



United Nations  
Educational, Scientific and  
Cultural Organization



Intergovernmental  
Oceanographic  
Commission

ICG/PTWS-XXIX/4.5  
1-2 and 7-8 December 2021  
English Only

**INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION  
of UNESCO**

**TWENTY-NINTH SESSION OF THE SESSION OF THE INTERGOVERNMENTAL  
COORDINATION GROUP FOR THE PACIFIC TSUNAMI WARNING AND MITIGATION  
SYSTEM (ICG/PTWS-XXIX)**

1-2 and 7-8 December 2021  
Online

**WORKING DOCUMENT ON THE  
OCEAN DECADE TSUNAMI PROGRAMME AND  
IMPLICATIONS FOR THE PTWS**

This document has been prepared by Michael Angove (US) and Laura Kong (US). It is presented to the ICG/PTWS-XXIX for discussion and ICG approval of the **recommendation** included at the end of the document.

**OCEAN DECADE TSUNAMI PROGRAMME AND IMPLICATIONS FOR PTWS**  
**WORKING DOCUMENT FOR ICG/PTWS-XXIX, 1-2 and 7-8 SEPTEMBER 2021**

**1. BACKGROUND**

The UN Decade of Ocean Science for Sustainable Development (2021-2030) provides a tremendous and unique, once-in-a generation opportunity to address capability gaps in the global Tsunami Warning and Mitigation System (TWS). Many of these key initiatives had been highlighted during the 2018 “Advances in Tsunami Warning to Enhance Community Responses” Symposium (UNESCO, 12-14 February 2018). At the XXVIII Session of the ICG/PTWS (April 2019), Member States approved Rec. ICG/PTWS-XXVIII.6 recommending Member States actively support the Ocean Decade through contributions of existing and new data, and promotion of the Decade programs as part of their national platforms and priorities.

Since then, IOC global tsunami experts have participated in Ocean Decade Regional Consultations, focused task teams and other feeder events. This has led to strong momentum for addressing many of the unique challenges facing the global TWS within the Safe Ocean pillar of the UN Ocean Decade. In October of 2020, Dr Alexander Frolov, Chair, TOWS WG, established a small team to review the tsunami actions to date, and to develop and propose what the appropriate level of tsunami involvement should be within the Ocean Decade framework, including whether there should be a dedicated Ocean Decade Tsunami Programme.

At the 14th Meeting of the TOWS WG (virtual, 25-26 February 2021), the WG recommended the establishment of the UN Ocean Decade Tsunami Programme (the programme), with “Protecting Communities from the World’s Most Dangerous Waves: A Framework for Action under the UN Decade of Ocean Science for Sustainable Development” (annex 1 to Circular Letter, 2825) as the guiding document for implementation, and, with the following governance structure:

1. The TOWS-WG will perform Global Steering Committee functions for *the programme*;
2. A Scientific Committee with Terms of Reference included in Appendix 1, with an advisory role for the duration of the programme will be established with 4 members nominated by the each of the TOWS-WG Task Teams and 3 members nominated by the TOWS-WG on the basis of their scientific expertise. All members will serve for a period of two years and would be eligible for renewal once;
3. The Scientific Committee will be tasked to develop a Draft 10-Year Research, Development and Implementation Plan for the programme for endorsement by the TOWS-WG at its next session;
4. The four Intergovernmental Coordination Groups (ICGs) will perform regional Steering Committee functions, including implementing coordinating roles for the regional aspects of *the programme*;

5. A special Coalition for Tsunami Ready will be established in collaboration with other critical stakeholders across the UN structure as well as national civil protection agencies and will report to the TOWS-WG on Tsunami Ready aspects of *the programme*.

## 2. UPDATE

The Thirty-first Session of the Intergovernmental Oceanographic Commission (of UNESCO) Assembly (14 – 25 June 2021) approved the establishment of the Ocean Decade Tsunami Programme, a Scientific Committee to prepare the Draft 10-Year Research, Development and Implementation Plan and Tsunami Ready Coalition. The Ocean Decade Tsunami Programme will support the *Safe Ocean* Outcome of the [UN Decade of Ocean Science for Sustainable Development](#) which will run through 2030.

- Expansion of existing observational systems including seismometers, coastal tide gauges, and deep ocean tsunameters (DARTs) to fill identified gaps;
- Deployment of new technologies to address observational gaps that cannot be covered by existing networks embracing. This would include the widespread implementation of scientific instrumentation on deep-ocean telecommunications cables as initiated by the [ITU/WMO/UNESCO-IOC Joint Task Force \(JTF\) SMART Subsea Cables](#) effort;
- Wide expansion of data access and availability and development of capability for real-time and near-real time sea level, seismic and GNSS-derived land motion data at an appropriate sampling rate and relevant tools to forecast tsunamis from all sources;
- Increased access and regularly update the collection of coastal topographic and bathymetric data, in collaboration with the [Nippon Foundation-GEBCO Seabed 2030](#) project, as well as high performance computational capabilities to enable more timely, accurate and comprehensive tsunami and other coastal hazard forecasts to better advise community response;
- All National Tsunami Warning Centres have access to data, tools and communication platforms, protocols and training to timely and effectively warn coastal and maritime communities;
- 100% of communities at risk of tsunami prepared for and resilient to tsunamis by 2030 through the implementation of the [UNESCO/IOC Tsunami Ready Programme](#) and other initiatives.

Most importantly, this *programme* will seek to build the institutional capacity in all of the domains above to ensure that a country's ability to prepare for, warn against and recover from the tsunami threat is not dependent on what it can afford.

## 3. FUTURE STEPS IN RELATION TO PTWS

The ICG/PTWS will play an important role in the success of the UN Ocean Decade Tsunami Program. More than 70% of the world's tsunamis occur in the Pacific and its marginal seas. PTWS Member States are all exposed to tsunamis. Many are additionally highly vulnerable,

and therefore are likely to benefit the most from a successful Ocean Decade Tsunami Programme. Given the above and the importance of the Decade, the ICG/PTWS recently undertook a review of their 10-year Strategy and have aligned this with the Goals and intentions of the Decade. This will provide for harmonious delivery on development objectives for Pacific tsunami risk management, but also, the Decade. In addition, the targets in the PTWS ‘Performance Framework’ align with the following specific contributions by the PTWS can include but not be limited to:

- Governance. As stated in the 2021 IOC GA decision: “The four Intergovernmental Coordination Groups (ICGs) will perform regional Steering Committee functions, including implementing coordinating roles for the regional aspects of *the programme*.” Action: ICG/PTWS to establish Task Team to identify and facilitate PTWS contributions to the UN Ocean Decade Tsunami Programme, and to coordinate UN Decade efforts with other ICGs (draft below);
- Projects. Implement projects to support the tsunami goals of the UN Decade Goals
  - a. Improve tsunami hazard risk assessment, detection, threat analysis and forecasting, and dissemination, including techniques to warn for local tsunamis, and provide impact inundation forecasting.
    - i. Expansion of existing observational systems
    - ii. Deployment of new technologies to address observational gaps that cannot be covered by existing networks
      1. JTF SMART co-sponsored projects or experimentation
      2. GNSS-themed experimentation
      3. Other instrumentation and analysis experiments (DART, CMT, FF, etc.)
    - iii. Wide expansion of data access and availability
    - iv. Collection of coastal topographic and bathymetric data to support long- and short-term forecasting
  - b. Make 100% of communities at risk of tsunami prepared for and resilient to tsunamis by 2030 through the implementation of the [UNESCO/IOC Tsunami Ready Programme](#) and other initiatives. The PTWS can play a lead role in the Tsunami Ready Coalition envisioned by the Ocean Decade Tsunami Programme
- Representation. PTWS Tsunami expertise and threat understanding should be represented at all UN Ocean Decade supporting activities including:
  - a. UN Ocean Decade Laboratories
  - b. Professional conferences (eg ITU, AGU)
  - c. UN Ocean Decade themed events
- Capacity Development
  - a. Ensure all National Tsunami Warning Centres have access to data, tools and communication platforms, protocols and training to timely and effectively warn coastal and maritime communities
  - b. Ensure broad reach and opportunity in Capacity Development.

- c. Support the Ocean Teacher Global Academy to develop and provide tsunami training focusing on tsunami warning and emergency response operations and Tsunami Ready.
- Encourage and foster the involvement of Early Career Professionals and promote gender-balanced participation in tsunami activities.

#### 4. RECOMMENDATIONS FOR THE ICG/PTWS-XXIX

**Recognizing** the UN Decade for Ocean Science for Sustainable Development as a once-in-a-lifetime opportunity to realize transformative ocean science solutions,

**Recognizing** the UN Decade for Ocean Science societal goals include a Safe Ocean, where life and livelihoods are protected from ocean-related hazards, such as tsunamis

**Recalling** Recommendation ICG/PTWS-XXVIII.6 (2019) for PTWS Member States to actively support the Ocean Decade through contributions of existing and new data, and promotion of the Decade programs as part of their national platforms and priorities.

**Noting** the guiding document *Protecting Communities from the World's Most Dangerous Waves: A Framework for Action under the UN Decade of Ocean Science for Sustainable Development*, submitted for consideration to the 14th Session of the TOWS WG.

**Noting** Recommendation TOWS-WG-14 to establish an Ocean Decade Tsunami Programme with a 10-year Research, Implementation and Development Plan, along with a Scientific Committee and Tsunami Ready Coalition to guide its implementation

**Noting** the Thirty-first Session of the Intergovernmental Oceanographic Commission (of UNESCO) Assembly (14 – 25 June 2021) approved the establishment of the Ocean Decade Tsunami Programme, a Scientific Committee to prepare the Draft 10-Year Research, Development and Implementation Plan and Tsunami Ready Coalition.

**Recognizing** that ‘Ocean Science’ should be interpreted broadly as encompassing: social sciences and human dimensions; the infrastructure that supports ocean science (observations, data systems); the application of those sciences for societal benefit, including knowledge transfer and applications in regions that are lacking science capacity; and the science-policy/user interface. The integration of traditional knowledge in ocean research will also be promoted in the context of the Decade.

**Decides** to establish an ICG/PTWS Task Team on the Ocean Decade under the PTWS Steering Committee with Terms of Reference as below.

**Urges** Member States to engage and contribute to the co-design and co-delivery of Ocean Science for Sustainable Development and the Ocean Decade Tsunami Programme;

**Decides** to include a permanent agenda item on the Ocean Decade in the Policy section of its regular meetings.

#### Task Team on UN Decade

##### Terms of Reference:

1. Provide input to the Ocean Decade Tsunami Programme on behalf of the ICG/PTWS

2. Identify, facilitate, compile and maintain a list of PTWS contributions to the UN Ocean Decade Tsunami Programme in support of its 10-year Scientific Research, Implementation and Development Plan
3. Serve as a clearinghouse for the coordination of UN Decade efforts with other ICGs, regional partners and other stakeholders including the private sector.
4. Report to ICG/PTWS on a bi-annual basis and to the ICG/PTWS Officers on a regular basis.

The Task Team will be composed of members nominated by Member States, representatives from each Technical and Regional Working Group, representatives for each ICG designated TSPs, ITIC, and invited experts and observers, with a Chair and a Vice-Chair to be elected by the ICG. Where possible, the Task Team will strive for a membership that reflects the geographic and language diversity of the ICG/PTWS and strive to achieve gender balance.

**Michael Angove and Laura Kong**  
25/11/2021