

Outline for the progress report on (Harmful Jellyfish Research in the Western Pacific and Adjacent Seas)

1. Introduction and justification

- This Working Group is a regional collaborative effort to understand and report effectively on the harmful jellyfish species. The group comprises of members from Bangladesh, Indonesia, Malaysia, Philippines, Singapore, Sri Lanka, Thailand and Vietnam. The outcomes from research on harmful species are actively shared among the scientific and medical groups, which are later translated to the general public to create awareness.
- This Working Group is able to share knowledge regarding the behaviour and dynamics of the bloom and raise awareness among the impacted communities such as the fishermen, hoteliers, water sport etc. Along with that, the group is also able to provide an alert to the state/country/region when a bloom is detected.
- Active participation from the medical group has been an important drive to know the effect of a jelly sting and the prevention measures.
- Thus, the project under the support of IOC-WESTPAC, aims to improve the following:
 - a) To understand and develop regional collaborative research and monitoring abilities in the WESTPAC region;
 - b) Standardise the monitoring efforts and analysis among the institutions and agencies in the region;
 - c) Continuous sharing of information on jellyfish invasion, hazard awareness and research at each participating country; and
 - d) Explore the possibility of joint research on jellyfish diversity, distribution and abundance in the region.

2. Timeframe and objectives

- 2017 – 2024 (8 years)

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

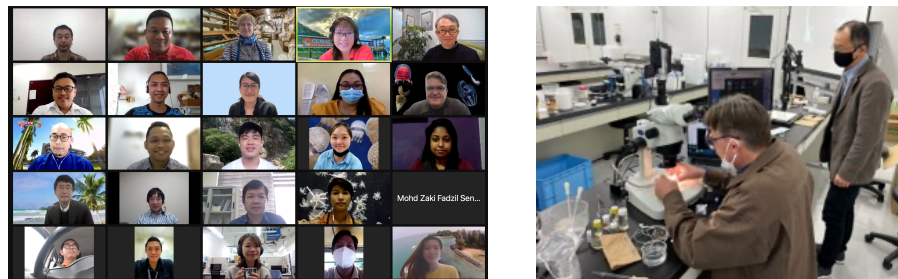
- Annual update on major issues on harmful jellyfish, research and monitoring efforts, and related education and awareness activities from member countries.
- 2 Publication (Book)
 - 1) *Field Guide to the Jellyfish of Western Pacific (Bangladesh, Indonesia, Philippines, Malaysia, Singapore, Sri Lanka, and Thailand), 2021.*



- 2) Publication of the jellyfish management and first aid guidebook in collaboration with the medical group entitled “General Management Guide for Harmful Jellyfish Stings in the Western Pacific and Adjacent Area”, 2022.



- The group conducted an online workshop during the pandemic as many countries still imposed travel restrictions. *CREPSUM - IOCWESTPAC Online Workshop on Jellyfish Identification* (17 – 18 March 2022 with 71 participants from 8 countries).



- The group created awareness on the harmful jellyfish through a physical workshop. Department of Fisheries Malaysia approached the Malaysian team to conduct this workshop for their fisheries officers and staff. The workshop titled “*Bengkel Kesedaran Terhadap Ancaman Keselamatan Berhubung Sengatan Obor-Obor Merbahaya*” was conducted from 18 - 20 October 2022 at the Centre For Marine & Coastal Studies (CEMACS), Universiti Sains Malaysia (USM), Penang. The workshop aimed to educate the governmental agency and policymakers on harmful jellyfish by introducing the diversity of the species in Malaysian waters and monitoring efforts.



- Winner of Ocean Hackathon® 2022 at Kuala Lumpur, Malaysia (National Level) and Brest, France (International level). It is a 48-hour non-stop event during which teams develop a prototype to tackle a challenge. This event was organized by the embassy of France. The jellyfish team proposed a challenge to develop the first prediction model for the jellyfish distribution and appearance in Penang Island, Malaysia, a mobile application called Jelly Go.



4. A summary of key achievements since its establishment

- The group now has 34 members from 8 countries (Bangladesh, Indonesia, Malaysia, Philippines, Singapore, Sri Lanka, Thailand and Vietnam) and is guided/mentored by experts from Japan and Thailand.
- **3 Joint-Publication (Book)**
 - *Harmful Jellyfish Country Report in Western Pacific (2019)*
 - *Field Guide to the Jellyfish of Western Pacific (Bangladesh, Indonesia, Philippines, Malaysia, Singapore, Sri Lanka, and Thailand), 2021.*
 - *General Management Guide for Harmful Jellyfish Sting in the Western Pacific and Adjacent Areas, 2022.*
- **2 International Workshops**
 - 1) WESTPAC Workshop on Harmful Jellyfish Sampling Protocol and Data Analysis in the Western Pacific, Penang, Malaysia, 5 - 7 December 2017.
 - 2) 2nd WESTPAC Workshop on Harmful Jellyfish Sampling Protocol and Data Analysis in the Western Pacific, Penang, Malaysia, 7 - 9 August 2019.
 - 3) CREPSUM - IOC/WESTPAC Online Workshop on Jellyfish Identification (17 – 18 March 2022 with 71 participants from 8 countries) - online
- **1 Online Webinar**
 - *HARMFUL JELLYFISH WEBINAR, Future Friend or Foe: Handling Our Relationship with Jellyfish in Southeast Asia (15 September 2020 with 161 views)*

- **Awards**

- 1st Prize Winner of Ocean Hackathon® 2022 at Kuala Lumpur, Malaysia (2-4 December 2022) (National Level) and
- 1st Prize Winner of Ocean Hackathon Grand Finale , Brest, France (9 February 2023) (International level) for the development of a prototype mobile application called JellyGo.

- **Other Publications & Activities**

Member Countries	Research Publication	Research & Awareness Activities	Clinical Related Activities	Webinar/ Workshop
Malaysia	9	6	4	3
Singapore	2	4		
Indonesia	6	2		1
Philippines	1	1	4	1
Sri Lanka	9	4		
Thailand	6	2		
Vietnam	10	1		

5. Self-assessment on implementation against objectives

- Established a strong network and commitment among researchers from member states
- Most objectives have been achieved.
- Joint publications with active involvement from all member states.
- The group has expanded beyond scientific community, where we have also established the active involvement of the medical teams. As a result, awareness has been raised to a broader audience.
- Workable, but best to be more specific with time bound.
- Good achievement and active involvement across all member states in regional activities as well as research/awareness activities within their country.
- Established good mentorship by experts from Japan
- Managed to get the support from other organisation such as Japan Society for Promotion of Science (JSPS) and local government

6. Problems encountered and recommended actions

- Lack of funding in member states to conduct continuous monitoring of harmful jellyfish. The group recommends an exploration of more opportunities from other related international parties/NGOs/organisation for funding opportunity.

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

- 1) Acquire sufficient knowledge in the identification methods for each of the jellyfish taxa through international workshops.
- 2) Improve the understanding, and regional capacity for research and monitoring of jellyfish blooms in the Western Pacific and its adjacent areas
- 3) To share information on each country's current research, hazard awareness, and jellyfish on yearly basis.
- 4) Explore the possibilities of conducting a joint study on the diversity, distribution, and abundance of jellyfish.
- 5) Delivering knowledge and services on harmful jellyfish for public health.
- 6) Sharing best practices in jellyfish monitoring and exploring big data and internet of things (IoT)

8. Planned activities for May 2023- April 2025

[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		Remarks
					IOC	Other sources (i.e. from national or international)	
Harmful Jellyfish Research in the Western Pacific and Adjacent Seas	1. A special symposium during the upcoming IOC Westpac Conference in Thailand	Sharing of research findings by members from member states.	A special issue on jellyfish in a selected journal or a publication.	September 2023 Bangkok, Thailand	USD 10,000		To support the participation of team members (travel and accommodation)
	2. International Workshop on Enhancing Societal Engagement Strategies towards Jellyfish Research and Management (Multidisciplinary workshop)	Opportunity to have trainers from social science/ mass communication background to guide jellyfish scientists on effective communication for raising awareness. Identifying target audience and goals-who do we need in our team to execute?	Social media and new techniques of societal engagement. Developing and measuring the effectiveness of Citizen science projects.	November 2023 Centre for Marine and Coastal Studies (CEMACS), Universiti Sains Malaysia (USM), Penang, Malaysia	USD 10,000	USD 2,000 (in-kind, e.g., boats, staff & facilitator's overtime and allowances, lab facilities)	
	3. Advance Workshop on Jellyfish Biology/ Taxonomy and Envenomation	Knowledge sharing and SOP development on advanced jellyfish biology/taxonomy and envenomation research.	Joint research projects on advanced jellyfish biology/taxonomy and envenomation.	August 2024 Pusat Penyelidikan Langkawi (PPL), Langkawi Research Centre, Universiti Kebangsaan Malaysia (UKM), Langkawi, Kedah, Malaysia	USD 10,000		