

Building Blue Partnerships for the Future We Want



IOC Sub-Commission for the Western Pacific (WESTPAC)
Intergovernmental Oceanographic Commission of UNESCO

Advance ocean knowledge for sustainable development

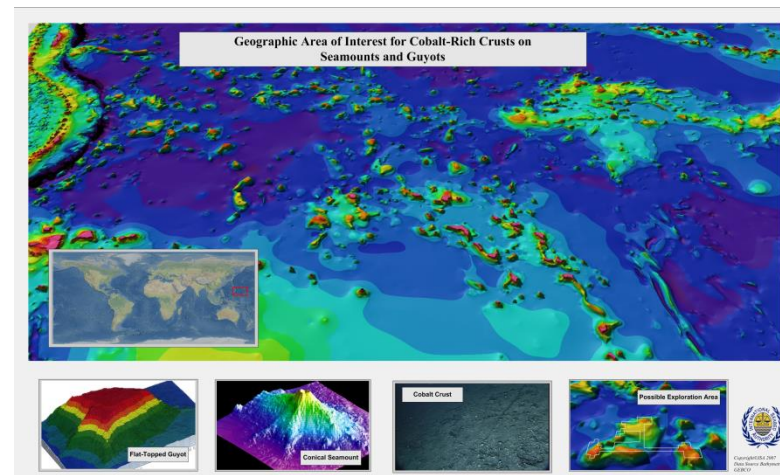
Wenxi Zhu, Somkiat Khokiattiwong, Vo
Si Tuan, Ken Ando, Fangli Qiao, Zainal
Arifin, Gil Jacinto, Yasuwo Fukuyo,
Suchana Apple Savanich, Dao Viet Ha,
Yutaka Michida, Youn-Ho Lee, Weidong
Yu, et al.

The Intergovernmental Oceanographic Commission (IOC) of UNESCO

Building knowledge and capacity for sustainable ocean management

- Only intergovernmental organization mandated to promote marine science in all ocean basins
- Within the UN system, the IOC serves as the focal point for ocean observations, science, services and data exchange
- The UN Convention on the Law of the Sea considers IOC to be the Competent international organization for marine science (UNCLOS)

the IOC is really the voice for ocean science, services and observations within the UN system



From science to innovative growth

A strategic link;

An Essential driver;

An indigenous
clearing house;

A locally-rooted
capacity developer



Areas of Action

Program Priorities

- **Ocean processes and climate**
- **Marine biodiversity and seafood safety, security**
- **Ocean ecosystem health**
- **Enhanced ocean knowledge on emerging concerns (i.e., ocean acidification, microplastics)**



- *Strengthen science-policy interface for ocean governance*
- *Develop sustained ocean observations and services for maritime safety*
- *Safeguarding marine biodiversity and ecosystem health for green development*
- *Bolster-institutional capacity for the Future We Want*

WESTPAC: Building Blue Partnerships

Strengthen science-policy interface for ocean governance

UN-ASEAN Plan of Action on Comprehensive Partnership (2016-2020)

Areas: Environment and climate change; cultural and education



UNESCO-ASEAN Cooperation Agreement (2014-2018)

Programme Area: Health of the coasts and ocean



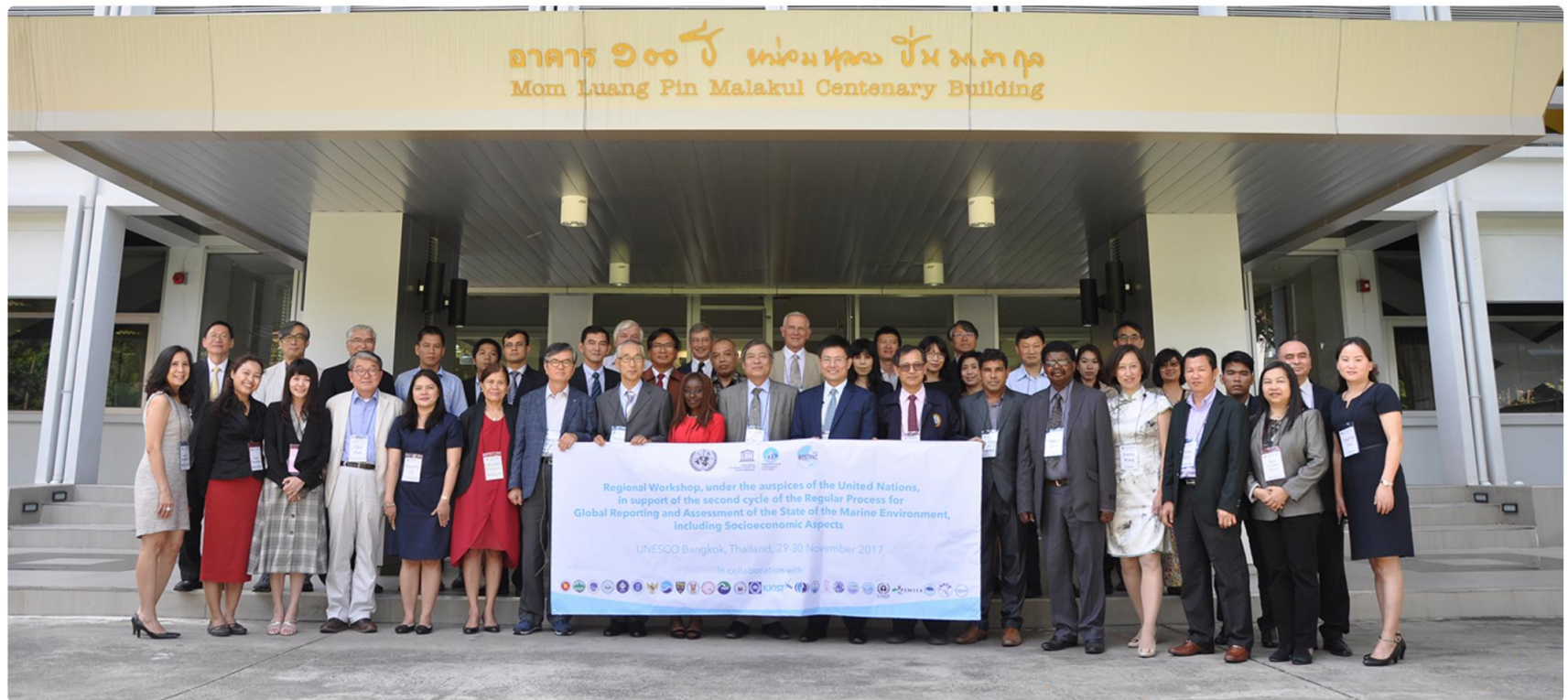
WESTPAC: Building Blue Partnerships

Strengthen science-policy interface for ocean governance

UN World Ocean Assessment I (2011-2015) and II (2016-2020)

WESTPAC News

UN's Second World Ocean Assessment Makes a Start in the North Pacific





***“Advancing Ocean Knowledge, Fostering
Sustainable Development:
from the Indo-Pacific to the Globe”***

17-20 April 2017, Qingdao, China

<http://www.iocwestpac10.com>
iocwestpac10@fio.org.cn; iocwestpac10@yahoo.com



WESTPAC: Building Blue Partnerships

Develop sustained observations and services for maritime safety



Develop sustained observations and services

Ocean Forecasting System

UNESCO/IOC ODC Ocean Modeling Training at FIO, QingDao, China

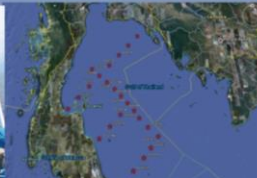


June 10-16, 2011



July 12-22, 2012

Joint Cruises between member countries



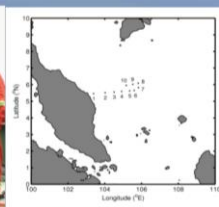
Meeting and workshops



Sep 30-Oct 1, 2010, Phuket



March 5-6, 2013, Jakarta



Model Development



>> Home

>> Contact

>> Forecast Results

>> Detailed Results

>> Background

>> Research Team

>> Numerical Model

>> Model Validation

>> Publication

>> Archives

Parameter

Wave Hight

Time (Local)

2017051421

Depth

0 m

Time step

<< < > >>

Animation

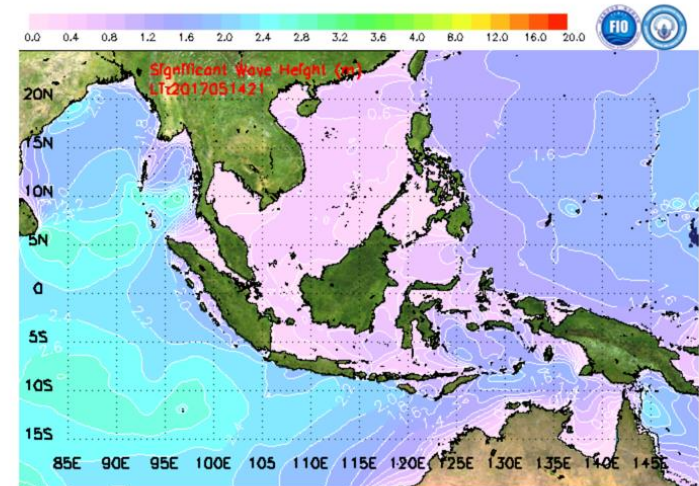
START LOOP STOP

FASTER SLOWER

国家海洋局第一海洋研究所
THE FIRST INSTITUTE OF OCEANOGRAPHY, S.O.A.

PHUKET MARINE BIOLOGICAL CENTER

Forecast Results



Lon Lat PROFILE Lon1 Lat1 Lon2 Lat2 SECTION

DOUBLE CLICK on the map to show the current profile. Or INPUT the coordinate and CLICK the button.

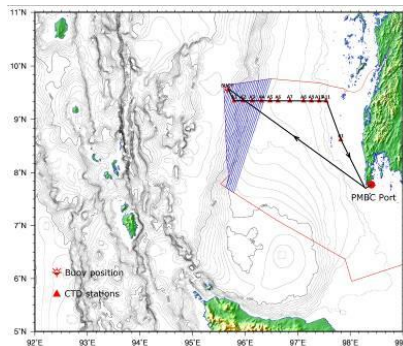
Future focus.

1. Development of Higher-Resolution OFS in Sub-domains
2. Engagement of operational agencies and Capacity Building

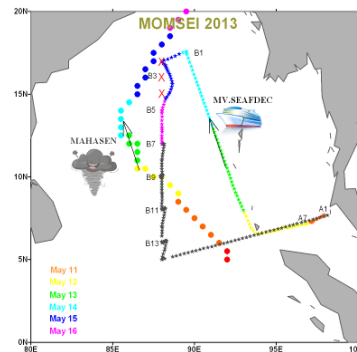
Develop sustained observations and services



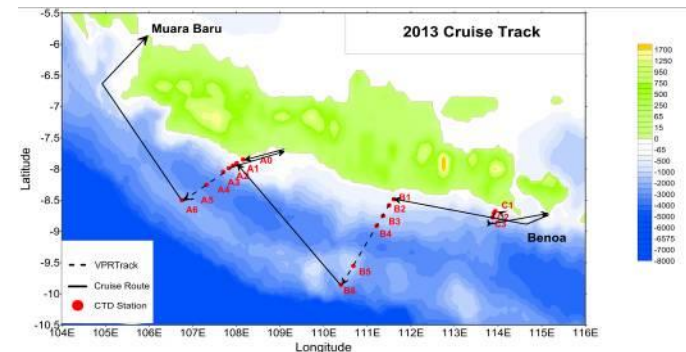
Monsoon Onset Monitoring and its Social & Ecosystem Impacts (MOMSEI)



Andaman Sea Cruise



Bay of Bengal Cruise



South Java Upwelling Cruise



WESTPAC: Building Blue Partnerships

Develop sustained observations and services



Towards a Regional Ocean Acidification Monitoring Network

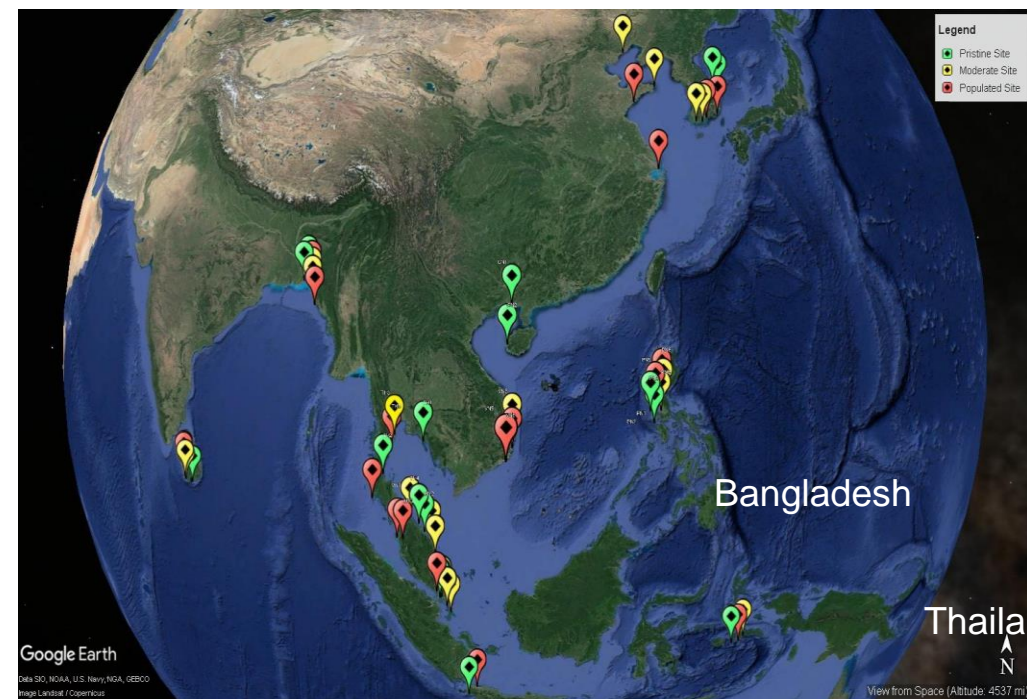


Development Workshop on Research and Monitoring of the Ecological Impacts of Ocean Acidification on Coral Reef Ecosystems, Phuket, Thailand, 19-21 January 2015, 26–28 Aug 2015, and 29–31 Aug 2016, 12-15 Dec 2017

Develop sustained observations and services

Marine Microplastic: Distribution, Source, Fate and Impacts

WESTPAC Microplastics Pilot Sites

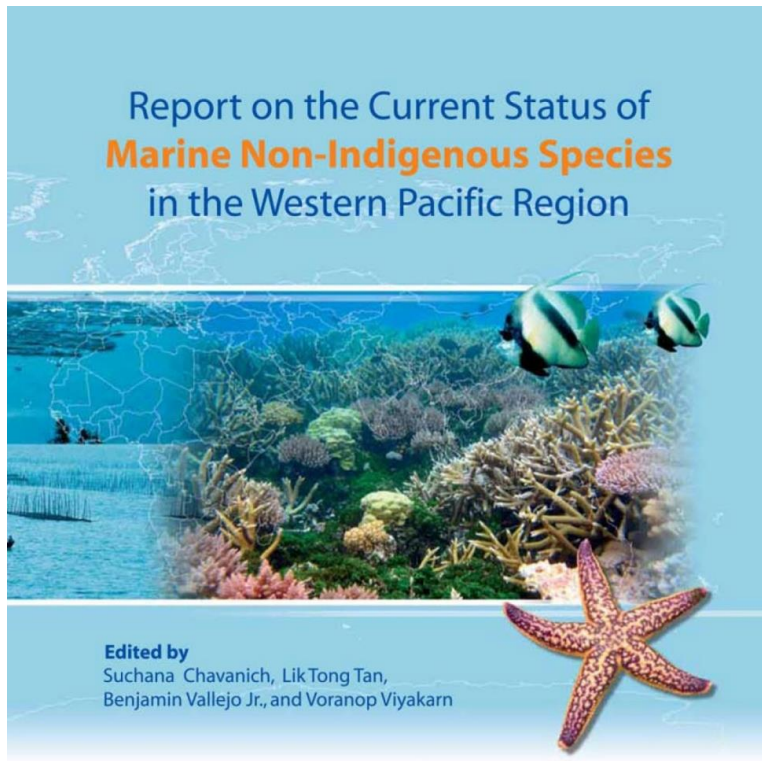


Microplastics in Zooplankton (Cole et al., 2013)

WESTPAC: Building Blue Partnerships

Safeguard biodiversity and ecosystem health

Marine Alien Species



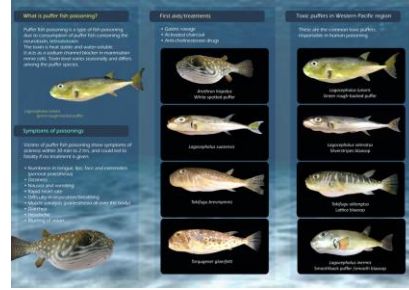
Rapid Assessment Survey of Marine Alien Species



Scientific Workshops and Capacity Building

Marine Biodiversity and Ecosystems

Marine Toxins and Seafood Safety



Poster and brochure on common toxic puffers



Regional workshop on Toxic Marine Organisms,



Translation of the SPC/IRD Publication on Ciguatera into native languages



Training workshop on Immunological method for detection of domoic acid in plankton and shellfish",



Regional Workshop on Toxic Marine Organisms,



Training Workshop on Taxonomy and ecology of the diatom Pseudo-nitzschia,

Marine Biodiversity and Ecosystems

Coral Reef Restoration



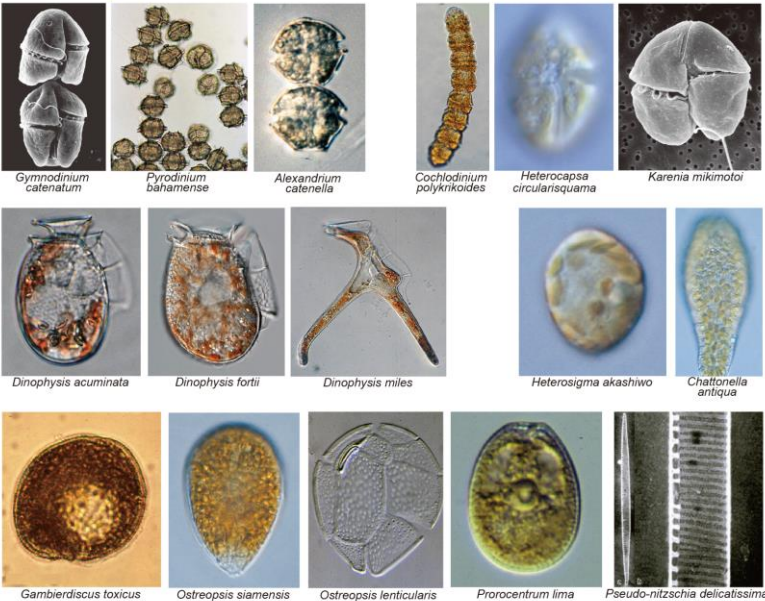
Trainings and studies on the impact of sediment on coral reefs

Field study on coral reef restoration techniques

Safeguard biodiversity and ecosystem health

Harmful Algal Blooms

HAB Species in the Western Pacific



Emergency response



WESTPAC: Building Blue Partnerships

Bolster institutional capacity for the Future We Want



Guiding principles:

Adaptive, inclusive and empowerment

Approaches:

- ☐ Target early career scientists
- ☐ Suit national and regional needs;
- ☐ Closely follow global emerging issues;
- ☐ Link training to the attainment of research goals;
- ☐ Foster North-South and South-South collaboration;



Development of **“UNESCO/IOC Regional Network of Training and Research Centers (RTRCs) on Marine Science”**

Inclusion of capacity building into WESTPAC research programmes and conduct of a series of **regional and national tailored trainings (or training workshops)** in Member States, on a rotation basis

“Training Through Research” via the engagement of early career scientists into WESTPAC research programmes

Establishment of **“WESTPAC Best Young Scientist Award”** and **“WESTPAC Young Scientist Travel Grant”** to nurture young science leaders and facilitate international exposure of young scientists

Meanwhile, WESTPAC has been exploring more feasible tools to develop capacity at different level, including:

Initiation of **“WESTPAC Young Scientist Forum”** for WESTPAC early career scientists to exchange their perspective on marine science development and cooperation

Conduct of **“Bring Marine Science to School”** to inspire young generations/ school students on ocean and marine science

Integrated capacity development efforts

Capacity Development

Regional Training and Research Centers



Regional Training and Research Centre on
Ocean Dynamics and Climate
(RTRC-ODC)



Regional Training and Research Centre on
Marine Biodiversity and Ecosystem Health
(RTRC-MarBEST)



Bachok Marine Research
Station, IOES, Malaysia



Phuket Marine Biological
Center, Thailand

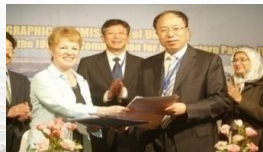


Institute of
Oceanography, Vietnam

Regional Training and Research Center on Ocean Dynamics and Climate (RTRC- ODC)



Director appointment
10 May 2012



Signing agreement
11 May 2011



Inauguration
9 June 2011



Second training course
on ocean dynamics
16-22 July 2012



Third training course
on air-sea interaction and modeling
12-23 August 2013



Fourth training course
on climate models
03-14 November 2014



Fifth training course
on climate change
07-18 September 2015



Sixth training course
on ocean dynamics and multi-scales
interaction, 05-16 Sep 2016



Seventh training course
on coupled regional ocean
models, 12-23 June 2017



First training course
on ocean models
10-16 June 2011

A total of 312 early career scientists from 33 countries in 2011-2017.



Regional Training and Research Center on Marine Biodiversity and Ecosystem Health

RTRC-MarBEST



United Nations
Educational, Scientific and
Cultural Organization



Intergovernmental
Oceanographic
Commission



Mission

1. Strengthen the capability of human resources, especially students/young scientists/lecturers of UNESCO/IOC Member States in the Western Pacific region;
2. Network on marine biodiversity among scientists/lecturers in the Western Pacific region;
3. Promote the data and information exchange of marine biodiversity among institutions at Western Pacific region
4. Contribute to the sustainable development and conservation of marine and coastal resources through training and research.

Regional Training and Research Center on Marine Biodiversity and Ecosystem Health

RTRC-MarBEST



Capacity Development

Tailored trainings/summer schools



Identification of HAB Species in the ASEAN Region, Singapore, 18-22 July 2016



Cultivation and restoration of reef organism populations, Chonburi, Thailand, 17 Sep 2016



Box jellyfish research, Thailand, 13-17 June 2016



Hand-on exercise of the ARM processes, Phuket, Thailand, 29-31 August 2015



Health Assessment of Marine Endangered Species, Trang, Thailand, 23-30 June 2016

12 trainings/summer schools, and 39 regional science development workshops/consultative meetings



WESTPAC

10th International Scientific Conference
17-20 April 2017 Qingdao, China

***“Advancing Ocean Knowledge, Fostering
Sustainable Development:
from the Indo-Pacific to the Globe”***

WESTPAC Outstanding Scientist Award





WESTPAC

10th International Scientific Conference
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WESTPAC Best Young Scientist Award

10th WESTPAC International Scientific Conference

*“Advancing Ocean Knowledge, Fostering Sustainable
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***“Advancing Ocean Knowledge, Fostering
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<http://www.iocwestpac10.com>

<http://iocwestpac.org>

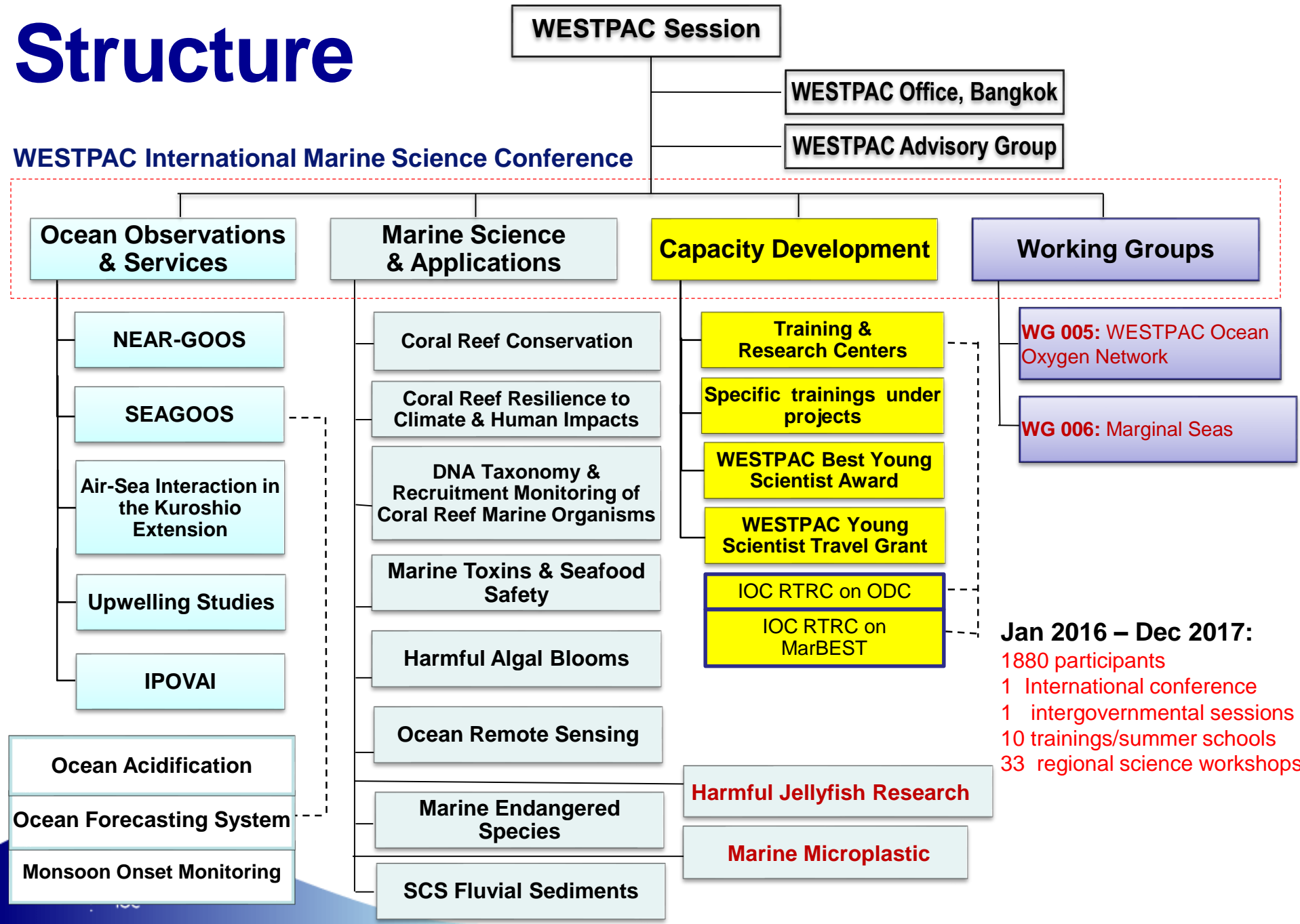
**Bringing
marine
science
into
schools!**



Participation of
1200 students

WESTPAC Structure

WESTPAC International Marine Science Conference



CHINA

State Oceanic Administration (SOA)
First Institute of Oceanography (FIO)
Third Institute of Oceanography (TIO)
National Marine Data and Information Services (NMDIS)
Institute of Oceanology
Ocean University of China
East China Normal University
Tongji University
South China Sea Institute of Oceanology (SCSIO)
Zhejiang University

PAKISTAN

National Institute of Oceanography

IRAN

Iranian National Institute of Oceanography & Atmospheric Science

INDIA

National Institute of Oceanography (NIO)

BANGLADESH

Ministry of Foreign Affairs
University of Chittagong

KENYA

Kenya Meteorological Department

SRI LANKA

National Aquatic Resources Research and Development Agency (NARA)

MALDIVES

Maldives Meteorological Service

MALAYSIA

National Oceanography Directorate (NOD),
Ministry of Science, Technology and Innovation
Universiti Malaysia Terengganu
Universiti Kebangsaan Malaysia
Universiti Sains Malaysia
Universiti Malaysia Sarawak
National University of Malaysia
University of Malaya
Universiti Malaysia Sabah
Universiti Teknologi Malaysia

KOREA, DPR

Department of International Relations,
State Hydro-Meteorological Administration (SHMA)

THAILAND

Department of Marine and Coastal Resources (DMCR)
Chulalongkorn University
Phuket Marine Biological Center (PMBC)
Burapha University
National Science Museum

MYANMAR

Department of Meteorology and Hydrology

REP OF KOREA

Korea Institute of Ocean Science and Technology (KIOST)
Korea Hydrographic and Oceanographic Administration (KHOA)
National Fisheries Research and Development Institute (NFRDI)
Seoul National University

Partnerships

JAPAN

Ministry of Education, Culture, Sports, Science and Technology (MEXT)
The University of Tokyo
Japan Agency for Marine-Earth Science and Technology (JAMSTEC)
Japan Meteorological Agency (JMA)
Japan Oceanographic Data Center (JODC)

PHILIPPINES

University of the Philippines
National Fisheries Research and Development Institute
Mindanao State University

CAMBODIA

Ministry of Environment
Royal University of Phnom Penh

VIETNAM

Institute of Oceanography
Marine Hydrometeorological Center
Institute of Marine Environment and Resources

SINGAPORE

National University of Singapore
Nanyang Technological University

AUSTRALIA

Australian Bureau of Meteorology

INDONESIA

Indonesian Institute of Sciences (LIPI)
Agency for the Assessment & Application of Technology (BPPT)
Indonesian Geospatial Information Agency
Bogor Agricultural University
Agency of Marine and Fisheries Research & Development, MOMAF
Institute Technology of Bandung
Brawijaya University
Hasanuddin University
Institute for Marine Research and Observation

WESTPAC

RUSSIA

V.I.Il'chev Pacific Oceanological Institute (POI), Russian Academy of Sciences, Far Eastern Branch

UNITED STATES

Pacific Marine Environmental Laboratory (PMEL)
National Oceanic and Atmospheric Administration (NOAA)

Ocean is central to sustainable development along the “Road”



WESTPAC in Action for Sustainable Development Goals



IOC Sub-Commission for the Western Pacific (WESTPAC)
Intergovernmental Oceanographic Commission of UNESCO

VOLUNTARY COMMITMENTS

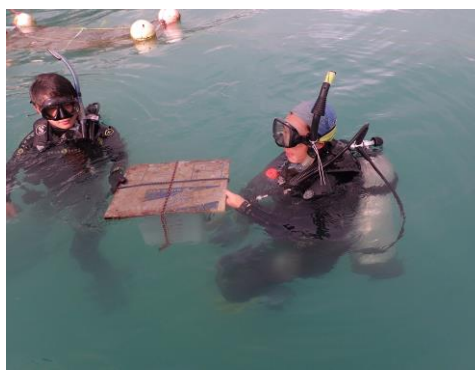
COMMIT TO SDG 14 - REGISTER VOLUNTARY COMMITMENT

100

VOLUNTARY
COMMITMENTS

Development and strengthening of the regional research and monitoring network, as part of global efforts, on the ecological impacts of ocean acidification on coral reef ecosystems in the Western Pacific and its adjacent regions in support of the SDG 14.3 by Intergovernmental Oceanographic Commission of UNESCO, via its Sub-Commission for the Western Pacific (WESTPAC) (United

#OceanAction15274



VOLUNTARY COMMITMENTS

COMMIT TO SDG 14 - REGISTER VOLUNTARY COMMITMENT

100

VOLUNTARY
COMMITMENTS

Develop research capacity and transfer of marine technology through the UNESCO/IOC Regional Network of Training and Research Centers (RTRCs) on Marine Science in the Western Pacific and adjacent regions in support of the SDG 14.a

#OceanAction15266

by Intergovernmental Oceanographic Commission of UNESCO, via its Sub-Commission for the Western Pacific (WESTPAC) (United Nations entity)



Join the collective efforts!



Email: w.zhu@unesco.org

<http://iocwestpac.org>

<http://ioc.unesco.org>