasting System for PMES	To develop a high resolution (1 km) regional ocean forecasting system for PME	High resolution regional ocean model for PMES	UKM & UMT	\	\	100 K (UKM and UMT, Malaysia)
	4. Development of High Regional Ocean Forecasting System for GoT	To develop a high resolution (1 km) regional ocean forecasting system for PMBC (Department of Marine and Coastal Resources; DMCR)	High resolution of GoT for PMBC	PMBC and FIO	\	\	100 K (PMBC, Thailand and FIO, China
	5. Regional Workshop / Training	Regional workshop for discussing modeling results	Understanding and comparison between modelling results between PMES and GoT	1 in Malaysia (either UMT or UKM) early 2013 & 1 in Thailand in early 2014	\	10 K	10 K (UKM, UMT, Malaysia, and PMBC, Thailand)
	6. Writing and publishing research findings	To write and publish scientific papers especially related to the understanding of regional oceanographic processes within PMES and GoT	Several scientific papers including 1. Mechanism of meso-scale eddy during winter (under review in OD) 2. GoT circulation and exchanges with SCS (manuscript expected in June 2012) 3. Various factors in influencing MLD in Sunda Shelf (manuscript expected in June 2012)	(Malaysia (UKM & UMT), FIO, & Thailand	\	\	Research grants from respective groups
	7. Outreach activities (creation posters, flyers, organizing talks , launching of the forecasting system)	To promote and increase visibility of the project	Increased visibility of the project	Malaysia & Thailand	\	3 K	5 K Research Funding from respective groups
Ocean Data & Information Network for the Western Pacific (ODINWESTPAC)	1. Second Working Group meeting of ODINWESTPAC.	Continue to collect the Needs for Capacity Building and develop the strategy and working plan for the project.	Identification of Capacity build requirement	Late 2012 or early 2013, Tianjin China	\	10 K	15 K (NMDIS, China)
Ocean Data & Information Network	2. Training course	Build the capacity on oceanographic Data and	Capacity improved	Late 2012 or early 2013,	\	20 K	15 K (NMDIS, China)

Project/Programme	Activities	Objectives	Expected outputs	Date and place	Funding Required, US\$		
					IOC (in-cash)		Other in-kind sources (national or internat'l)
					Regular	Extra budget	
for the Western Pacific (ODINWESTPAC)		Information collecting, processing , QC/QA		Tianjin China			
	3. Collection of cruise summary reports in the region.	Provide the information services of the ROSCOP	Cruise summary reports collected Metadata based developed	Start from May 2012 and Continue	\	\	Member States IODE
	4. Development of the ODINWESTPAC Visualization System (OVS)	Integrate, manage and display all marine data and information exchanged ; facilitate the easy access	OSV system, first version	Start from May 2012 and Continue	\	\	Member States IODE
	5. Improvement of the directory of ocean and coastal observations, research and management	Provide the information of the cooperation projects of international and regional to the users in the region.	Directory prepared	Continue	\	\	Member States
	6. Update of the directory of marine libraries and Ocean publications,	Provide the directory and all information services	Directories prepared	Continue	\	\	Member States
	7. Collection of marine data and information	Promote cooperation on data and information and provide good services	Relevant information collected	Continue	\	\	Member States
	8. Maintenance of the ODINWESTPC Website	Provide good services in the region	Well maintained website	Continue	\	\	20 K (NMDIS, China)
	9. Provision of Data Management Guides	Provide guidance on the Data Management	Guidelines provided	End of 2013	\	\	
	10. Third Working Group meeting of ODINWESTPAC	Review the activities, and agree on workplan for next intersessional period	Joint activities identified	2014	\	10 K	15 K (NMDIS, China)
	International Bathymetric Chart of the Western Pacific (IBCWP)	1. Establishment of a technical network	exchange bathymetric mapping techniques and its application in risk assessment	A expert correspondence network	ASAP	\	\
2. Organization of the first technical session		To exchange bathymetric mapping techniques, promote the regional cooperation in this field	Knowledge sharing among member states	End of 2013	\	\	15 K (NMDIS, China)
3. Preparations of one proposal on WESTPAC Working Group		To develop a complete proposal	A complete proposal to be submitted to the next Session for approval.	First half of 2014	\	\	3 K (NMDIS, China)

Project/Programme	Activities	Objectives	Expected outputs	Date and place	Funding Required, US\$		
					IOC (in-cash)		Other in-kind sources (national or internat'l)
					Regular	Extra budget	
CAPACITY DEVELOPMENT AND PUBLIC AWARENESS							
IOC Regional Network of Training and Research Centers on Marine Science	IOC Regional Training and Research Center on Ocean Dynamics and Climate						
	1. Second training course	Ocean dynamics	Improved understanding on the basic ocean processes and its dynamics	July 2012, Qingdao, China	\	2 K	30 K (ODC Center, China)
	2. Third training course	Air-sea interaction	Improved understanding on the air-sea interaction and its effects on the climate system.	Summer of 2013, Qingdao, China	\	2 K	30 K (ODC Center, China)
	3. Fourth training course	Climate models	Improved understanding of the wave-circulation coupled theory and practices on climate models.	Summer of 2014, Qingdao, China	\	2 K	30 K (ODC Center)
	IOC-WMO Regional Marine Instrument Center for the Asia and Pacific (Asia-Pac RMIC)						
	1. Workshop on CTD calibration	Increase the level of CTD calibration of the member states	Training on theory and on-site experiment of CTD calibration, and data processing	Nov. 2012 Tianjin, China	\	\	10 K Asia-Pac RMIC
	2. Calibration workshop for float-type tide gauge and wave buoy	Increase the level of tide gauge and wave buoy calibration	Training on theory and on-site experiment of CTD calibration, and data processing	Sept. 2013 Tianjin, China	\	\	10 K Asia-Pac RMIC
	3. Cooperation on Marine standard	promote cooperation on Marine Standards	China's observation standards and marine instrument calibration specifications into English for	2012-2014	\	\	30 K Asia-Pac RMIC
	4. Provision of calibration services	Increase calibration ability of member states, ensure observation data can be traced back to SI	Provide calibration services on Water Conductivity(salinity)/ temperature/ pressure/tide/wave	2012-2014 Tianjin, China	\	\	20 K Asia-Pac RMIC
	Sub-total					30 K	493 K
Total					4,261 K		

Recommendation SC-WESTPAC-IX.5

Date and Place of the Next Session

The IOC Sub-Commission for the Western Pacific,

Bearing in mind the need for a sufficient period of time between sessions of the Sub-Commission to allow a reasonable implementation of its activities,

Recalling Recommendation SC-WESTPAC-I.3 in 1990 to have a three-yearly time span between its regular sessions,

Further recalling Recommendation SC-WESTPAC-VII.6, adopted at the Seventh Session of the Sub-Commission (WESTPAC-VII, Sabah, Malaysia, 26–29 May 2008), which decides to reschedule the period between sessions from three years to two years beginning with the close of WESTPAC-VII, to be in phase with IOC planning cycles. Further, WESTPAC Sessions will be scheduled for the first quarter of the year so its decisions, recommendations, and reports can be forwarded to the IOC Executive Secretary in time for review and consideration by the Assembly,

Appreciates the Government of the Republic of Korea for hosting the Ninth Intergovernmental Session on 9–12 May 2012, Busan, Republic of Korea and excellent arrangements made for the Session; and

Accepts with appreciation the offer by the Government of Thailand to host the Tenth Intergovernmental Session no later than early 2015, subject to the final endorsement of the relevant authorities.