Member's report on activities related to ICRI

Reporting period December 2015 – November 2016

1. **Contribution to the ICRI Plan of Action and GM.** *Your responses to the following questions will assist the Secretariat in assessing contributions towards the major themes of the current ICRI Plan of Action (http://www.icriforum.org/icri-secretariat/current) and objectives of the general meeting.*

   a. Bleaching event

Were you affected by the Third Global Coral Reef event? Did you do some monitoring, if yes what are the results and could you explain what method did you use? Would you like to report during the ICRI Meeting?

Coral reefs in Thai waters were affected by the 2016 coral bleaching event. Department of Marine and Coastal Resources (DMCR), Department of National Parks, Wildlife and Plant Conservation (DNP) and universities have monitored the coral bleaching impacts on coral reefs.
The Thailand's Coral Bleaching Taskforce 2016 was initiated by the Marine Science Association of Thailand (MSAT) and networks of coral reef researchers, conservation groups, tour operators to evaluate coral bleaching situation, and provide recommendation to deal with coral bleaching to public sectors and government agencies.

Coral reefs of 102 sites of 73 islands were surveyed by using several methods depending on the capacity of surveyors and the detail needed, including line intercept transect, photo-belt transect, and visual census. From the rough analysis, 37 sites were severely bleached (bleached over 50% relatively to the existing live coral cover) and 65 sites were moderately bleached (bleached 10%-50% relatively to the existing live coral cover). The coral mortality rates following the bleaching event were relatively low due to the influence of early monsoon causing decrease of SST. Thirty two sensitive reef areas were temporarily closed to minimize human impacts and protection of important coral reefs. Reporting (presentation) will be made during ICRI GM31.

   b. ***INDCs - Intended Nationally Determined Contributions*** *– Did your national contribution mention 'marine ecosystems or coral reefs'? Would you be interested in joining an Ad Hoc committee to develop guidelines to integrate coral reefs in the INDC?*
   Thailand's INDCs did not obviously mention about the marine ecosystems or coral reefs. We are interested in joining an Ad Hoc committee to develop guidelines to integrate coral reefs in the INDC.

   c. Nature-based Solutions to address Climate Change - *Do you have some example(s) of Nature-based (coral reef and related ecosystems) Solutions to address climate change? If yes, could you please provide use some details?*
   IUCN France (2016) stated that "In Thailand, studies based on satellite imagery taken between 1967 and 1998 showed that areas where mangroves have been preserved had coastal erosion rates significantly lower than the areas where they have been degraded. An economic assessment of the benefit provided by mangroves as avoided damage estimates the average benefit as US $ 187,898 (or € 140,924) per mangrove square kilometer."
   (Source: IUCN France (2016). Nature-based solutions to address climate change. Paris, France)

d. ***UN Sustainable Development Goals*** *– Do you have example(s) showing how coral reefs and related ecosystems address the SDG (SDG 14 but also other related ones such as SDG 1 – End poverty in all its form; SDG 2 – End hunger, achieve food security and improved nutrition…)*

- Raising public awareness on conservation and protection of coral reef fish, particularly parrotfish
- Establishing coral reef resilience indicators to promote coral reef resilience to climate changes
- Effectively regulate overfishing, illegal fishing, unreported fishing and destructive fishing practices and implement fishery management plans to restore fish stocks
- Establishing new marine protected areas
- Increase the economic benefits to local communities and the country from the sustainable management of fisheries, aquaculture and tourism

e. *Do you have notional measure(s) – existing or in development - to ban the sale and manufacture of cosmetics and personal care products containing plastic microbeads? And plastic bags?*

Raising public awareness and having some measures to reduce using plastic bags
(Note that we are also starting study more intensively on the impact of microplastic and marine debris to marine life)

f. ***Upcoming events -*** *Do you plan to attend:*

- *November 2016 - Marrakech Climate Change Conference / The twenty-second session of the Conference of the Parties (COP 22)- Yes*
- *December 4, 2016 to December 17, 2016 - Convention on Biological Diversity COP13- Yes*
- *June 2017* - Oceans & Seas Global Conference, Fiji- *Yes*
- Other(s):

2. **Updates on your activities.** The following table is a summary of ICRI's *Framework for Action* (FFA) and its four cornerstones. (The full text of the FFA is available in English, French, and Spanish at http://icriforum.org/icri-documents/icri-key-documents/continuing-call-action-2013).

Integrated Management	**Objective**	**Manage coral reefs and related ecosystems using an ecosystem approach, recognizing place based activity; connectivity within and among ecological, social, economic, and institutional systems; as well as with attention to scale; resilience of ecological and social systems; and long-term provision of ecosystem services.**
	General Approach	**Integrated management, using a strategic, risk-based, informed approach, provides a framework for effective coral reef and related ecosystem management which supports natural resilience, ecosystem service provision, and enhances the ability to withstand the impacts of climate change and ocean acidification.**
	Desired outcome	**There is a demonstrable reduction in the threats to coral reefs and related ecosystems through management action.**
Capacity Building	**Objective**	**To build capacity in all facets of management of coral reefs and related ecosystems and support dissemination and application of best practices to achieve the widest possible engagement of all stakeholders in planning and management activities.**
	General Approach	**Continued collaboration, partnerships, outreach, information sharing and education to ensure the uptake of best practices and encourage behavioural change. This can only be successful if the diversity of cultures, traditions and governance among**

		nations and regions are taken into account.
	Desired outcome	Persons who have influence in the management of coral reef and related ecosystems have the knowledge, tools and capital necessary to apply best practices, adapted to the cultural and socio-economic context.
Science & Monitoring	Objective	To support research and citizen science approaches to enable countries and communities assess and report on the status of and threats to their coral reefs and related ecosystems in a coordinated, comparable and accessible manner.
	General Approach	Research and monitoring programs are essential to ensure that management of coral reefs and related ecosystems is based on best available (scientific) information.
	Desired outcome	Knowledge of the status and trends in coral reefs and related ecosystems health is enhanced and used to inform planning and management, improving management outcomes.
Periodic Assessment (Review)	Objective	To engage in periodic review of the impact and effectiveness of all elements of management to enable evaluation and refinement of management measures in an adaptive framework.
	General Approach	Periodic assessments of management effectiveness and evaluation of projects and activities to ensure the efficacy of management tools and systems in tackling the range of pressures affecting coral reefs and related ecosystems and protecting the values associated with them.
	Desired outcome	Management processes and activities are regularly reviewed and improved using a structured approach, to enhance their ability to effectively reduce pressures and threats.

Using the table on the previous page, as well as the detailed descriptors of approaches and strategies available in the full text of the FFA as a reference, please give us an update on an activity/project/program(s) which has been particularly successful in your country/organization during this reporting period.

Project 1

Cornerstone(s) implemented through the project	Check all that apply: ☒ Integrated Management ☒ Capacity Building ☒ Science & Monitoring ☒ Periodic Assessment (Review)
Project Title	Managing Marine and Coastal Resources to Cope with Climate Changes
Location	Gulf of Thailand and the Andaman Sea
Dates	2015 - 2019
Main Organizer(s)	Department of Marine and Coastal Resources
Main Stakeholder(s)	-
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	The project focuses on managing marine and coastal resources, including surveys and assessment of marine and coastal resource status, increasing management effectiveness of marine and coastal resources, developing information and communication technology (database including GIS, MIS, KM), raising good governance in managing marine and coastal resources and enhancing marine and coastal resources conservation. Public participation is encouraged in all activities.
Outcome (Expected outcome)	- A large area of mangrove forests is effectively managed. - The illegal shrimp ponds as a result of mangrove encroachment have been gradually seized. Replanting of mangrove forest with public participation is made in the seized area. - Marine endangered species and important marine ecosystems are assessed, protected and restored.

	- The update of reef status maps and the coral reef resilience maps are ready for using in management planning. A large area of marine and coastal resources including important marine ecosystems is successfully managed. - Certain instruments and mechanisms for managing marine and coastal resources are effectively applied. - A new marine protected area (for coral reef and sea turtle nesting) is expected to announce within 2016.
Lessons learned	- Measures for conservation and protection of marine and coastal resources. - Measures for protection of certain marine endangered species. - Proposed research projects for coral reef resilience to climate changes. - Proposed frameworks for marine spatial planning.
Related websites (English preferred)	www.dmcr.go.th

Project 2

Cornerstone(s) implemented through the project	Check all that apply: ☒ Integrated Management ☒ Capacity Building ☒ Science & Monitoring ☐ Periodic Assessment (Review)
Project Title	Monitoring Coral Recovery and Management of Coral Reefs in Marine National Parks Following the Coral Bleaching Event
Location	Gulf of Thailand
Dates	2016
Main Organizer(s)	Chumphon Marine National Parks and Protected Areas Innovation Center, Department of National Parks, Wildlife and Plant Conservation, Chumphon Province, THAILAND
Main Stakeholder(s)	Department of National Parks, Wildlife and Plant Conservation
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	The project aimed to monitor the impacts of coral bleaching event on coral reef ecosystem and the potential of coral recovery in marine national parks. The project also enhanced capacity building for researchers of the Department of National Parks, Wildlife and Plant Conservation and provided recommendation and a management plan for sustainable uses of coral reefs in the marine national parks.
Outcome (including expected outcome)	- Knowledge on impacts of coral bleaching and potential of coral recovery in the marine national park; - Measures for rehabilitation of degraded coral reefs with participation of other stakeholders; - Geographic information database for physical-biological parameters, sensitivity, vulnerability, resilience, restoration guidelines, measures for prevention and mitigation of impacts at particular reef sites; - Enhancing capacity of young researchers, publishing scientific papers; - Management plan for diving sites in the marine national parks.
Lessons learned	Require long-term monitoring program and financial supports
Related websites (English preferred)	www.dnp.go.th

Project 3

Cornerstone(s) implemented through the project	Check all that apply: ☒ Integrated Management ☒ Capacity Building ☒ Science & Monitoring ☐ Periodic Assessment (Review)

Project Title	Monitoring Coral Recovery and Management of Coral Reefs in Marine National Parks Following the Coral Bleaching Event
Location	The Andaman Sea
Dates	2016
Main Organizer(s)	Phuket Marine National Parks and Protected Areas Innovation Center, Department of National Parks, Wildlife and Plant Conservation, Phuket Province, THAILAND
Main Stakeholder(s)	Department of National Parks, Wildlife and Plant Conservation
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	The project aimed to monitor the impacts of coral bleaching event on coral reef ecosystem and the potential of coral recovery in marine national parks. The project also enhanced capacity building for researchers of the Department of National Parks, Wildlife and Plant Conservation and provided recommendation and a management plan for sustainable uses of coral reefs in the marine national parks.
Outcome (including expected outcome)	- Knowledge on impacts of coral bleaching and potential of coral recovery in the marine national park; - Measures for rehabilitation of degraded coral reefs with participation of other stakeholders; - Geographic information database for physical-biological parameters, sensitivity, vulnerability, resilience, restoration guidelines, measures for prevention and mitigation of impacts at particular reef sites; - Enhancing capacity of young researchers, publishing scientific papers; - Management plan for diving sites in the marine national parks.
Lessons learned	Require long-term monitoring program and financial supports
Related websites (English preferred)	www.dnp.go.th

Project 4

Cornerstone(s) implemented through the project	Check all that apply: ☒ Integrated Management ☒ Capacity Building ☒ Science & Monitoring ☐ Periodic Assessment (Review)
Project Title	Recovery Potential of Corals from the 2010 Coral Bleaching Event at Mu Ko Surin, Mu Ko Similan and Mu Ko Phi Phi
Location	Mu Ko Surin, Mu Ko Similan and Mu Ko Phi Phi, the Andaman Sea
Dates	2016
Main Organizer(s)	Marine Biodiversity Research Group, Faculty of Science, Ramkhamhaeng University, Thailand
Main Stakeholder(s)	universities, MPA managers, local communities, tourist companies
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	The project examines potential of coral recovery at several reef sites in the Andaman Sea. It is hypothesized that coral recruitment is a limiting factor for recovery of coral communities. Knowledge on coral recruitment at the study sites can be applied for coral reef restoration projects in Thailand. The major concerns of coral reef restoration were simple and cheap techniques and methods, involvement of local communities, private sector and NGOs, selecting high tolerant coral species to bleaching and multi-species of coral transplantation.
Outcome (Expected outcome)	The potential for recovery of reefs from coral bleaching since 2010 around the Surin, Similan And the Phi Phi Islands can be assessed for implementation of appropriate measures and methods for restoring degraded reefs, according to the local conditions. This project also highlights the importance of mitigation measures to cope with additional anthropogenic stressors on coral reefs in the Andaman Sea.
Lessons learned	Lessons learned from coral reef restoration activities in Thailand have shown that prevention and mitigation of coral reef degradation are more important than active coral reef restoration. However, coral reef restoration projects may be carried out in limited demonstration areas where they can be easily controlled and managed for the benefits of tourism and education

Related websites (English preferred)	www.thaicoralreef.in.th

Project 5

Cornerstone(s) implemented through the project	Check all that apply: ☒ Integrated Management ☒ Capacity Building ☒ Science & Monitoring ☐ Periodic Assessment (Review)
Project Title	Recruitment and Genetic Connectivity of Corals in the Gulf of Thailand
Location	Gulf of Thailand
Dates	2016 - 2017
Main Organizer(s)	Marine Biodiversity Research Group, Faculty of Science, Ramkhamhaeng University, Thailand
Main Stakeholder(s)	Ramkhamhaeng University
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	The project aims to investigate coral recruitment patterns and genetic connectivity of coral in the Gulf of Thailand following the impacts of global climate change and anthropogenic disturbances. It is expected to determine measures and guidelines for management of coral reefs with emphasis on community participation. The project also improve geographical information database concerning sensitivity, vulnerability, resistant, resilience and guidelines for managing sustainable uses of coral reefs in Thailand.
Outcome (Expected outcome)	- Knowledge on coral recruitment and potential of coral recovery in the Gulf of Thailand; - Appropriate coral rehabilitation programs with community participation; - Improving geographic information database for coral reef research, conservation and management; - Capacity building for coral reef scientists in Thailand; - Publishing research papers in international journals.
Lessons learned	Long-term research funding for studies on ecology and molecular genetics of coral reef organisms is needed.
Related websites (English preferred)	www.thaicoralreef.in.th

Note: If you have more activities/projects/programs you would like to report on or share with other members, please duplicate the table above and fill it in for as many projects as you wish.

3. **Publications.** Please list relevant publications/reports you have released during this reporting period.

Title (incl. author and date)	**Website URL if available**	**Type of publication** (Paper, report, etc.)
Conservation of reef corals in the South China Sea based on species and evolutionary diversity; D. Huang, B. W. Hoeksema, Y. A. Affendi, P. O. Ang, C. A. Chen, H. Huang, D. J. W. Lane, W. Y. Licuanan, O. Vibol, S. T. Vo, T. Yeemin, L. M. Chou, February 2016	http://link.springer.com/ (Biodiversity and Conservation)	Paper
Ceradocus adangensis, a new species (Crustacea, Amphipoda, Maeridae) from coral reefs of the Andaman Sea ; K. Wongkamhaeng, C. Boonyanusith, March 2016	http://link.springer.com/ (Marine Biology)	Paper
Prey selection of corallivorous muricids at Koh Tao (Gulf of Thailand) four years after a major coral bleaching event; M. S. Moerland, C. M. Scott, B. W. Hoeksema. March 2016	http://repository.naturalis.nl/document/639695 (Contributions to Zoology)	Paper
The modification of water column conditions in the Gulf of Thailand by the influences of the South China Sea and monsoonal winds; A. Buranapratheprat, P. Luadnakrob, T. Yanagi, A. Morimoto, F. Qiao, April 2016	http://www.sciencedirect.com/ (Continental Shelf Research)	Paper

4. **General Information.** (Note that this information will be posted on the ICRI website on your member page: http://www.icriforum.org/about-icri/members-networks.)

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Thank you very much for sharing your valuable experiences and information with ICRI.