



THE EAST ASIAN SEAS CONGRESS



## Charting a New Decade of Healthy Oceans, People and Economies

1-2 DECEMBER 2021 • Hosted by the Royal Government of Cambodia

Collab 10

## Sustainable Interactions with Marine Ecosystems

20 October 2021, 2:30 PM - 5:30 PM (GMT+7)  
Online via Zoom

### ORGANIZER:



Blue Communities



Partnerships in Environmental  
Management for the Seas  
of East Asia (PEMSEA)

## **Collab 10: Sustainable Interactions with Marine Ecosystems**

20 October 2021, 2:30 PM – 5:30 PM (GMT+7)

Online via Zoom

### **PROCEEDINGS**

#### **1. INTRODUCTION**

The Collab Event organized by the GCRF Blue Communities programme office entitled “Sustainable Interactions with Marine Ecosystems” comprised 2 series of short presentations from project partners from Indonesia, Malaysia, Philippines and Vietnam, who presented their research and findings, each followed by panel sessions and then an opportunity for networking. The research highlighted the challenges faced by coastal communities in four case study sites, three of which are UNESCO Biosphere Reserves, and the fourth is a gazetted Marine Park.

The event brought together key actors from the Southeast Asia region interested in coastal communities and marine resources, academic researchers from Southeast Asia and the United Kingdom, as well as interested parties in marine management and policy. Representatives from each of GCRF Blue Communities 10 partner organizations and institutions were invited to present their work and participate in panel sessions sharing lessons learned from:

- Facilitating collaborative exchange among international partners to deliver and build capacity in interdisciplinary research
- Applying relevant research tools to address the challenges of coastal communities
- Disseminating the research findings to support coastal management decisions, and informing future efforts

This event provided a forum for the presentation and discussion of:

- The ecosystem services from natural capital in the Southeast Asia region
- Predicted changes in marine resources due to climate change, and how to prepare for the changes
- Trade-offs between conflicting demands on marine resources from different users
- Links between the marine coastal environment, ecosystems and human health
- Strategies for effective communication with, and engagement of stakeholders

#### **2. WELCOME & INTRODUCTION TO THE GCRF BLUE COMMUNITIES PROGRAMME**

Prof. Melanie Austen, Professor of Ocean and Society at the University of Plymouth, UK and the Director of the GCRF Blue Communities programme, provided an overview of the Blue Communities 4-year programme. She outlined the objectives of the programme, to provide integrated management of marine and coastal environment to: reduce conflict between

users; mitigate risks associated with expanded or new uses of these environments whilst also protecting fragile ecosystems; and support livelihoods, food security, health and well-being of coastal communities. The work by Blue Communities comprises a partnership between 3 academic partners in the UK, 3 non-governmental organizations with offices in the UK, and 4 academic partners in Southeast Asia. It is focused on 4 case studies: 3 UNESCO Biosphere Reserves (Cu Lau Cham – Hoi An, Vietnam, Palawan, Philippines, Taka Bonerate – Kepulauan Selayar, Indonesia); and a gazetted Marine Park in Malaysia (Tun Mustapha Park, Sabah).

Prof. Austen continued by explaining how marine spatial planning brings together multiple users of the ocean to make informed and coordinated decisions on how an ocean area is being used. The key aims of the GCRF Blue Communities programme are to build research capability and to address the UN Sustainable Development Goals (SDG1 No poverty, SDG 2 Zero Hunger, SDG Good health and wellbeing and SDG14 Life Below Water). The research that is being conducted is meeting a number of challenges including promoting sustainable harvesting in aquaculture, preparing for climate change and promoting good health.

The research is being conducted through a series of twelve interrelated and interdisciplinary research projects, these consider human and ecosystem health, ecosystems services and their trade-offs, small scale tuna fisheries, governance and decision making, ecosystem modeling under climate change and scenario planning with local communities. Through training activities and co-development of research with local communities and research, lessons learned are being shared with researchers and stakeholders.

### **3. SESSION 1 – HEALTHY ECOSYSTEMS AND HEALTHY PEOPLE**

A series of presentations were given by early career researchers from the Blue Communities team around the topic of healthy ecosystems and the links with healthy people. Representatives from Indonesia, United Kingdom and Vietnam presented some of their research findings and a panel session followed.

- 3.1 Mr. Carya Maharja, Centre for Sustainable Energy & Resources Management (CSERM), Universitas Nasional, Indonesia talked about "Ecosystem services from natural capital with examples from Indonesia". The case study site was Taka Bonerate Kepulauan Selayar Biosphere Reserve, where data from residents from the Bontosikuya District in the transition zone of the Biosphere Reserve was collected, along with habitat mapping which identified large coral reef habitats in the area. Also the team measured a high marine biodiversity (in particular fish biodiversity) and terrestrial diversity with many bird species on the islands subsisting on fish. To understand the ecosystem that coastal and marine ecosystems provide and the benefits to the local people, surveys were conducted to establish the socio-economic characteristics of the population. The income of the majority of the sampled population was below the regional (Selayar) minimum wage, concurring with this finding a majority of those sampled also were without higher education qualifications. However, those working in the fisheries sector appeared to be in a declining trend since 2009. The analysis of regional statistical data since 2014 showed a reduction in the quantity of captured fish since that time, whilst over a similar period, a rise in the number of visiting tourists to the area was observed. From participatory mapping research, the main driver of the transition in livelihoods was perceived to be a reduction in fish stocks, possibly due to destructive fishing practices in

adjacent islands, as well as increase in tourism opportunities. Trade-offs were identified between maintaining traditional areas with cultural and spiritual values in coastal areas, which might also be considered by private investors for development that could provide benefits in economic sectors. In summary, consideration of ecosystem services in the case study has highlighted the complex relationship that people have with the sea.

- 3.2 Dr. Olivia Langmead, University of Plymouth, UK, talked about the mapping and modeling of ecosystem services in Southeast Asia. Evidence linking habitats with the ecosystem services they provide underpins ecosystem service assessment and provides the important linkages between marine ecosystems and coastal communities. Marine habitats provide a wide range of ecosystem services (including provisioning, regulating and cultural ecosystem services) which in turn provide societal benefits. A comprehensive review of 18 ecosystem services across 13 different habitats from nearly 500 reports and peer-reviewed pieces of evidence was presented. Examples of how ecosystem matrices together with habitat maps can be used to map the potential for habitats to provide high levels of ecosystem services in Palawan, Philippines were presented. However, it was highlighted that human activities such as fishing, aquaculture and tourism activities also need to be taken into account. Pressures resulting from human activities can damage habitats, causing degradation and habitat loss. Examples of participatory activity mapping in Tun Mustapha Park, Sabah, Malaysia were described, as well as an analysis framework for identifying activities-pressure linkages and the resulting impact risks. Understanding the pressures and risks both on habitats and the ecosystem services can enable prioritization for coastal management. Bayesian Belief Network modeling brings together all of the information to better understand the different potential ecosystem supply versus activities and pressures, and can then be used to explore management scenarios and evaluate consequent trade offs in ecosystem service supply. These outputs will help to inform natural resource management and marine planning to identify the most vulnerable habitats and ecosystem services.
- 3.3 Dr. Bethany Roberts, University of Exeter, UK, talked about the links between the marine coastal environment, ecosystems and human health focusing on well-being and the risks of coastal living. The ocean poses many risks as well as benefits to humans. A survey was co-created with researchers and stakeholders in the Philippines and further developed and applied in each of the 4 case study areas. It evaluated people's perceptions of the marine environment, what they consider is affecting the marine environment, what their interactions with the marine environment are and how the marine environment affects their health and wellbeing; a quality of life survey was included and demographic information was also collected. In total, surveys from over 1500 respondents were completed from across the 4 case studies. Of the marine interactions, livelihoods, day-to-day living and environmental management activities were identified in all case study sites. It was perceived that environmental management tools have improved the quality of the local coastal environment. The policies and management methods, however, need to be tailored to the health needs of each community.
- 3.4 Dr. Nguyen Tha Ha, Hanoi National University of Education, Vietnam, talked about the drivers and pressures on the marine coastal environment as perceived by the local communities in Cu Lao Cham Hoi An Biosphere Reserve in Vietnam. The archipelago was designated as a

marine protected area to protect the coral reefs. Overall 123 respondents were from the islands and 129 respondents were from the mainland. Through the application of exploratory factor analysis, similarities were observed between the mainland and island communities in the pressures and drivers such as destructive fishing and population growth not being important for both. However, overfishing was only considered a problem by the communities living on the island, whilst illegal fishing was only considered to be an issue by those living on the mainland. Also Nipa palm harvesting was only important for the island communities, whilst alternative livelihoods was only important for the mainland communities. The COVID-19 pandemic has impacted the livelihoods more so for the mainland communities. Waste management was perceived to be the worst environmental pressure in both the island and mainland communities. Conservation efforts have been perceived to have been beneficial and increased local stakeholder awareness and contributed to the implementation of policies which have limited coastal development in the proximity of Nipa palm forests. This has improved these areas' resilience to the effects of extreme weather and the effects of climate change events. Additionally, an increase in ecotourism has improved the opportunities for the local people for jobs. However, the growing rates of tourism have had detrimental effects on the amounts of plastic entering the landfill and untreated waste entering the river and coastal marine environment. Additionally, the rapid development of accommodation for tourists has increased coastal erosion, popular tourist activities have impacted the coral reef as they become exposed to more visitors, and the higher demand for seafood has increased the level of imports from the mainland and illegal fishing from the Cu Lao Cham coast. Increased shrimp farming has also contributed to mangrove encroachment and intensified farming methods are affecting the quality of the coastal marine environment.

- 3.5 A Panel Session with all the presenters from session 1 (Prof Melanie Austen, Mr Carya Maharja, Dr. Olivia Langmead, Dr. Bethany Roberts, Dr. Nguyen Thu Ha) and Prof. Bruce Maycock (Asia Pacific Academic Consortium for Public Health (APACPH)) discussed how to bridge research on the supply of ecosystem services with the research on demand for the benefits; how to ensure social inclusion; and how to improve health of the communities.

#### **4. SESSION 2 – MULTIPLE USERS OF THE MARINE ENVIRONMENT, IMPACTS OF CLIMATE CHANGE, AND COMMUNICATING THE SCIENCE**

- 4.1 Dr. Wan Mohd Syazwan, Universiti Putra Malaysia and formerly Blue Communities Universiti Malaya, talked about the predicted changes in marine resources due to climate change in the case study site, Sabah, Malaysia. The coastal populations are highly dependent on fisheries for their livelihoods. Sabah's live reef fish accounts for 40% of the total country's export, approximately 40% of the top 10 landed seafood species are pelagic species and 16.5% of the top 10 species are demersal species. Historical trends of fisheries resources in Sabah (from 2000-2018) have seen declining fishery stocks. With the application of climate models to project future changes of fisheries resources in Sabah under different climate change scenarios and considering different levels of fishing pressures, the fishing productivity is predicted to continue to decline under business as usual climate scenarios. Demersal fish species would be more impacted than pelagic fish species which will have a negative impact on traditional fisheries and fishers' livelihoods. To ensure climate resilient fisheries management, the control of fisheries exploitation (such as the ban on destructive fishing

gears) and ensuring sustainable fisheries management, combined with climate change mitigation is required to provide sustainable food security and improved coastal livelihoods.

- 4.2 Miss Karen Madarcos & Prof. Lota Alcantara-Creencia, Western Philippines University presented their examples from Palawan on how to effectively communicate and engage with stakeholders. Household and key informant interviews as well as focus group discussions have provided the data to understand the perceptions, aspirations and stories about the benefits and risks of living in coastal communities. The results of their research have been communicated through information, and targeted communication and education campaigns. These considered the cultural, lingual and social backgrounds to ensure that the materials were relatable and easy to understand by sectoral representatives. By using familiar and local terms to explain ecosystem services, and how these impact their daily lives including their food, livelihoods, history, mental health and culture. By presenting the threats to the ecosystems they used local examples, situations and experiences. By recognizing and having strong empathies with the local populations' knowledge of the ecology, this helps to shape the policies. Also, seminar workshops on mangroves, sea cucumber and seaweed farming and translating of the technical terms helped to engage the stakeholders. Community led sustainable initiatives such as mangrove seedling planting events have been successful. Artworks have also been a platform for communicating the links between ocean health and human health and an informative calendar has been used to disseminate messages to the communities on the ways they can contribute to environmental protection strategies. By building trusting relationships, Blue Communities has helped the engagement with the local stakeholders and encouraged the communities to come up with solutions to their local issues.
- 4.3 Dr. Isabel Richter, University of Plymouth and NTNU, talked about the effects of creative engagement for sustainable behavior change. By looking at future scenarios and sustainable behavior-change made by the communities themselves, the human dimension was integrated into scenario development. Co-creation of communications about the future with the communities and the local research partners was a powerful method to engage. This created a common language, provided mutual understanding and learning, and ensured inclusion and participation. Different activities to create scenarios included the application of photovoice, theater plays, the painting of murals, writing songs, creation of comics and short videos. The psychological and emotional effects were observed to increase in altruistic or transcendent goals when participants had engaged with the activities such as the mural painting. The intentions to contribute to a more sustainable way of living following participation in the photovoice and film-making, as well as those who had seen the comic book which explained the impacts of fish bombing. The communications that were emotion eliciting, had specific solutions, and were relevant for the target group were more effective.
- 4.4 Dr. Matthew Fortnam, University of Exeter, talked about navigating marine conservation-development trade-offs in Southeast Asia. The team has been co-designing tools and approaches to making the hard decisions about acceptable and unacceptable trade-offs. Trade-offs arise when an intervention or decision results in gains for some objectives, ecosystem services, stakeholders or economic sectors at the cost of others. To develop a trade-off tool for practitioners, a number of senior marine technical advisors in Southeast Asia were interviewed and it was found that whilst they recognized trade-offs from interventions,

they discussed strategic trade-offs as a priority. Trade-offs can be identified using decision support tools, community and participatory-based processes, learning by doing approaches, and monitoring and evaluation; but understanding can be limited by the models used and the data available. Incremental approaches can win community acceptance and build trust. A Marine Planning Trade-Off Analysis is being piloted.

- 4.5 A Panel Session with all the presenters from session 2 (Prof Melanie Austen, Dr. Wan Mohd Syazwan, Prof. Lota Creencia, Miss Karen Madarcos, Dr. Isabel Richter) and Prof. Nguyen Hoang Tri (Hanoi National University of Education, Vietnam), and Prof. David Mills (WorldFish), discussed how to share the learnings with other Biosphere Reserves; how to communicate from the local level to the wider world; how academics can ensure inclusion and emphasize the urgency to take action; and the extent to which policy makers use models in fisheries management.
- 4.6 Breakout groups were set up to enable participants to discuss specific questions with the Blue Communities' researchers and network with them.

## **5. CLOSING REMARKS**

Prof. Melanie Austen thanked all the speakers, panelists and participants for joining the Collab event.

## ANNEX 1. AGENDA.

### SESSION 1:

3:30 - 3:40 PM	<b>Introduction &amp; Welcome:</b> About GCRF Blue Communities - Building capacity for sustainable interactions with marine ecosystems for the benefit of the health, well-being, food security and livelihoods of coastal communities in East and Southeast Asia	Prof. Melanie Austen, University of Plymouth, UK
3:45 - 3:50 PM	<b>Ecosystem Services from natural capital in the Southeast Asia Region:</b> Examples from Indonesia	Carya Maharja, Universitas Nasional, Indonesia
3:55 - 4:00 PM	<b>Ecosystem Services from natural capital in the Southeast Asia Region:</b> Mapping and modeling ecosystems services	Dr. Olivia Langmead, University of Plymouth, UK
4:00 - 4:10 PM	<b>Links between the marine coastal environment, ecosystems and human health:</b> Well-being and risks of coastal living	Dr. Beth Roberts, University of Exeter, UK
4:10 - 4:20 PM	<b>Links between the marine coastal environment, ecosystems and human health:</b> Research in Cu Lao Cham Hoi An, Vietnam	
4:20 - 4:45 PM	<b>Panel Session:</b> Healthy Ecosystems and healthy people Questions from the audience and panel discussion	
4:45 - 4:55 PM	<b>Break</b>	

**SESSION 2:**

4:55 - 5:05 PM	<b>Predicted changes in marine resources due to climate change and how to prepare for them:</b> A case study in Sabah, Malaysia.	Dr. Wan Mohd Syazwan, Universiti Putra Malaysia & Blue Communities Universiti Malaya, Malaysia
5:05 - 5:15 PM	<b>Trade-offs between conflicting demands on marine resources from different users</b>	Dr. Matt Fortnam, University of Exeter, UK
5:15 - 5:25 PM	<b>Strategies for effective communication with and engagement of stakeholders</b> – Examples from Palawan	Prof. Lota Creencia & Karen Madarcos, Western Philippines University, Philippines
5:25 - 5:35 PM	<b>The effects of creative engagement for sustainable behavior change</b>	Dr. Isabel Richter, University of Plymouth/NTNU
5:35 - 6:00 PM	<b>Panel Session 2:</b> Multiple users of the marine environment; impacts of climate change and communicating the science Questions from the audience and panel discussion	Panelists (all speakers plus Prof Tri Hoang, Hanoi National University of Education, Vietnam and Prof David Mills, Worldfish)
6:00 - 6:30 PM	<b>Breakout Groups for Networking:</b> Room 1 Ecosystem Services & human health; Room 2 Climate Change & conflicting demands; Room 3 Communicating with stakeholders	All participants
6:30 PM	<b>Close</b>	

**ANNEX 2. LINK TO THE RECORDING.**

<https://youtu.be/1D5oj8rOQKI>