

**UNESCO's input for the Secretary-General's Report on
"Towards the sustainable development of the Caribbean Sea
for present and future generations"**

UNESCO-IOC Tsunami Programme coordinated by its Tsunami Resilience Section provides secretariat support to the Intergovernmental Coordination Group for the Tsunami Warning and Mitigation Systems in the Caribbean (CARIBE- EWS) and its respective technical working groups and task teams, in accordance and aligned with paragraph 24 of [A/RES/77/163](#).

Member States were invited through an IOC Circular Letter [CL-2965](#) dated 9 October 2023 to nominate experts to the Working Groups and Task Teams of the ICG/CARIBE-EWS, with the principal aim of better facilitation of Technical Secretarial support to them by the IOC/TSR.

The CARIBE WAVE 2023 regional Exercise for the Caribbean and adjacent regions, its twelfth version, was carried out on 23 March 2023, with participation from over 780,000 people from the Caribbean and adjacent region. Two hypothetical scenarios were simulated for CARIBE WAVE 23 which were a tsunami generated by a magnitude 7.6 earthquake located in the Gulf of Honduras and a tsunami generated by a flank collapse in Mount Pelée volcano, Martinique. The volcanic scenario was used to test experimental procedures and products for a tsunami generated by volcanic activity.

The majority of the participants from across the region were from K-12 Schools. In addition, state government, universities and emergency and preparedness organizations also had high levels of participation. This year's exercise was also marked by an increase of people with disabilities participating, thus providing an opportunity to test applicability of preparedness measures to more parts of the community. During the CARIBE WAVE Exercise, full-scale drills, seminars, and communication tests were some of the many activities that were organized.

[UNESCO-IOC Tsunami Ready Recognition Programme](#) (TRRP) aims to increase community resilience to ocean hazards in all oceans, and to ensure that 100% of communities at risk of tsunami are prepared for and resilient to tsunamis by 2030. TRRP seeks to build resilient communities through awareness and preparedness strategies that will protect life, livelihoods, and property from tsunamis in different regions. This is achieved through a collaborative effort to meet a standard level of tsunami preparedness through the fulfilment of a set of established indicators. In the Caribbean, there are 17 recognized Tsunami Ready (TR) communities. Christ Church West (Barbados) and St. George (St. Vincent and the Grenadines) were recognized as TR in 2023, and St. George's (Grenada) and Porters to St. James to Lazaretto, St. Michael (Barbados) significantly advanced towards becoming Tsunami Ready. Further TR recognition related efforts are in place for six other communities within Dominica, Dominican Republic, Jamaica, Saint Lucia, and Trinidad and Tobago. Expression of interests for TRR recognition were received from Belize and Porters to St. Michael Northwest in Barbados.

The (hybrid) Sixteenth Session of the IOC-UNESCO Intergovernmental Coordination Group for the Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions ([ICG/CARIBE-EWS-XVI](#)) took place from 25-28 April 2023 in San Jose, Costa Rica. Over 60 representatives from Member States and Territories attended the meeting, 40 of whom attended in person and between 20 to 25 online. Twelve IOC-UNESCO Member States and two U.S. territories were represented in person, with an additional seven present online. This was the first in-person meeting of the ICG/CARIBE-EWS since 2019 due to the COVID-19 pandemic, and representatives were reminded of the significant value of conducting the work of the ICG face-to-face. The daily interaction of experts and the building of rapport among the Member States was critical to the successful outcomes achieved.

The work of the UNESCO-IOC Sub-commission for the Caribbean and Adjacent Regions (IOCARIBE) covers the entire Caribbean Sea, Gulf of Mexico and Western Atlantic basins, and supports 42 Member States, Territories and Overseas Departments in the Tropical Americas and Caribbean Region.

1. IOCARIBE has the overall responsibility for coordination of regional implementation of IOC-UNESCO strategies and programmes on ocean science, ocean services and early warning systems for ocean hazards, and for coordination of the UN Decade of Ocean Science for Sustainable Development 2021–2030 in the Tropical Americas and the Caribbean Region (TAC). Since the XVIIth IOCARIBE Session (May 2023), the Board agreed that, in the context of co-design of the Ocean Decade, the Sub-commission should conduct a review and revision of the IOCARIBE technical and governance working groups, as well as the establishment of new working groups, as appropriate. The new working groups aimed to augment the severely limited technical capacity of the Sub-Commission and to accelerate the use and application of ocean science across the region, ensuring participation by Member States, partners and communities.

2. Sargassum is a top priority for the Caribbean Sea, given its significant impact on human health, tourism, fisheries, and livelihoods. The Sargassum Working Group is working towards to an improved Early Warning System for Sargassum. To this end, six (6) Task Teams have been established with Member States, on;

- An observing system for Sargassum,
- Remote sensing advancement,
- Modelling advancement,
- A Regional Sargassum Forum in 2025,
- The Sargassum Information HUB; and
- Community-led decision support tools.

The Harmful Algal Blooms (HAB) working group has been consistent in delivering good science and knowledge. However, there was a necessity for the expansion of the group to include the users and key sectors with specific interest in their work. A regional meeting held in October 2023 resulted in some expansion of the Group to include users, with key tourism and fisheries sectors requesting information on this hazard within the Caribbean Sea. Now the focus is on connecting with the stakeholders, those who are impacted by this hazard. The Sub-commission convened a virtual meeting of the HAB-ANCA Working Group in October 2023, with interpretation

in three (3) languages, focused on widening the scope and capturing the interest of other regional HAB researchers, ECOPs, other member States not participating, and users. This meeting resulted in increased participation from several new researchers and ECOPs joining the group. Members of the tourism sector who participated, have requested further information about the sector's vulnerability to HABs.

4. IOCARIBE has a long history of delivering capacity development in ocean science, ocean services and early warning systems. Following the approval of the IOC's new Capacity Development Strategy, the Sub-Commission convened four (4) regional webinars on its regional implementation, with the IOCARIBE Board and program Coordinators, Member States, regional universities, research institutions and ECOPs, and with the private sector and NGOs. This broad level of regional engagement led to the plan for a working group on capacity development, and also facilitated the involvement of new researchers in regional programs. The outcomes also informed the drafting of new proposals to be implemented within the Ocean Decade framework.

5. A new regional capacity development working group is established in 2024 to reduce fragmentation of training, avoid duplication of activities, and ensure that trained persons have expertise to participate fully in the work of IOC-UNESCO. Additionally, the new IOC-UNESCO Capacity Development Strategy calls for continued work on equitable access to technology and methodologies within all countries, to achieve sustainable development. Within this group, a Task Team on Ocean Literacy is also established following the launch of the Program "Ocean Literacy Caribbean – The Ocean and Me" at the SIDS4 Conference in May 2024. This program brings ocean science to population sectors, as well as establishing a strong ocean program within schools through the Blue Schools Network. IOCARIBE is also working with regional curriculum development partners to provide space for ocean matters within Geography and Natural Sciences courses.

5. Procaribe+ is the new Caribbean large marine ecosystem (LME) project that was approved for implementation by the GEF. It covers the same area of the IOCARIBE Sub-Commission, and as an executing agency, IOCARIBE will implement the Marine Spatial Planning (MSP) elements of the programme. Caribbean Member States identified MSP as one of several mechanisms to advance sustainable ocean economies within Member States. An interim Ocean Governance Coordination Mechanism (OCM) was established via a signed Memorandum of Understanding (MoU), a consortium of nine (9) intergovernmental organizations operating regionally, with some ocean-related functions and IOC-UNESCO was included. In October 2023, the permanent OCM MoU opened for signature at the High-Level session of the Cartagena Convention and its Protocols. IOC-UNESCO as the Chair of the OCM, is working with States to ensure signature by all countries and IGOs, as the regional custodians of the Caribbean Sea and Adjacent Regions.

6. According to the IOCARIBE-XVII recommendation, IOCARIBE convened an open-ended working group to finalize the IOCARIBE Medium-Term Strategic Science Plan 2023-2030. Member States were given the opportunity to comment, and the final document was shared in March 2024. The Science Plan aligns the IOCARIBE programmes with the UN Decade of Ocean Science for Sustainable Development and provides a roadmap for maximum benefits to be derived from the Ocean Decade for in terms of science delivery and solutions for addressing regional ocean management priorities.

7. To address the regional need to streamline ocean data and information flow for decision making, IOCARIBE is working closely with the International Oceanographic Data and Information Exchange (IODE) global programs to establish a regional Ocean Data and Information Working Group, focused on building an adequate framework, provide appropriate training and give technical advice to Member States on open data, as well as FAIR and CARE principles. The objective is eventually to provide access to data and information for decision-making, within the context of the Caribbean Sea.

8. In line with UNESCO's Priority Group SIDS, the IOCARIBE Board prioritized the Call for Ocean Decade Actions #6 focused on Small Island Developing States (SIDS), and IOCARIBE held meetings with Caribbean SIDS. 11 projects were submitted and all of them were endorsed. Some have been selected already for funding and training in co-design. The joint governance teams of IOCARIBE and the ICG CARIBE-EWS are implementing the Decade-endorsed project Integrating Coastal Hazards Early Warning Systems (iCHEWS) seeks to incorporate a multi-hazard approach into the mature Tsunamis Early Warning System. This project, collaborating with the IOCARIBE-GOOS group and CoastPredict has designated four (4) pilot sites in the region to implement observing, forecasting and prediction, and will strengthen the joint governance arrangements.

9. The Sub-Commission jointly convened, with UNEP, a training workshop on Marine Spatial Planning (MSP) and discussion on the Caribbean digital twin for the ocean, focused on Challenge 9 of the Ocean Decade. This workshop was targeted towards ECOPs and involved the use of the MSP Challenge Board Game to enhance decision making in the use of ocean and coastal natural assets. As the Sub-Commission prepares for its second regional MSP Forum and provides national support to countries, further training in the use of machine learning has been requested. IOCARIBE is a Procaribe+ Implementing Partner for the regional MSP activities, with national projects in Colombia and the Dominican Republic.

10. IOCARIBE is implementing the Ocean Best Practices Caribbean Pilot, co-designing a training course on observing systems in English and Spanish. The course is being tested in two regional training workshops and will contribute to the ocean Teacher Global Academy suite of courses.

11. The Pollutants Observatory and Multiple Stressors projects have been accelerated through the IAEA-funded Red de Investigación de Estresores Marinos – Costeros en Latinoamérica y el Caribe (REMARCO) project building capacity in 18 Latin American countries to address communication, ocean acidification, microplastics, harmful algal blooms, and pollution.

12. The TAC Ocean Observing and Forecasting System Decade project (TAC-OOFS) objective is to accelerate the governance and technical inputs to IOCARIBE-GOOS. Through this project, the technical group is working on a turn-key basic observing toolkit for SIDS. The Subcommission is preparing a small meeting in Miami during May 2024, to add some glider systems to improve hurricane forecasting in the Caribbean.