

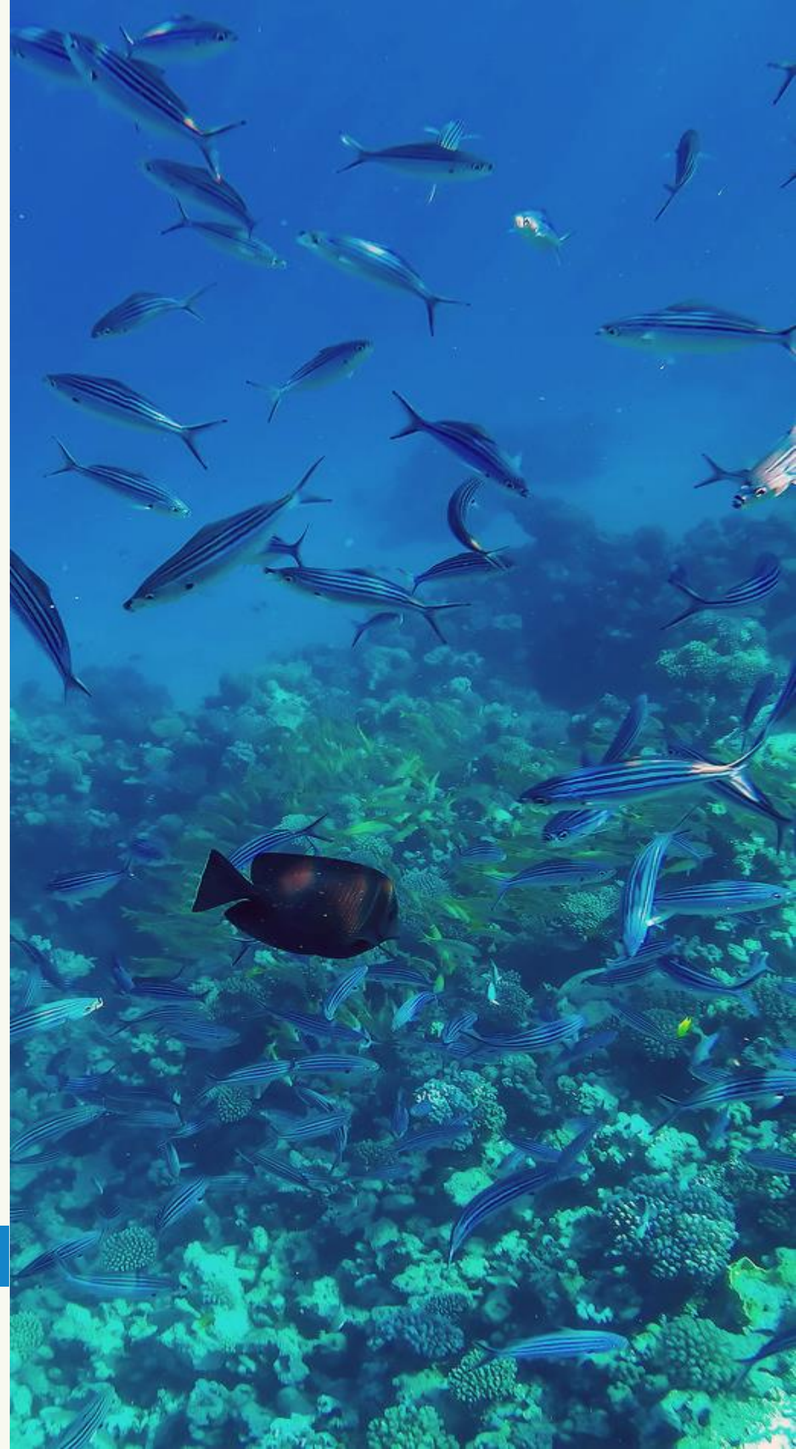
Marine Toxin and Seafood Sa
(MTSS)

Assoc. Prof. Dr. Dao Viet Ha
WESTPAC Project Leader
Institute of Oceanography, VAST

Sixteenth Intergovernmental Session of the
IOC Sub-Commission for the Western Pacific (WESTPAC-XVI)
Hangzhou, China, 10-12 November 2026

Summary Outline

1. Justification and project duration
2. Project objectives
3. Major activities and outputs, with emphasis on 2025–2026
4. Anticipated activities and outputs in 2027
5. Biennial workplan and budget for 2028–2029, aligned with IOC HLOs
6. Strategic recommendations for future development



1. Justification and project duration

- Regional need, project relevance and implementation period

Regional challenges

• Seafood poisoning events continue to involve known, emerging and sometimes unidentified marine toxins.

• Analytical capacity and trained personnel remain uneven across WESTPAC Member States.

• Comparable occurrence data, validated methods and rapid technical support are needed to reduce public-health risks.

Project period

April 2023–April 2027, followed by a proposed 2028–2029 workplan.

2. Project objectives

- Regional evidence, analytical capacity and shared services for seafood safety

1. Assess and update the regional occurrence of marine toxins associated with seafood poisoning.

2. Strengthen capacity for sampling, identification and analysis of ciguatoxins and other priority toxins.

3. Expand technical services, training and collaborative research through the Regional Training and Research Center on Marine Toxins and Seafood Safety in Viet Nam.

4. Translate scientific findings into practical information for authorities, seafood stakeholders and local communities.

3. Major Activities and Outputs

- Progress achieved during 2025–2026

Field and laboratory work

• Continued collection and screening of potentially toxic reef fish, pufferfish, moray eels, crabs and gastropods from Vietnamese coastal areas.

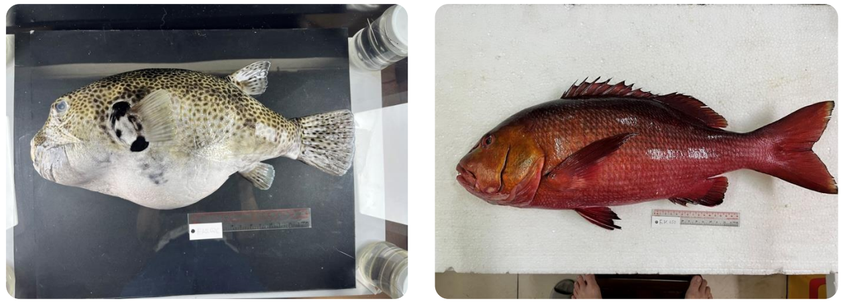
• Advanced CTX and TTX identification in marine specimens and continued preparation of scientific outputs.

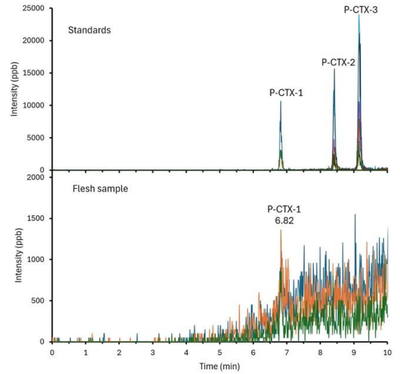
International cooperation in 2026

• IO/VAST and Kitasato University compared CTX results from Vietnamese snapper samples using LC-MS/MS and qTOF.

• The teams identified validation needs, agreed to exchange data and considered additional samples and joint publications.

• Both institutions discussed a Letter of Intent covering sample analysis, expertise exchange, training and joint research.





Specimen screening and CTX analytical work

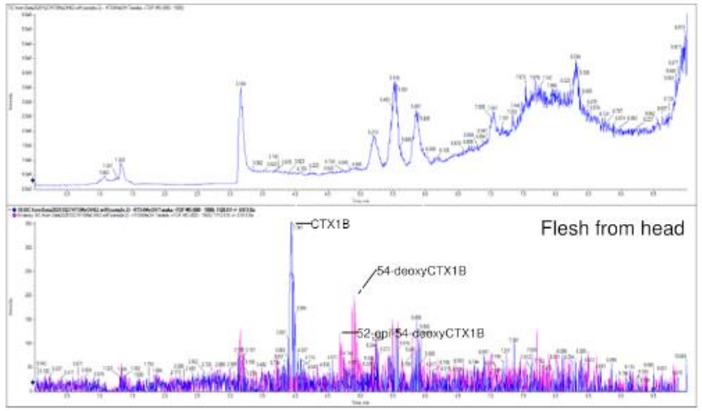
3.1 CTX findings in Vietnamese red snapper

- Joint analysis of Lutjanus bohar samples collected from the Spratly Islands

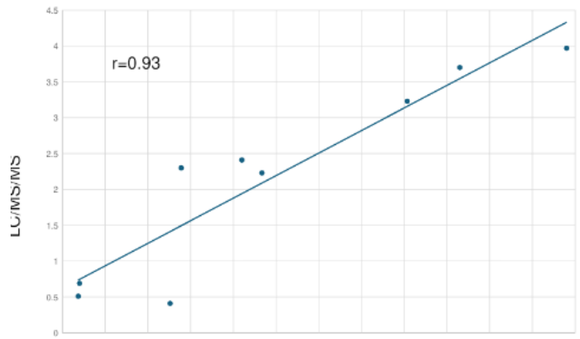
Study scope
• Three red snapper specimens from the Spratly Islands were examined.

Main findings
• CTX1B, 54-deoxyCTX1B and 52-epi-54-deoxyCTX1B were detected.
• In Sample 1, CTX1B was detected in almost all examined parts.
• In Sample 2, flesh from the head showed a comparatively high level; further verification is needed.
• LC-MS/MS and LC-QTOFMS results showed good agreement (r = 0.93).

Next step
• Complete verification and prepare a joint scientific paper on CTX distribution in edible tissues.



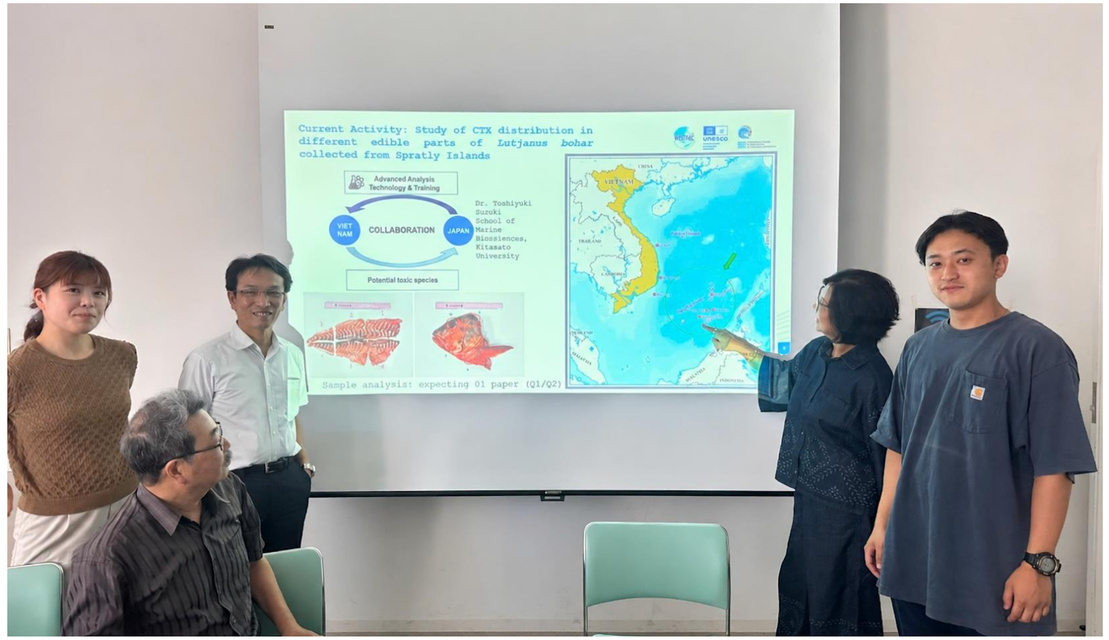
LC-QTOFMS detection of CTX1B and related analogues



Method comparison: r = 0.93

3.2 Vietnam–Japan collaboration

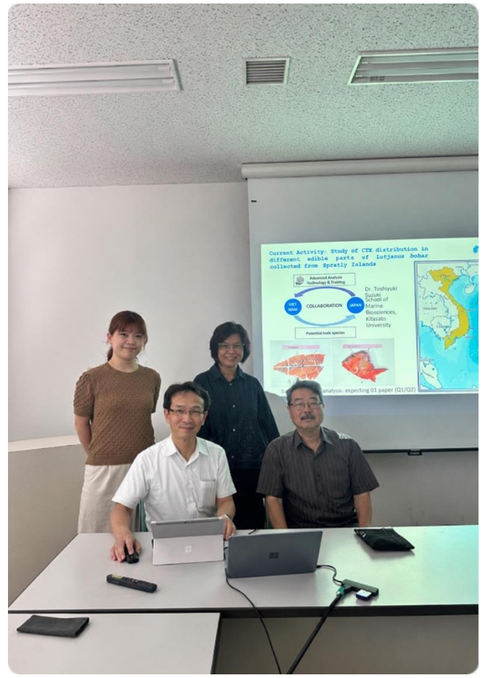
- Technical discussion and laboratory exchange at Kitasato University, Japan



Discussion of CTX distribution in edible tissues



Laboratory visit



Technical working session

The teams reviewed analytical results, compared methods and agreed on continued data exchange, additional verification and preparation of a joint publication.

4. Anticipated activities and outputs in 2027

2027 transition plan

- Compile occurrence records, poisoning cases, implicated species and toxin data from participating Member States.
- Select regional hotspot area(s) and conduct collaborative sampling and toxin analysis.
- Calibration and establish advanced technique in new toxins analysis by expert-exchange (02 Japanese experts visit IO for 7 days, 2 times in 2027).
- Disseminate scientific findings and seafood-safety information to relevant stakeholders.

5. Biennial Workplan for 2028-2029

- Detailed outline of planned activities, and deliverables for the next intersessional period

No.	Activity / Output Description	Expected Result / Output	Y1-1st H	Y1-2nd H	Y2-1st H	Y2-2nd H	IOC RP Budget (USD)	XB Required (USD)	Lead Responsibility
HLO 1 — HEALTHY OCEAN AND SUSTAINED OCEAN ECOSYSTEM SERVICES									
Expected Result 1.1: Regional knowledge on marine-toxin occurrence and cooperation on seafood safety strengthened									
1.1.1	Standardized records, map and priority data gaps	•	•	•	•	15,000	TBC	IO/VAST; RTRC; Member States	
1.1.2	Joint sampling, analytical results and scientific output	•	•	•	•	20,000	TBC	IO/VAST; partner laboratories	
Expected Result 1.2: Regional analytical capacity and shared services strengthened									
1.2.1	Improved protocols, trained personnel and technical support	•	•	•	•	10,000	TBC	IO/VAST–RTRC; WESTPAC-S	

5. Biennial Workplan for 2028-2029

- Detailed outline of planned activities, and deliverables for the next intersessional period

No.	Activity / Output Description	Expected Result / Output	Y1-1st H	Y1-2nd H	Y2-1st H	Y2-2nd H	IOC RP Budget (USD)	XB Required (USD)	Lead Responsibility
HLO 2 — EFFECTIVE WARNING SYSTEMS AND PREPAREDNESS FOR TSUNAMIS AND OTHER OCEAN-RELATED HAZARDS									
Expected Result 2.1 (Sub-obj. 2.1+2.3): Regional tsunami and multi-hazard early warning systems maintained and strengthened									
2.1.1	Relevant risk communication will be reported under HLO 4.	—	—	—	—	—	—	—	
2.1.2									
Expected Result 1.2 (Sub-obj. 2.2 + 2.3): Coastal hazard information products and Tsunami Ready preparedness and enhanced									
2.2.1									
2.2.2									

5. Biennial Workplan for 2028-2029

- Detailed outline of planned activities, and deliverables for the next intersessional period

No.	Activity / Output Description	Expected Result / Output	Y1-1st H	Y1-2nd H	Y2-1st H	Y2-2nd H	IOC RP Budget (USD)	XB Required (USD)	Lead Responsibility
HLO 3 — RESILIENCE TO CLIMATE CHANGE AND CONTRIBUTION TO ITS MITIGATION									
Expected Result 3.1 (Sub-obj. 3.1+3.2): Regional ocean-climate observations, data and scientific knowledge enhanced									
3.1.1	Marine-toxin ecosystem observations contribute primarily to HLO 1.	—	—	—	—	—	—	—	
3.1.2									
Expected Result 3.2 (Sub-obj. 3.2 + 3.3): Ocean science integrated into Member States' climate adaptation and mitigation frameworks									
3.2.1									
3.2.2									

5. Biennial Workplan for 2028-2029

- Detailed outline of planned activities, and deliverables for the next intersessional period

No.	Activity / Output Description	Expected Result / Output	Y1-1st H	Y1-2nd H	Y2-1st H	Y2-2nd H	IOC RP Budget (USD)	XB Required (USD)	Lead Responsibility
HLO 4 — SCIENTIFICALLY FOUNDED SERVICES FOR THE SUSTAINABLE OCEAN ECONOMY									
Expected Result 4.1: Scientific findings translated into seafood-safety information and stakeholder engagement									
4.1.1	Scientific outputs, public information and stakeholder engagement	●	●			5,000	IO/VAST; WESTPAC-S; Member States		
4.1.2									
Expected Result 4.2 (Sub-obj. 4.3): Knowledge-based sustainable ocean planning and management tools developed and applied									
4.2.1									
4.2.2									

5. Biennial Workplan for 2028-2029

- Detailed outline of planned activities, and deliverables for the next intersessional period

No.	Activity / Output Description	Expected Result / Output	Y1-1st H	Y1-2nd H	Y2-1st H	Y2-2nd H	IOC RP Budget (USD)	XB Required (USD)	Lead Responsibility
HLO 5 — FORESIGHT ON EMERGING OCEAN SCIENCE ISSUES									
Expected Result 5.1 (Sub-obj. 5.1+5.2): Regional foresight capacity on emerging ocean science issues strengthened and communicated									
5.1.1	Emerging toxin issues will be monitored through HLO 1 activities.	—	—	—	—	—	—		
5.1.2									
Expected Result 5.2 (Sub-obj. 5.2+5.3): Emerging ocean science issues integrated into regional governance and decision-making									
5.2.1									
5.2.2									

6. Strategic recommendations for future development

- Actions needed to increase regional impact and visibility

1. Establish a shared regional occurrence dataset with agreed metadata and regular updates from Member States.

2. Concentrate joint fieldwork and analytical resources on documented hotspot areas and priority seafood species.

3. Use the RTRC in Viet Nam as a practical platform for training, method comparison, confirmatory analysis and rapid technical support.

4. Expand cooperation with laboratories that have complementary CTX expertise and advanced analytical capacity.

5. Link research outputs more directly to food-safety authorities, fisheries stakeholders and public risk communication.