INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (of UNESCO)

Fifteenth Intergovernmental Session of the IOC Sub-Commission for the Western Pacific (WESTPAC-XV)
Tokyo, Japan, 11-13 March 2025

Agenda Item 4.3.2-UN39

BRIEF REPORT ON

UN39: Ocean Solutions in the East Asian Seas

Understand the multiple stressors on coastal ecosystems and provide solutions that benefit people, nature and economy
(January 2025 – March 2025)

Unedited text for further inputs and suggestions

In accordance with the Terms of Reference of the IOC Sub-Commission for the Western Pacific (WESTPAC), the report presents the WESTPAC led UN Ocean Decade Action UN 39 – Ocean Solutions in the East Asian Seas. This initiative builds on the accomplishments of several WESTPAC programs and working groups

As the Sub-Commission just officially registered this as a Decade Action in Jan 2025, the report aims to brief the session on its background, objectives, current development status, and planned activities. A tentative workplan is also proposed for the next intersessional period (2026-2027). Member States are invited to engage their interested institutions and relevant stakeholders in this collective effort.

1. Background

1 Coastal ecosystems in the Western Pacific face threats from pollution, eutrophication, climate change, and unregulated development. UN39 engages local stakeholders in finding science-based solutions to restore and protect these ecosystems, building resilience against ongoing environmental stressors for the benefit of people, nature, and livelihood

2 Coastal ecosystems in the Western Pacific are facing unprecedented challenges due to multiple environmental stressors. These include climate change, ocean acidification, hypoxia, eutrophication, sea-level rise, and additional stressors such as pollution and unregulated local coastal development. The negative impacts of these stressors are exacerbated by anthropogenic influences, such as overexploitation of marine resources and poor water quality from land-based activities. The Upper Gulf of Thailand, for example, has seen significant environmental deterioration due to eutrophication and pollution from urban and agricultural runoff. This area, along with others like the Tha Chin and Chao Phraya River mouths, demonstrates the urgent need for comprehensive management strategies.

3 Traditional approaches, which often focus on individual stressors, have proven inadequate in addressing the complexity of these challenges. Therefore, a novel strategy is required—one that considers the full range of stressors affecting coastal ecosystems and integrates multidisciplinary research with stakeholder engagement. This Decade Action seeks to fill that gap by adopting a holistic approach that accounts for multiple stressors simultaneously and involves key local stakeholders in both research and solution development.

4 One of the pilot sites for this action is the **northern Straits of Malacca, particularly the Straits of Penang**. This area, characterized by shallow seas, mudflats, seagrass meadows, and oyster beds, has been selected for its high ecological productivity and its proximity to Georgetown, a UNESCO World Heritage Site. However, Penang's ecosystem faces serious threats due to its urbanization and economic activities. Efforts are underway to transform this urban marine environment into a sanctuary that demonstrates climate change adaptation and resilience strategies, which could serve as a model for other urban coastal areas across the region.

5 UN39 also includes the **Jiu Long Estuary in China** and **Pari Island in Indonesia** as key pilot sites. The Jiu Long Estuary, located in Fujian Province, faces challenges from eutrophication and pollution due to agricultural runoff and industrial waste, which have led to hypoxia and harmful algal blooms (HABs). Despite ongoing efforts to reduce nitrogen fertilizer use and promote ecological techniques like floating wetlands, more research and collaborative action are needed to fully address the pollution problems. Similarly, Pari Island in the Seribu Islands of Jakarta Bay is experiencing environmental pressures due to anthropogenic influences, including tourism and overfishing. Rehabilitation of seagrass and mangrove habitats is critical to maintaining ecosystem resilience in the area.

6 A key component of UN39 is **the engagement of stakeholders**. Local governments, fishermen, tourism operators, port authorities, and the general public play a vital role in ensuring the success of environmental initiatives. For instance, in Penang, a multi-agency committee has been established to support the planning and implementation of the marine sanctuary. This inclusive approach ensures that the needs and concerns of various stakeholder groups are incorporated into management decisions, promoting a sense of ownership and commitment to long-term sustainability.

7 Ongoing efforts to tackle these issues include continuous monitoring of marine water quality and ecosystem health in areas like the Upper Gulf of Thailand and the Straits of Malacca. This monitoring provides critical data for understanding the impacts of stressors like ocean acidification, hypoxia, and eutrophication. The Decade Action aims to build on this data by facilitating the exchange of research findings and best practices across the region. The sharing of multidisciplinary approaches to managing multiple stressors will allow for the development of adaptable and scalable solutions that can be implemented at local, regional, and international levels.

8 Ultimately, the goal of UN39 is to create a regional network that advances multidisciplinary research and supports engagement with coastal communities. By fostering collaboration between countries like Malaysia, Thailand, Indonesia, and China, the action seeks to develop science-based solutions that benefit ecosystems and livelihoods alike. The establishment of marine sanctuaries, like the one planned for Penang, is one example of how these solutions can be translated into tangible actions that protect the marine environment while supporting the sustainable development of coastal communities.

2. Project objectives and expected outputs/outcomes

I. Understand how multiple stressors impact natural ecosystems and coastal communities, like in the Tha Chin, Chao Phraya River Mouths, Jiu Long Estuary, Straits of Malacca, and Pari Islands.
II. Share multidisciplinary approaches and practices to manage these stressors.
III. Develop a regional network for research, stakeholder engagement, and practical science-based solutions.

9 UN39 contributes to SDGs 13, 14, and 17 by fostering collaboration between IOC-WESTPAC member countries to address critical issues related to ecosystem degradation and protection. It will strengthen the integration of climate change adaptation measures into national policies, strategies, and planning, which is crucial for sustainable coastal ecosystems. The action also aims to provide science-based solutions for ecosystem restoration and protection, translating research into effective management practices. In Malaysia, for example, the establishment of a marine sanctuary in Penang serves as a model for integrating climate change risks into local and state-level policies. By promoting the exchange of knowledge and experiences between participating countries, this initiative will help build capacities, develop policies that benefit both ecosystems and communities, and contribute to the global agenda for ecosystem restoration, climate action, and partnership. The action will further support the protection of marine life, while also emphasizing the well-being of coastal communities whose livelihoods depend on these ecosystems.

10 UN39 aligns with the vision of the Ocean Decade by emphasizing an ecosystem-based approach that addresses both anthropogenic and climate-induced stressors at multiple scales. The approach combines scientific research and practical solutions that can be applied locally and scaled regionally and internationally. Partnerships, such as the ongoing collaboration between local authorities, marine scientists, and community stakeholders in Penang, will ensure that solutions are co-designed and responsive to the unique environmental challenges faced by each region. By fostering a shared knowledge base and building capacity among local communities, UN39 aims to enhance the ability of coastal ecosystems to adapt to environmental stressors, thus contributing to a healthier, more resilient ocean. The action seeks to build on existing efforts to protect coastal ecosystems, such as the marine sanctuary initiative in the Straits of Malacca, providing a replicable framework for future actions across the region and beyond.

3. Activities conducted and progress made since its inception

11 None yet since UN39 has just being endorsed on 5 January 2025.

4. Key achievements and outputs generated since its inception

12 No key achievements yet since UN39 has just being endorsed on 5 January 2025.

5. Stakeholder engagement, including Early Career Ocean Professionals

13 At pilot sites like the Straits of Penang in Malaysia, UN39 focuses on transforming urban coastal areas into marine sanctuaries. This process involves a multi-stakeholder approach where local governments, scientists from institutions like CEMACS, the Penang Institute, and community members co-develop solutions for climate resilience and ecosystem protection. Stakeholder

engagement is crucial for ensuring that the sanctuary meets both conservation goals and the socio-economic needs of the local population, which relies heavily on the marine environment for livelihoods.

14 The Jiu Long Estuary in China and Pari Island in Indonesia serve as additional pilot sites where science and policy come together. In these areas, researchers have identified key stressors such as eutrophication and harmful algal blooms (HABs), caused by agricultural runoff and urban waste. UN39 facilitates collaboration between scientists and local governments to incorporate these scientific findings into management and policy decisions. For instance, the reduction of nitrogen fertilizer use and the introduction of ecological techniques like floating wetlands are strategies developed through this co-design approach.

15 By creating platforms for interdisciplinary collaboration, UN39 ensures that research is not only conducted but also translated into practical, scalable solutions that can be implemented by local authorities. Continuous monitoring of marine water quality and ecosystem health at pilot sites provides the necessary data to inform policy decisions. This data-driven approach helps ensure that policies are adaptable to changing environmental conditions, such as those caused by climate change, and are aligned with the needs of local communities.

16 Moreover, the UN39 promotes the uptake of ocean science by organizing stakeholder meetings and workshops. These meetings provide opportunities for local communities to learn about the latest scientific findings and participate in decision-making processes. This approach strengthens the connection between science and society, ensuring that scientific knowledge is integrated into the broader framework of coastal management.

6. Workplan for 2026-2027 (Please provide concise information in the attached table)

17 UN39 contributes to co-design and co-delivery by actively involving stakeholders in the research process, ensuring that science is used to inform policy, decision-making, and innovation. Through pilot projects in Malaysia, China, and Indonesia, the action sets a model for interdisciplinary collaboration and the development of sustainable management strategies that benefit both ecosystems and coastal communities.

18 UN39 will develop and conduct tailored training courses based on the common priority

19 needs of Member States in the region, in collaboration with government agencies, national research institutions, and stakeholders. UN39 will play a key role in ongoing international programs, engaging trainees in development and implementation efforts. This involvement will enhance their knowledge application and capabilities to contribute to ocean solutions.

7. Perspectives and recommended actions to be considered by the 15th Intergovernmental Session, Tokyo, Japan, 11-13 March 2025

20 Not applicable at this stage since UN39 has just being newly endorsed.

8. Workplan and budget estimation for 2026-2027

Project/Programme	Activities	Objectives to be achieved	Expected outputs	Date and Place	Funding Required, US$	
					IOC (in-cash)	Other in-kind sources
Members engagement: Kick-off workshop	Workshop to discuss on pilot sites and stressors, lining to impacts to socioeconomics	To discuss on the selection of pilot sites and determining of stressors to be prioritized, linking to the impacts to socioeconomics and livelihood of the local communities.	Commitment to the initiation of pilot sites and assurance of communities or stakeholders to be involved	September 2025, Penang, Malaysia	15,000 (travel costs and hotel arrangement for regional participants)	8,000
Demonstration Workshop	Workshop for site demonstration	• To showcase demonstration site and stakeholders engagement • To initiate reporting to IOC and also joint publication (for outreach, public awareness & scientific publications)	• Site visit • Draft of public outreach • Draft for scientific publication	2026, Penang, Malaysia	TBD	TBD
Training Workshop for Stakeholders	Training for stakeholders on participatory research	Empowerment of stakeholders to be more responsible and be part of the project	More involvement of the stakeholders in the project.	2026, Penang, Malaysia	TBD	TBD
Mini-Symposium among stakeholders	Symposium on best practices and updates or progress reports of member states	• Sharing of updates and best practices of member states • Discussion of best practices of ocean solutions	Compilation of reports and publications	TBD	TBD	TBD