

IMBER Synthesis and Future Planning Conference (Future Oceans 3) Shanghai, China 13-15 May 2025

RAPPORTEUR

IMBER SYNTHESIS AND FUTURE PLANNING CONFERENCE (FUTURE OCEANS 3)

Session 11: International research and educational collaboration for sustainable tropical and subtropical marine ecosystems

Program

SESSION 11	INTERNATIONAL RESEARCH AND EDUCATIONAL COLLABORATION FOR SUSTAINA TROPICAL AND SUBTROPICAL MARINE ECOSYSTEMS	ABLE
Wed. 14 May	(UTC+8) 10:30-12:00 Click to find your local time	
Convenor	Hiroaki Saito	
Rapporteur	Suhendar I Sachoemar	
10:30 - 10:35	Welcome and Introduction	
Oral presentation 10:35 - 10:47	Ken-ichi Hayashiaki From JSPS CREPSUM to e-ASIA JRP: What we learned from long ti	[11-7] me
10:47 - 10:59	collaboration Abdul Ghaffar Global ecological adaptation for coastal regions	[11-2]
10:59 - 11:11	Suhendar I Sachoemar Implementation and strategic planning for connecting science and communities for sustainable seas: Case studies in dissemination of Ciguatera Fish Poisoning (CEP) in Gill Matra Lombok, Indonesia	[11-9]
11:11 - 11:23	Tahrim Jannat Mowsumi Advancing ocean modeling in the Bay of Bengal: Validating FIO-CON assessing wave-induced mixing effects	[11-8] /I and
11:23 - 11:35	Nadiah Wan Rasdi (online) Enhancing sustainable shrimp aquaculture: Effects of herb-enriched copepods on whiteleg shrimp (Litopenaeus vannamei) post-larvae in marine ecosystems	[11-4] tropical
11:35 - 11:47	Muta Harah Zakaria (online) Seagrass diversity in Malaysia and ecosystem services	[11-3]
Speed-Talk pre	sentations	
11:47 - 11:50	Ferdaus Mohamat Yusuff (online) Behavioral response of <i>Cerithidea</i> sp. to cold-water discharge in trop marine benthic environments	[11-5] ical
11:50 - 12:00	Discussion and Conclusions	

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No.	Time	Speaker/Presenter	Notes	
Welcome and Introduction				
1	10:30- 10:35	Hiroaki Saito	 The session introduced regional and international collaboration activities for solving scientific challenges, education and technology transfer in TASMEC. Tropical and subtropical marine ecosystems (TASMEC) are hotspots of biodiversity and provide a variety of ecosystem services, including food supply, water purification, tourism and cultural services. The marine ecosystem services in TASMEC are deteriorating because to anthropogenic perturbations including global warming and increased human activity. These include coral bleaching, eutrophication, chemical pollution, the collapse of fishery resources, etc. Expert training, education and transfer of marine technology are essential activities to increase scientific knowledge at TASMEC and to realize the sustainable use of marine ecosystem services for human wellbeing. 	
Oral	Oral Presentation			
	10:35- 10:47	Ken-ichi Hayashiaki From JSPS CREPSUM to e- ASIA JRP: What we learned from long time collaboration	 The Re-ASIA (Thailand, Indonesia, Japan) Joint Research Program on "Coastal Ecosystems as Natural Climate Solutions in Asia" (CEANCS) is a spin-off of JSPS CREPSUM and its predecessor JSPS University Core Program. The program aims to assess the carbon potential of coastal ecosystems that countries can leverage for climate change mitigation strategies and to combine research, social aspects, and private stakeholders to develop potential mechanisms for incorporating ecosystems into national policies to offset carbon dioxide. 	

			•	For the future program to sustain marine ecosystem in the tropical and subtropical area, it is necessary to develop and continuing collaboration research among their region country including IMBeR and JSPS CREPSUM as well as doing workshop and training such as habitat mapping using ocean color data and filed observation.
2	10:47- 10:59	Abdul Ghaffar Global ecological adaptation for coastal regions	•	Ecosystem-based adaptation (EbA) is a new strategy that uses natural ecosystems and the services they provide to reduce the impact of climate change. The research reviews global case studies to highlight EbA initiatives covers topics like local knowledge, finance mechanisms, and governance structures that are relevant to using EbA in coastal zones. The above explanation are resumed from the submitted abstract.
3	10:59-11:11	Suhendar I Sachoemar Implementation and strategic planning for connecting science and communities for sustainable seas: Case studies in dissemination of Ciguatera Fish Poisoning (CFP) in Gili Matra Lombok, Indonesia	•	Dissemination of science and technology to the community to increase their knowledge, understand, accept, adopt and apply it in various related activities, requires a holistic strategy and planning. A bottom-up and top-down approach involving community leaders from various related groups as well as decision-maker at both the local and national levels including experts from various research institutions, universities and NGOs is a strategic approach to be implemented in Indonesia. The socialization model to bridge the application of science and technology in the field of marine science to the community and government needs to be continuously developed, refined and monitored regularly and systematically so that the implementation of its application in the field can be immediately applied continuously. Scientific meetings such as IMBeR, which are very useful for exchanging knowledge and experience in various research activities and their application in the community, need to be continuously developed and implemented to facilitate scientists, especially from developing countries, to meet with scientists from various developed countries for research collaboration and human resource capacity building.
4	11:11- 11:23	Tahrim Jannat Mowsumi Advancing ocean modeling in the		Accurate ocean modelling is essential for understanding regional circulation and thermodynamic interactions through validatthe high-resolution EIO-COM (First Institute of

	14-22-14-25	Bay of Bengal: Validating FIO- COM and assessing wave- induced mixing effects	•	 Oceanography Coupled Ocean Model) dataset using a combination of in situ observational datasets (Argo, RAMA moorings, OISST, EN4 salinity, and L4 gridded temperature) and reanalysis/model-assimilated products (CMEMS and Bluelink). The findings provide valuable insights into the role of wave-driven mixing processes in ocean models, contributing to improved parameterizations and forecasting capabilities for the Bay of Bengal. The study advances the goals of the UN Ocean Decade (2021-2030) by supporting : A Predicted ocean-through validated simulation of SST, salinity and MLD in the Bay of Bengal; A safe ocean via improved cyclone prediction and monsoon modelling; An accessible ocean by using open data (RAMA, OISST, CMEMS) and open source tools (CROCO, FIO-COM). Delivering the science we need for the ocean we want.
5	11:23- 11:35	Nadiah Wan Rasdi (online) Enhancing sustainable shrimp aquaculture: Effects of herb- enriched copepods on whiteleg shrimp (Litopenaeus vannamei) post- larvae in tropical marine ecosystems	•	The study explores the potential of herb-based nutritional enhancement to improve copepod quality, thereby supporting sustainable shrimp aquaculture using four dietary treatments were tested—ginger (Zingiber officinale Roscoe), mint (Mentha piperita), spadeleaf (Centella asiatica), and an unfed as control. The study highlights the potential of herb-enriched copepods, particularly C. asiatica, as a cost- effective and sustainable strategy to enhance shrimp hatchery productivity. Future research should focus on optimizing enrichment dosages and evaluating herbaceous candidates to further boost copepod nutritional content. The works contributes to the development of cost -effective, herb-based live feeds, positioning spade leaf-enriched copepods as a viable strategy for improving sustainability and reducing coats in shrimp aquaculture.
6	11:35- 11:47	Muta Harah Zakaria (online) Seagrass diversity in Malaysia and ecosystem services	•	Malaysia has a diverse range of 17 seagrass species, which is crucial in supporting marine biodiversity and providing essential ecosystem services. The study explores the diversity of seagrass and ecosystem services provided by seagrass habitats across Malaysia in monospecific and multi-species environment to support the livelihoods of local populations dependent on seagrass ecosystems.

			 Seagrass is important to support biodiversity and fisheries to serve the nurseries for marine life and conserve the endangered species, to mitigate climate change through carbon storage, to protect coastal from erosion and as storm buffer as well as a cleaner ocean by natural water filter and oxygen production.
Spee	d-Talk presenta	tions	
1	11:47- 11:50	Ferdaus Mohamat Yusuff (online) Behavioral response of Cerithidea sp. to cold-water discharge in tropical marine benthic environments	 The study examines the behavioral responses of Cerithidea sp. to cold-water exposure under different conditions: a control (24–26°C) in stagnant and flowing water; cold-water exposure (10–11°C) in a stagnant tank with direct and indirect cold-water introduction; and flowing water exposure at two different cold-water outlet depths (a suspended pipe at 30 cm from the bottom and a landed pipe at 0 cm). The study highlights species-specific thermal sensitivity, emphasizing the need to assess H- OTEC's ecological impact. The findings provide baseline data for environmental management and conservation efforts regarding temperature stress in benthic ecosystems. Cold water exposure triggers stress responses linked to thermal sensitivity. The study is important as guiding the development of megascale H-OTEC.
Discu	ission and Conc	lusions	
1	11:50- 12:00	Suhendar I Sachoemar	Asked about the most valuable carbon storage from marine resources (mangrove, seaweed, coral reef, seagrass) for coastal community and sustainable marine ecosystem.
		Ken-ichi Hayashiaki	Answered : Until now, there has been no information about which marine resources are most advantageous in producing carbon. Further research needs to be conducted on the carbon production capabilities of each marine resource.
		Ken-ichi Hayashiaki	Asked the hidden species of seagrass in Malaysia.
		Muta Harah Zakaria	Answered : Halophila beccarii

One paragraph of session summary

Session 11, which discussed International research and educational collaboration for sustainable tropical and subtropical marine ecosystems, was successfully attended by 6 out of 7 speakers, with 3 attending in person and 3 online, while 1 was absent. Several points that emerged during the presentations and discussions were conveyed by each speaker, starting with Prof. Hiroaki Saito as the Convenor, who highlighted the importance of research and education collaboration for sustainable marine ecosystems in tropical and subtropical areas (TASMEC) through the transfer of science and technology as well as education. The cooperation of JSPS CREPSUM with several tropical countries in Southeast Asia was also discussed as a model for the transfer of scientific knowledge for sustainable marine ecosystems that needs to be continued and developed, including with IMBeR.

Suggestions for IMBeR 3.0 from this session (one or two bullet points):

It is hoped that IMBeR can collaborate with JSPS CREPSUM to continue providing support to facilitate scientific meetings for scientists from developing tropical countries to exchange ideas with scientists from advanced subtropical countries in order to sustain marine ecosystems that are currently under pressure due to human activities, climate change, and other natural influences in order to achieve the SDGs and UN Ocean Decade targets.