



**INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)**

**Eleventh Intergovernmental Session of the IOC Sub-
Commission for the Western Pacific (WESTPAC-XI)**

Qingdao, China, 21-23 April 2017

Item 5.1.4 of the Provisional Agenda

**PROGRESS REPORT ON
UPWELLING STUDIES THROUGH OCEAN DATA INTEGRATION TOWARDS
SUSTAINING OCEAN HEALTH AND PRODUCTIVITY
(May 2015–April 2017)**

In accordance with Terms of Reference of IOC Sub-Commission for the Western Pacific, the report is provided to facilitate the consideration by the Sub-Commission on the progress made on the WESTPAC project on Upwelling studies through ocean data integration towards sustaining ocean health and productivity.

The Sub-Commission is invited to discuss about the progress made over the past intersessional period, provide directives and advice on its future development, and further identify resources and national commitments to its implementation in the region.

I. Project

1. Upwelling studies through ocean data integration towards sustaining ocean health and productivity

II. Project objectives and expected outputs/outcomes

2. The main objectives are:

1. To explore new upwelling site and increase understanding of the physical-biological interaction dynamics of upwelling region in the SCS and surrounding seas through comparative studies
2. To plan integrated data gathering which involve field data, satellite data and numerical model in understanding upwelling dynamics
3. To disseminate scientific information on upwelling for establishment of better management planning tool for marine environment and fisheries

3. Expected outcomes:

1. Contribute to the regional understanding of upwelling dynamics and possibly a discovery of new upwelling area through comparative studies and learning exchange
2. Build a standard data monitoring technique that is more cost-effective and simplify task in providing continuous spatial data monitoring related to upwelling site
3. Provide important information and share new findings with different groups that involves with relevant stakeholders including fisheries related industries, scientific community and local community

III. Principal Investigator (Chairperson) and Project Steering Group

Prof. Madya Dr. Mohd Fadzil Mohd Akhir (Malaysia) – PI
Prof Dato' Dr. Noraieni Haji Mokhtar (Malaysia)
Prof Weidong Yu (China)
Dr. Anna Kuswardani (Indonesia)

IV. Terms of Reference of the Project Steering Group

1. COMPOSITION

4. The Project Steering Group shall consist of all member states of WESTPAC interested to participate. Once IOC Sub-Commission identifies the Project Leader for the Western Pacific, he/she shall serve as the Chairperson of this Steering Group. Each Country, through its IOC National Focal Point shall designate one or two members with upwelling expertise in consultation with the Project Leader. The Group is encouraged to conduct the work through correspondence. However, they shall meet if needed at the expense of the participating countries as far as possible. Other participants may be invited as observer if deemed necessary.

2. FUNCTIONS

5. The Project Steering Committee is established to meet the scientific, managerial implementation, and resource needs of the WESTPAC- Upwelling Project. It has overall responsibility for the formulation of strategy, and for the planning and coordination of WESTPAC- Upwelling Project.

6. The Group will carry out the following functions:

- 1) Review the regional interests on upwelling region, and identify the project requirements;
- 2) Promote efficient and cost-effective implementation of the WESTPAC Project and prepare recommendations on this implementation to the IOC Sub-Commission for the Western Pacific and the IOC's Intergovernmental Panel for Upwelling;
- 3) Identify the resources necessary to meet upwelling project needs;
- 4) Ensure effective interaction and communication with WESTPAC and IOC Intergovernmental Panel on upwelling, as well as other regional intergovernmental and non-governmental organizations involved in research related to upwelling and continuous data monitoring; and
- 5) Report to the IOC Sub-Commission for the Western Pacific and IOC's Intergovernmental Panel on upwelling region related issue

V. Activities carried out and/or to be carried out during the last intersessional period (May 2015 – April 2017)

- 1) Intensive Data Analysis work for South China Sea upwelling area using satellite data and global ocean model (January 2016-June 2016)
- 2) Workshop and Group Meeting (11-13 January 2017, Malaysia - *postponed*)

VI. Problems encountered and actions to be considered by the 11th Intergovernmental Session, tentatively scheduled for April 21-23, 2017, Qingdao, China.

7. The group found it hard to get members from WESTPAC region to be involve in the project. We got strong initial support during previous meeting, however we get very few response from interested country to join the projects. We still hoping to get people to join especially from Japan, Korea, and Philippines since there are few interesting upwelling site in those countries.

VII. Workplan and Budget for May 2017 – May 2019

Project					Funding Required		Remark
	Activities	Objectives	Expected outputs/outcomes	Date and place	IOC	Other sources (i.e. from national or international)	
Upwelling studies through ocean data integration towards sustaining ocean health and productivity	1. Short report on established upwelling site in the region	1. To prepare short report and compile references on established upwelling site in the region 2. To discuss key issues related to data collection and integration method and implementation	1. Short report of established upwelling site in SCS and surrounding seas 2. Implementation of standard data collection and data integration methods	Sept 2017	IOC-USD3,000 (Venue and accommodation for meeting)	Publishing and resources collection cost: USD2,500	
	2. Field data collection and compilation, satellite images, numerical model	1. To plan and conduct data collection or compilation i.e. World Ocean Database, at upwelling region. 2. To organize and integrate field data, satellite data and numerical model in compiling information regarding upwelling	1. Each country involved will have their own set of planning for field data compilation and collection 2. All integrated data from different countries are compiled and comparison study to be conducted	Feb 2018		Budget: Field data: National funding Satellite Data: Free	
	3. Workshop: Integrated data analysis for upwelling study	1. To train researchers analyse data from upwelling site using available datasets and increase understanding of the physical-biological interaction dynamics of upwelling region	1. Systematic technique in accessing available ocean data from different sources and integrated the information to study specific study area or region	October 2017		Participant fee: USD300/person Possible donor countries; Malaysia, Japan, China, Korea, Thailand, Indonesia etc.	

Project					Funding Required		Remark
	Activities	Objectives	Expected outputs/outcomes	Date and place	IOC	Other sources (i.e. from national or international)	
		2. To construct integrated data gathering which involve field data, satellite data and wind-data at any particular upwelling site 3. To conduct simple analysis from the integrated data in determining special characteristics of any particular upwelling site	2. Scientist that are well train to analyze different component of ocean data sources in conducting upwelling study				