

Outline for the progress report on (Coral Reef Restoration)

1. Introduction and justification

At present, many world's ecosystems including coral reefs have undergone significant degradation through natural and anthropogenic causes. Although healthy ecosystem will eventually recover naturally, reducing causes of degradation through effective management measures will help in recovery. However, direct intervention through active and passive restoration can be another option for conservation and sustainability.

Restoration and rehabilitation of coral reefs has become an important topic and major activity in many countries particular in the Southeast Asian region. This is because significant food sources for half a billion people worldwide are derived from coral reefs, and the livelihood of many people depend on these degraded coral ecosystems. Currently, several techniques of coral restoration are available and can be applied. This project aims to consolidate and share techniques used or available for coral restoration in the Western Pacific Region including lessons learned. This Project had been implemented through members from China, Indonesia, Japan, Korea, Malaysia, Singapore, Thailand, and Vietnam with Department of Marine and Coastal Resources (Thailand) and Chulalongkorn University as coordinators.

2. Timeframe and objectives

Coral Reef Restoration (2018-Present)

(Earlier name was Coastal Marine Biodiversity and Conservation in the Western Pacific from 2009-2018)

Plan to be carried on at least 5 years

Objectives:

1. To understand and provide the scientific basis for coral reef management, conservation, and restoration by articulating the state of the science with respect to current and emerging stressors
2. To establish the effective management plan and monitoring programs for coral reef conservation and restoration among WESTPAC country members
3. To encourage research collaboration and to exchange knowledge among WESTPAC countries

3. Major activities, outputs & outcomes over the last intersessional period (May 2021-April 2023)

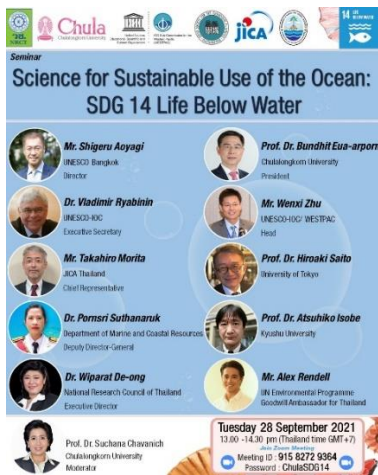
1. A Series of virtual seminars related to coral reef restoration and SDDs were organized

Three series of virtual seminars were organized during September 2021. These included

- 1) Current coral reef restoration in a changing world,
- 2) Coral reef restoration in Thailand and future plans,
- 3) Science for sustainable use of the Ocean: SDG 14 life below water.

A total of 321 participants from more than 9 countries attended the seminars. The results of these seminars were distributed in the media through newspapers and can be found in the website at <https://www.chula.ac.th/news/53268/>.

Restricted distribution



2. Co-organizing a virtual symposium “Conservation and restoration in a changing world” under the 47th International Congress on Science, Technology, and Technology-based Innovation: Sciences for SDGs: Challenges and Solutions

During October 5-7, 2021, a virtual symposium “Conservation and restoration in a changing world” was organized under the 47th International Congress on Science, Technology, and Technology-based Innovation: Sciences for SDGs: Challenges and Solutions. IOC/WESTPAC Project on Coral Reef Conservation and Restoration was a co-organized in the symposium. More than 119 participants from 10 countries attended in the symposium. In addition, Dr. Kentaro Ando from the IOC/WESTPAC office presented a talk titled “Research of IOC/WESTPAC”.



3. Disseminating results through scientific papers and new records of nudibranchs were found

Restricted distribution

Two scientific papers were published with contributions by scientists from WESTPAC countries under the network of Coral Reef Conservation and Restoration Project. The IOC/WESRPAC and the UNESCO Japanese Funds in Trusts were acknowledged in the papers.

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RESEARCH ARTICLE

A peer-reviewed open-access journal
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An updated inventory of sea slugs from Koh Tao, Thailand, with notes on their ecology and a dramatic biodiversity increase for Thai waters

Rahul Mehrotra^{1,2}, Manuel A. Caballer Gutiérrez^{3,4}, Chad M. Scott⁵,
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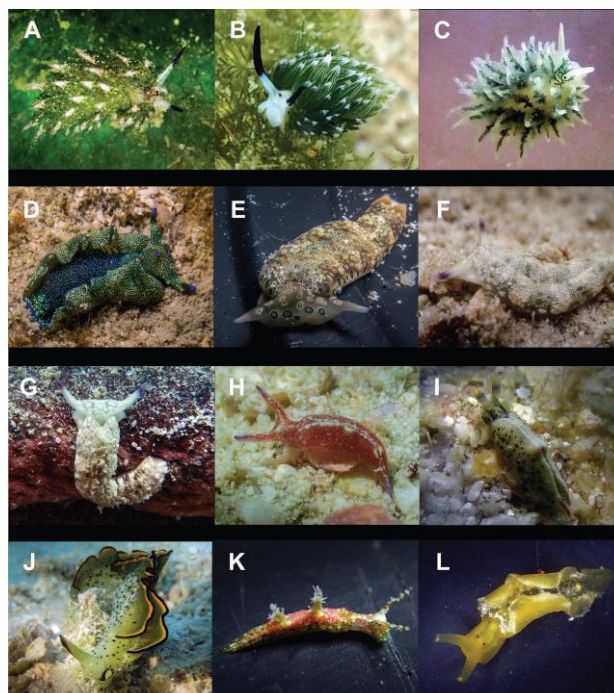
Variation of Carbon–Nitrogen Contents and Allelopathic Disruption of Renieramycin M–Producing Sponge *Xestospongia* sp. in the Gulf of Thailand

Udomsak Darumas^{1*}, Gad Elsayed Mohamed Salem^{2*}, Khanit Suwanborirux³,
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4. A summary of key achievements since its establishment

1. Information exchange on subjects related to coral conservation and restoration related to SDG 14 through series of seminars
2. Two publications related to coral reef biodiversity and restoration
3. Increase the publicity of the project through collaborations with other organizations in arranging additional activities such as conferences and seminars.

5. Self-assessment on implementation against objectives

The project has been implemented through several activities during the period of intergovernmental session. However, due to travel constraints, this made face to face meetings or hands on experiences impossible. Since at present, there is no travel restriction, activities proposed in the next intersession will be accomplished and implements following objectives.

6. Problems encountered and recommended actions

Because of the COVID 19 pandemic, some activities have been forced to be temporary paused or postponed. However, the virtual activities were attempted to conduct.

7. Objectives to be achieved, if applicable, over the next intersessional period (May 2023- April 2025)

1. Synthesis and combination of knowledge and lessons learned on coral reef restoration and conservation in the WESTPAC region in the aim of ocean decade will be carried for technology transfer between and within countries.
2. Community/youth outreach and science communications will be carried to help inspiring future leaders in coral reefs and conservations in both virtual and in person ways.

8. Planned activities for May 2023- April 2025

1. Series of seminars related to advanced applications of coral restoration for sustainability are planned to disseminate an up-to-date on coral restoration information/applications for the WESTPAC member countries
2. Photo competitions on coral restoration are planned to be organized. This will allow to increase the awareness on coral conservation and to increase science communications both inside and outside of scientific communities.

[provide, in tabular form, the action items that should be included in the work plan and budget]

Program	Activities	Objectives	Expected outputs/outcomes	Date and place	Funding Required		Remark
					IOC	Other sources (i.e. from national or international)	
Coral Reef Conservation and Restoration	1. Series of seminars: Advanced applications of coral reef conservation and restoration in the WESTPAC region	1. To update advanced applications related to coral reef conservation and restoration 2. To summarize all coral restoration and conservation techniques available within the Western Pacific region and outside the regions 3. To promote those techniques among WESTPAC member countries	Report/scientific paper	May 2023-April 2024		7 K USD from National Research Council of Thailand and Japan Fund in Trust	
	2. Photo competition: Raise awareness of coral restoration in the WESTPAC region	1. To promote the awareness of coral restoration and conservation among WESTPAC member countries	Photos	May- December 2023		10 K USD from Japan Fund in Trust and from National Research Council of Thailand	
	3. Workshop: updating activities of project coral reef conservation and restoration in the WESTPAC region	1. To disseminate the synthesis data on coral restoration techniques through scientific communities 2. To have a guideline on reef rehabilitation for reef managers in Southeast Asia region	Book	December 2023		From a book publisher	