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Intergovernmental
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UNESCO/IOC Tsunami Ready Recognition Programme

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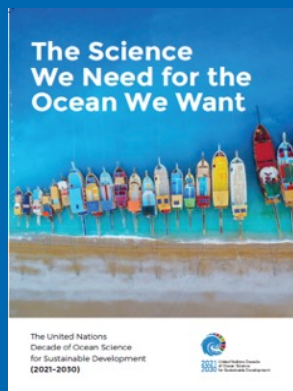


Vision:
*“The science we need
for the ocean we want”*

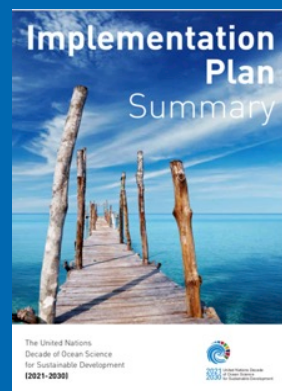
Mission:
*Transformative Ocean Science
solutions for sustainable
development, connecting
people and our ocean*



2016-2017



2018-2019



2019-2020

Ocean Decade Goals: Societal Outcomes



4. A Predicted Ocean

Society understands and can respond to changing ocean conditions.



5. A Safe Ocean

Life and livelihoods are protected from ocean-related hazards.



6. An Accessible Ocean

Open and equitable access to data, information and technology and innovation.

Capacity Development

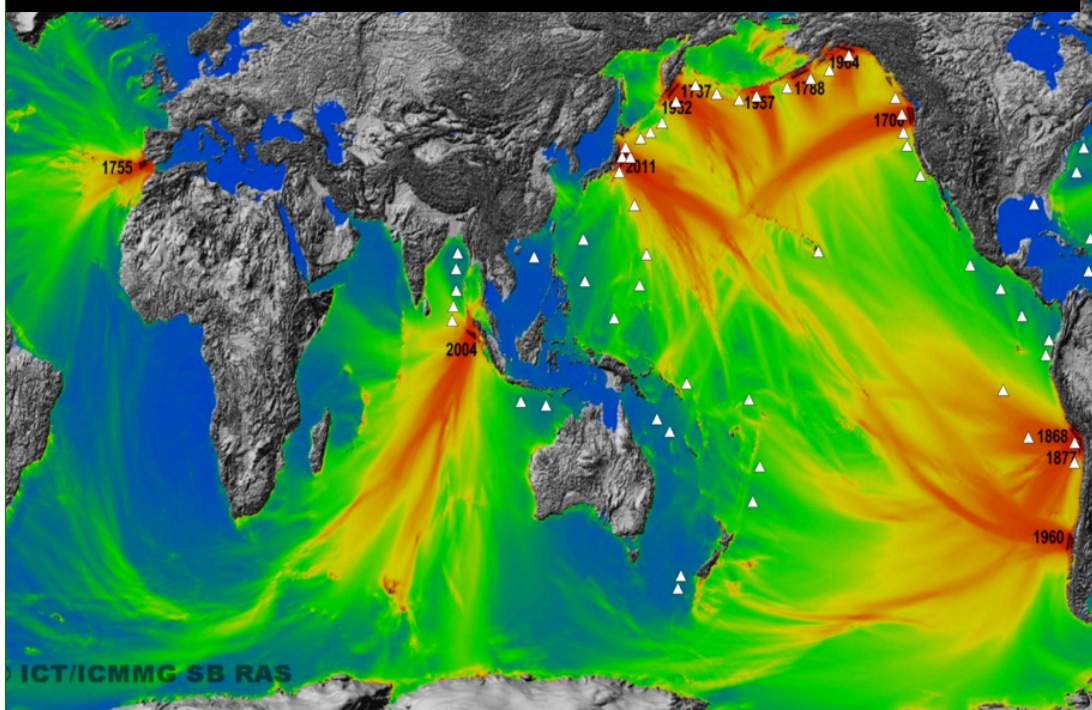
Cross-cutting. No one left behind.

UNESCO IOC

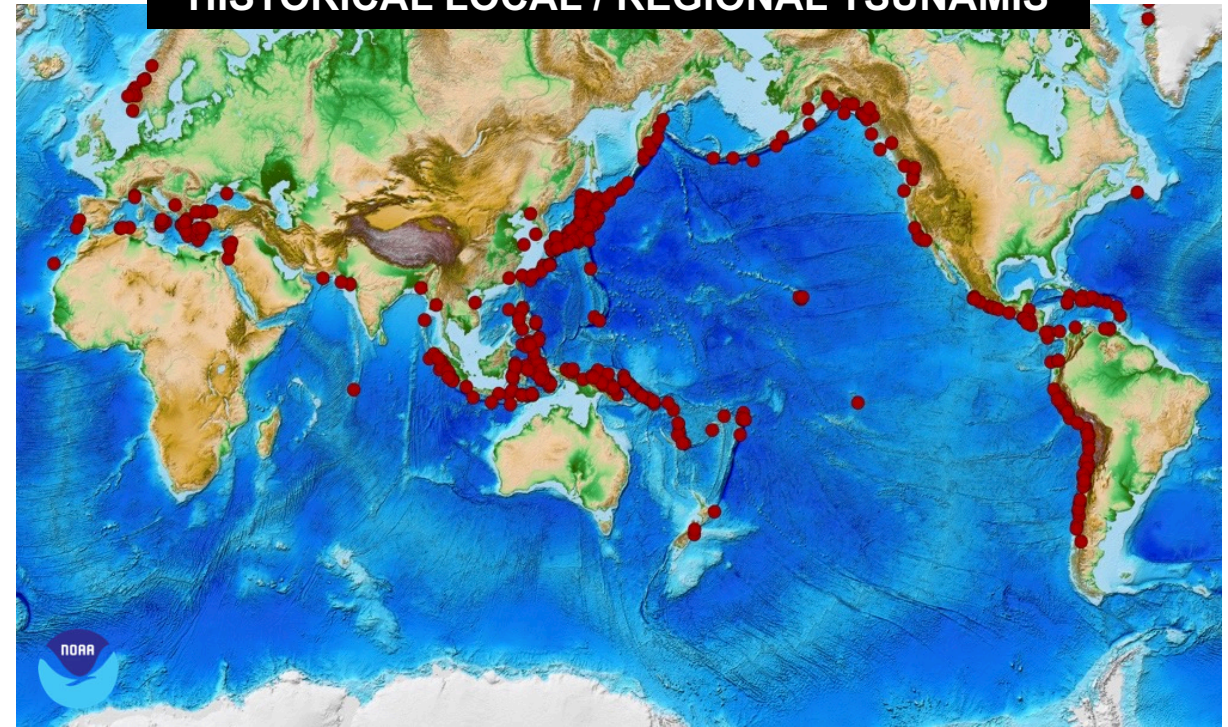


Deadly Tsunamis – MOST ARE LOCAL

HISTORICAL TRANS-OCEANIC DISTANT TSUNAMIS



HISTORICAL LOCAL / REGIONAL TSUNAMIS



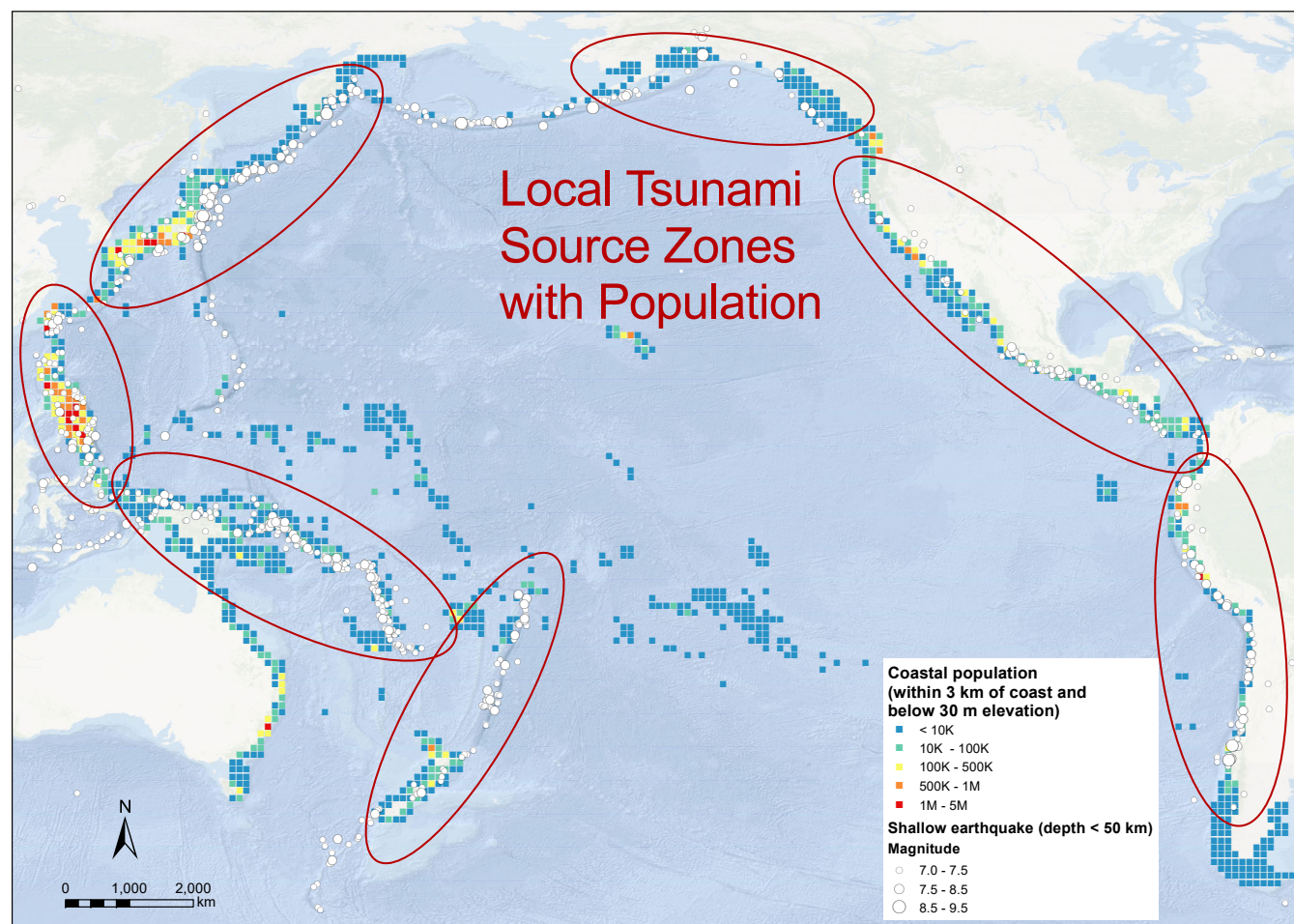
- ❑ Most tsunamis are local (< 1 hr) or regional (1-3 hrs)
- ❑ Globally, 90% of deaths from local or regional tsunamis (in Pacific, 99% of deaths)



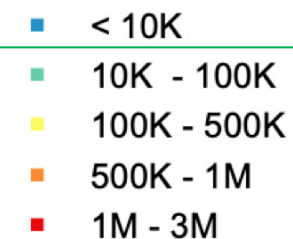
At-risk population - Pacific



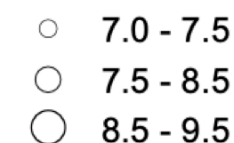
Tsunami evacuation zone	Population to evacuate
Less than 30 m elevation and within 3 km of coast	83,413,677



Coastal Population (1 deg aggregate)



Shallow Earthquakes Magnitude



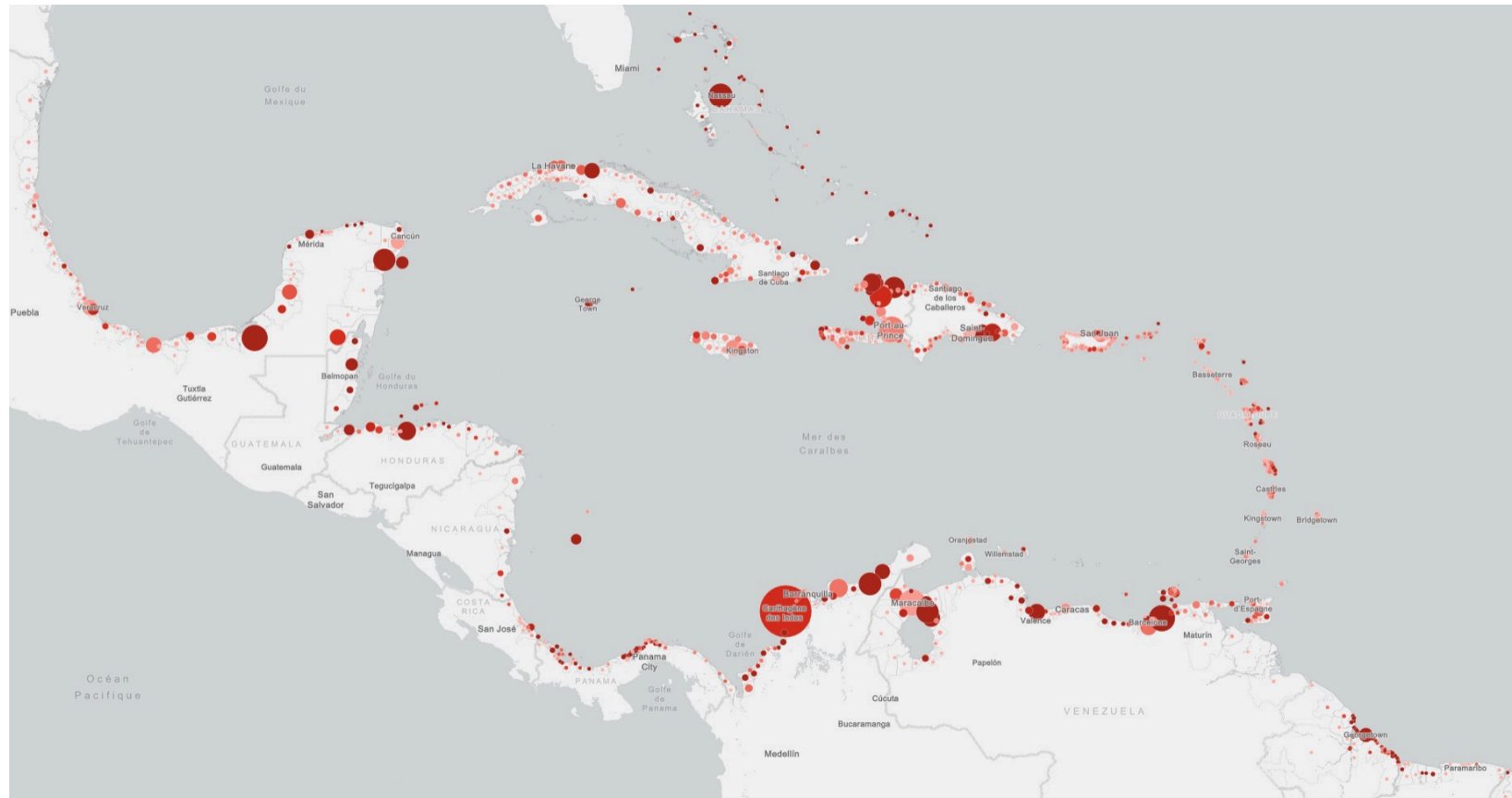
Gridded Population of the World, Version 4 (GPWv4) (<https://sedac.ciesin.columbia.edu/binaries/web/sedac/collections/gpw-v4/gpw-v4-documentation-rev11.pdf>).
30 sec resolution aggregated to 1 deg
B. Fry, GNS Science, NZ



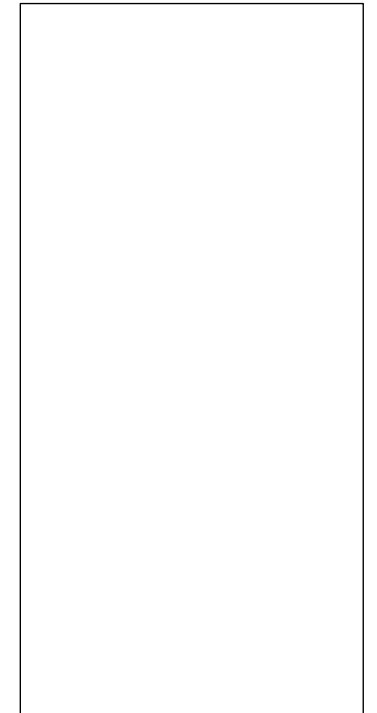
At-risk population - Caribbean



Tsunami evacuation zone	Population to evacuate
Less than 30 m elevation and within 3 km of coast	21,700,000
Less than 15 m elevation and within 3 km of coast	15,400,000



Zone defined according to SRTM Digital Elevation 30m data
Average value estimated from Global Human Settlement Layer and WorldPop Hub
M. Péroche,



UN Decade of Ocean Science for Sustainable Development IOC Ocean Decade Tsunami Programme - Tsunami Ready

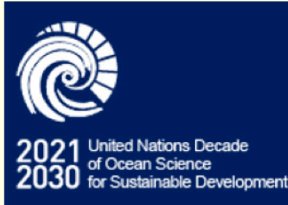


World Tsunami Awareness Day - 2021

Tsunamis are the most deadly of all sudden onset natural hazards



[Click for video](#)



OCEAN DECADE TSUNAMI PROGRAMME

A SAFE OCEAN

THE MAIN SOCIETAL OUTCOME

TO MAKE
100%

OF COMMUNITIES AT RISK
OF TSUNAMI PREPARED FOR
AND RESILIENT TO TSUNAMIS

BY
2030

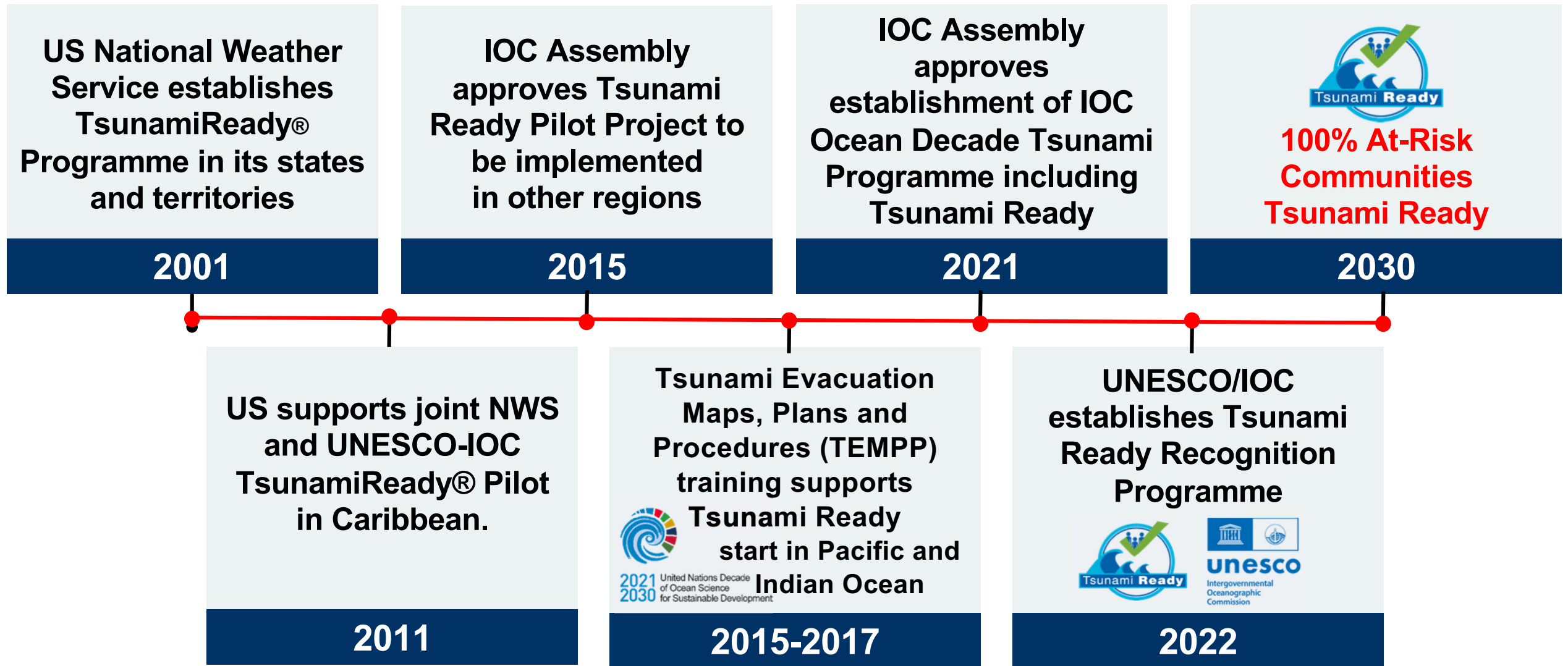
➤ *Tsunami Coalition: collaborative with critical UN stakeholders, civil protection, others ==> Raise profile. Facilitate resourcing*

CHAIR is LAURA KONG

➤ *Capacity Development: "Tsunami Ready" training, augmented by online IOC Ocean Teacher Global Academy (OTGA) ==> Global reach, deep curricula*

ITIC is OTGA STC

History of Tsunami Ready Programme

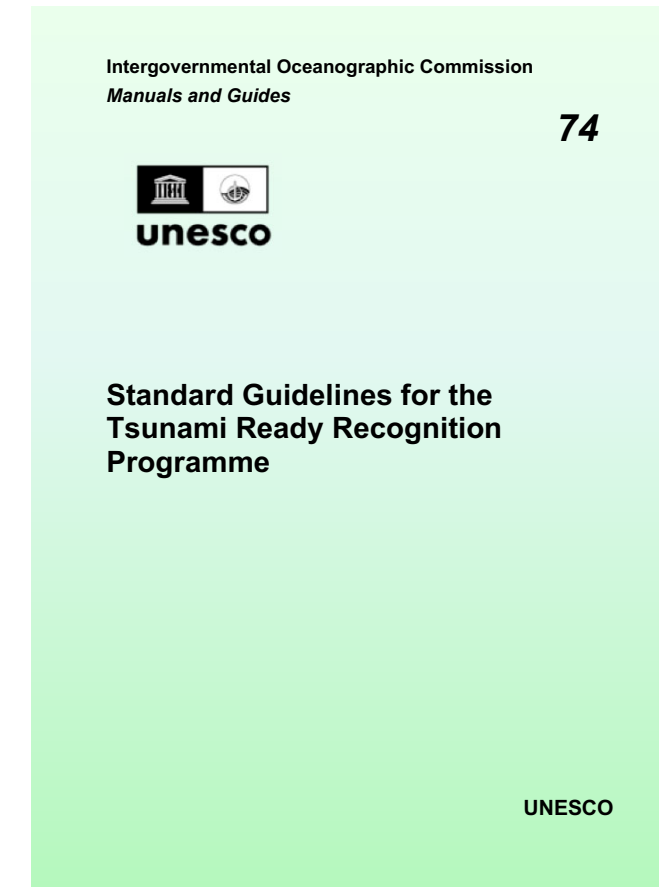


Tsunami Ready



UNESCO-IOC Tsunami Ready Recognition Programme is:

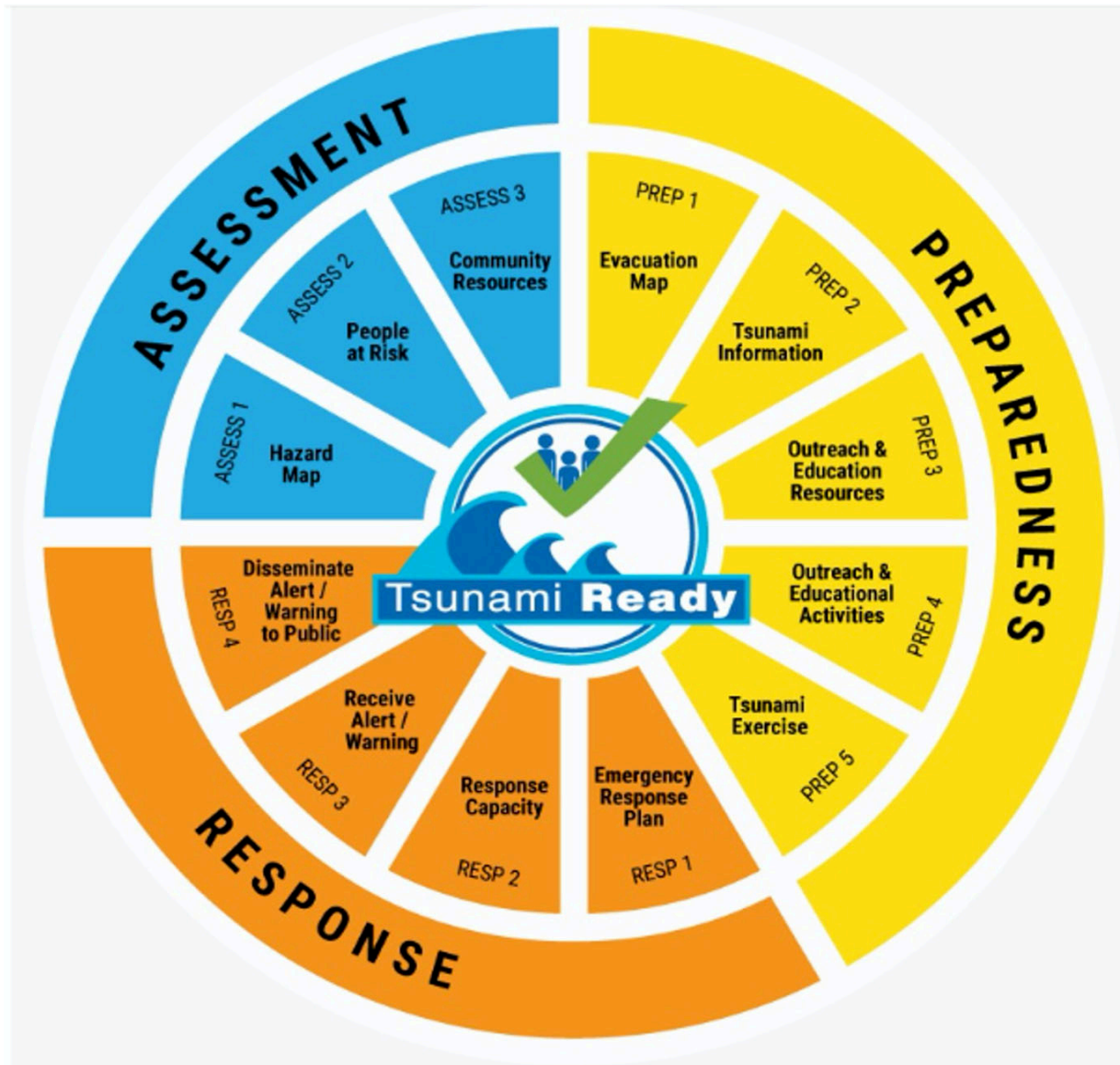
- Voluntary international performance-based community programme.
- Facilitated by UNESCO-IOC Tsunami Information Centres* (CTIC, IOTIC, ITIC, and NEAMTIC) of each region
- Formal recognition process follows standard guidelines (UNESCO-IOC Manual and Guide 74).



UNESCO-IOC Tsunami Information Centres



UN OCEAN DECADE TSUNAMI PROGRAMME: 100% AT-RISK COMMUNITIES TSUNAMI READY

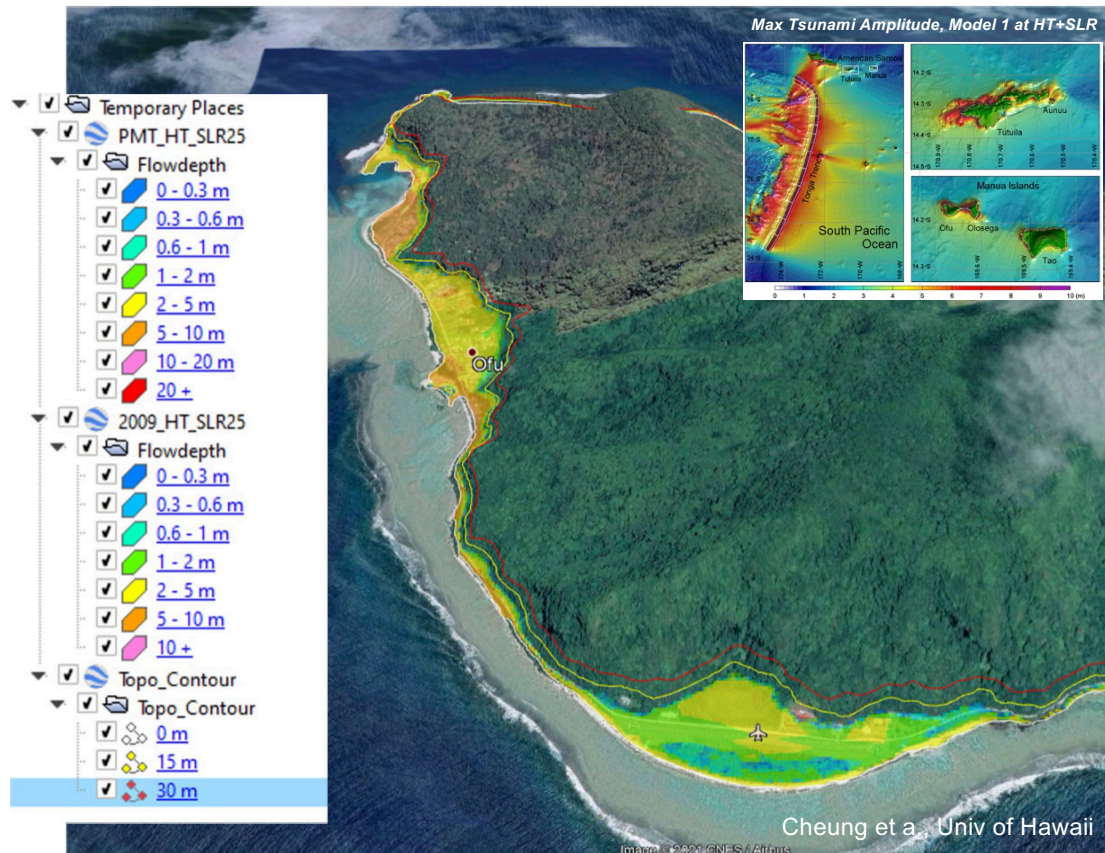


- **STRATEGY:**
Be Aware, Be Prepared
- **FRAMEWORK:**
 - Harmonized global guidelines UNESCO IOC Tsunami Ready
 - Performance-based Community Recognition
- **ACTION:**
National programs empower Communities
- **GLOBAL MEASURE**
 - 12 Indicators – Assessment, Preparedness, Response

UNESCO IOC Tsunami Ready Recognition Guidelines

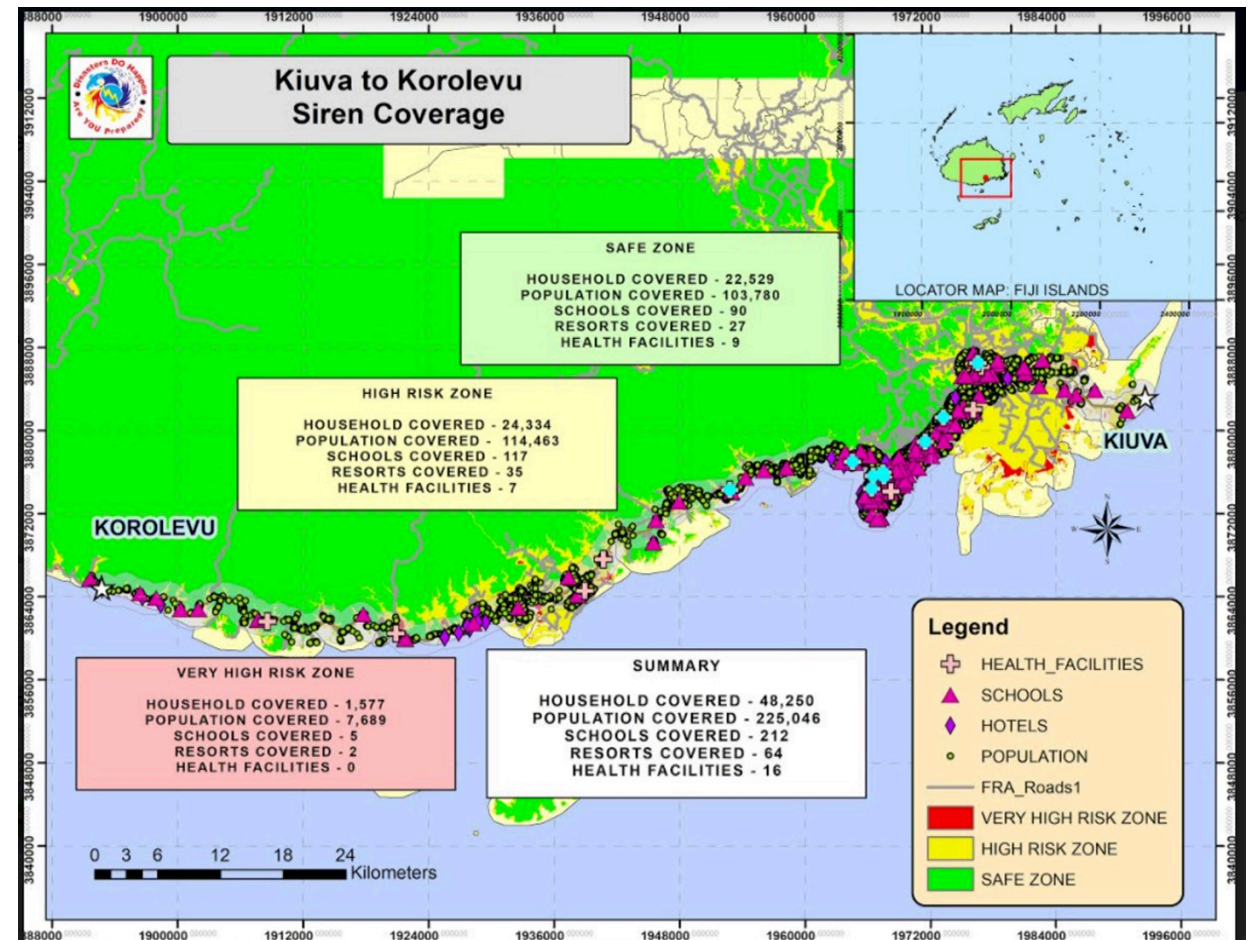
ASSESS-1. INUNDATION MAP.

Tsunami Hazard Zones mapped and designated



ASSESS-2. PEOPLE AT RISK.

Number of people in Tsunami Hazard Zone Estimated



Inundation Map - Ofu, Manu'a Islands, American Samoa

UNESCO IOC Tsunami Ready Recognition Guidelines



AESS-3. COMMUNITY RESOURCES.

Economic, infrastructural, political and social resources identified

*Economic, Infrastructural, political and social resources survey
and consultation (participatory approach) conducted*



UNESCO IOC Tsunami Ready Recognition Guidelines

PREP-1. EVACUATION MAP Easily understood tsunami evacuation maps



Nuku'alofa, Tonga

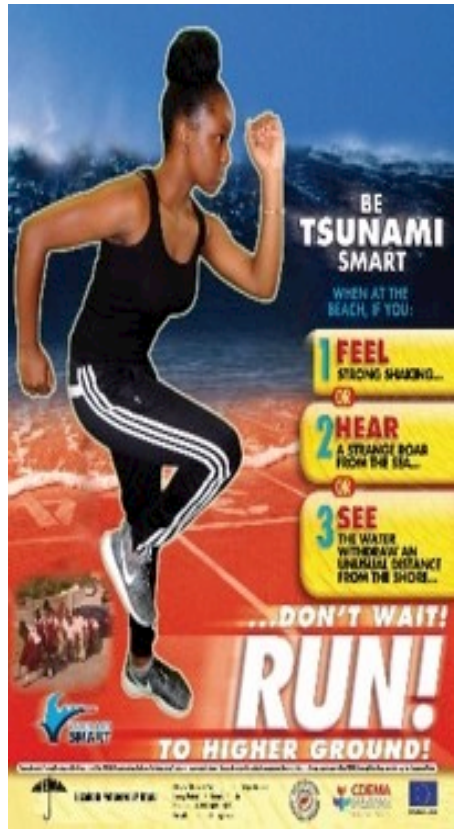
PREP-2. TSUNAMI INFORMATION Information including Signage Displayed



UNESCO IOC Tsunami Ready Recognition Guidelines

PREP-3. OUTREACH AND EDUCATION RESOURCES
Outreach, public awareness and education resources available and distributed

PREP-4. OUTREACH AND EDUCATION ACTIVITIES. Held at least 3 times a year




SUNAMI: AUA ETE TOE FAATALI!
TSUNAMI: RUN FOR YOUR LIFE!
O FA'AILOILO E TE ONO VAAIA

FAA'ILLOILO FA'ALELUTERA
= agai tagata uma o loo i totonu o sone i nofoaga o saogalemu maua'uluga

Natural or informal warnings
= Evacuate all zones

Official warning
= Evacuate zone(s) stated in warning

AMERICAN SAMOA

United Nations Educational, Scientific and Cultural Organization | Intergovernmental Oceanographic Commission | National Oceanic and Atmospheric Administration | International Tsunami Information Center | National Weather Service, WDC | American Samoa Dept of Homeland Security

Samoa



UNESCO IOC Tsunami Ready Recognition Guidelines



PREP-5. TSUNAMI EXERCISE. Annual Community Tsunami Exercise



Exercise Pacific Wave 2022 PICT Regional Exercise



Preparedness



Evacuation map developed for Kingstown, SVG

II PREPAREDNESS (PREP)	
4	PREP-1. Easily understood tsunami evacuation maps are approved
5	PREP-2. Tsunami information is publicly displayed
6	PREP-2. Outreach and public awareness and education resources are available and distributed
7	PREP-3. Outreach or educational activities <u>are held at least three times a year</u>
8	PREP-4: A community tsunami exercise is conducted at least every two years



Tsunami Hazard Zone sign in Grenada



Community tsunami exercise in BVI



Educational activity in Trinidad and Tobago

UNESCO IOC Tsunami Ready Recognition Guidelines

RESP-1. EMERGENCY RESPONSE PLAN Community tsunami emergency response plan approved



Cedeño, Honduras
Emergency Response Plan, 2017

RESP-2. RESPONSE CAPACITY Capacity to manage emergency response operations during tsunami in place



St. Kitts Emergency Operations Center

UNESCO IOC Tsunami Ready Recognition Guidelines



RESP-3. RECEIVE ALERT / WARNING
Redundant and reliable means to receive official tsunami warnings 24x7 are in place

RESP-4. DISSEMINATE ALERT/WARNING TO PUBLIC. Redundant and reliable means to disseminate official tsunami warnings and information to public 24x7 in place



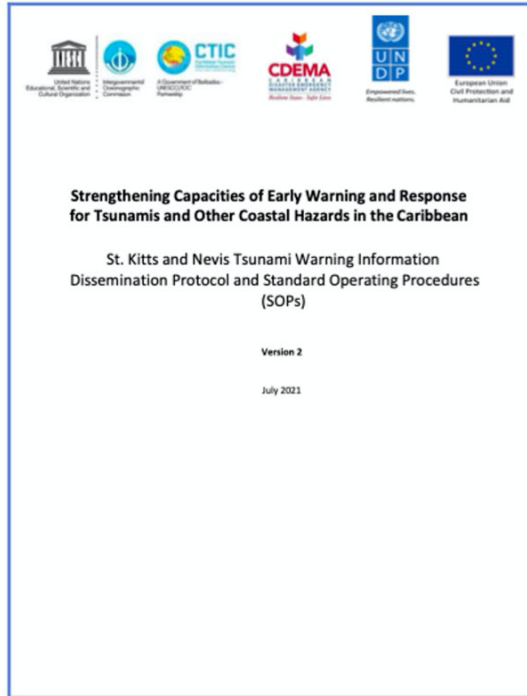
Samoa



Honduras

Response

III	RESPONSE (RESP)
9	RESP-1. A community tsunami emergency response plan (ERP) is approved
10	RESP-2. The capacity to manage emergency response operations during a tsunami is in place
11	RESP-3. Redundant and reliable means to timely receive 24-hour official tsunami alerts are in place
12	RESP-4. Redundant and reliable means to timely disseminate 24-hour official tsunami alerts to the public are in place



SOP for SKN (For the case of a community within a country, there must be a National SOP as well as the local SOP)

TSP Notification	Earthquake	Wave forecast	ETA	NTWC Level	Alert	Emergency Response Action
Tsunami Threat Message	Magnitude: >7.0 Depth: <100km	≥ 1 m	<3 hrs	WARNING	Evacuate xxx zones	
			3 - 6 hrs	WATCH	Prepare to evacuate	
			>6 hrs	INFORMATION	Monitor for subsequent forecasts	
		0.3 to 1 m	<3 hrs	ADVISORY	Evacuate beaches and harbours	
			3 - 6 hrs	WATCH	Prepare to evacuate	
			>6 hrs	INFORMATION	Monitor for subsequent forecasts	
		< 0.3 m	-	INFORMATION	Monitor for subsequent forecasts	

Criteria for tsunami alerts and emergency response actions



UN OCEAN DECADE TSUNAMI PROGRAMME: 100% AT-RISK COMMUNITIES TSUNAMI READY



UNESCO IOC TSUNAMI READY INDICATORS	
I	ASSESSMENT (ASSESS)
1	ASSESS-1. Tsunami hazard zones are mapped and designated
2	ASSESS-2. The number of people at risk in the tsunami hazard zone is estimated
3	ASSESS-3. Economic, infrastructural, political, and social resources are identified
II	PREPAREDNESS (PREP)
4	PREP-1. Easily understood tsunami evacuation maps are approved
5	PREP-2. Tsunami information is publicly displayed
6	PREP-2. Outreach and public awareness and education resources are available and distributed
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- **GLOBAL MEASURE**



Community Selection



- ❑ **Recognition level is community that has capacity and authority (not too big or too small)**
- ❑ **Voluntary – need to have interest**
- ❑ **Ability to receive and disseminate warnings**
- ❑ **Government Authority to apply for recognition**
- ❑ **Champions**
- ❑ **EOC or location to manage tsunami emergency**



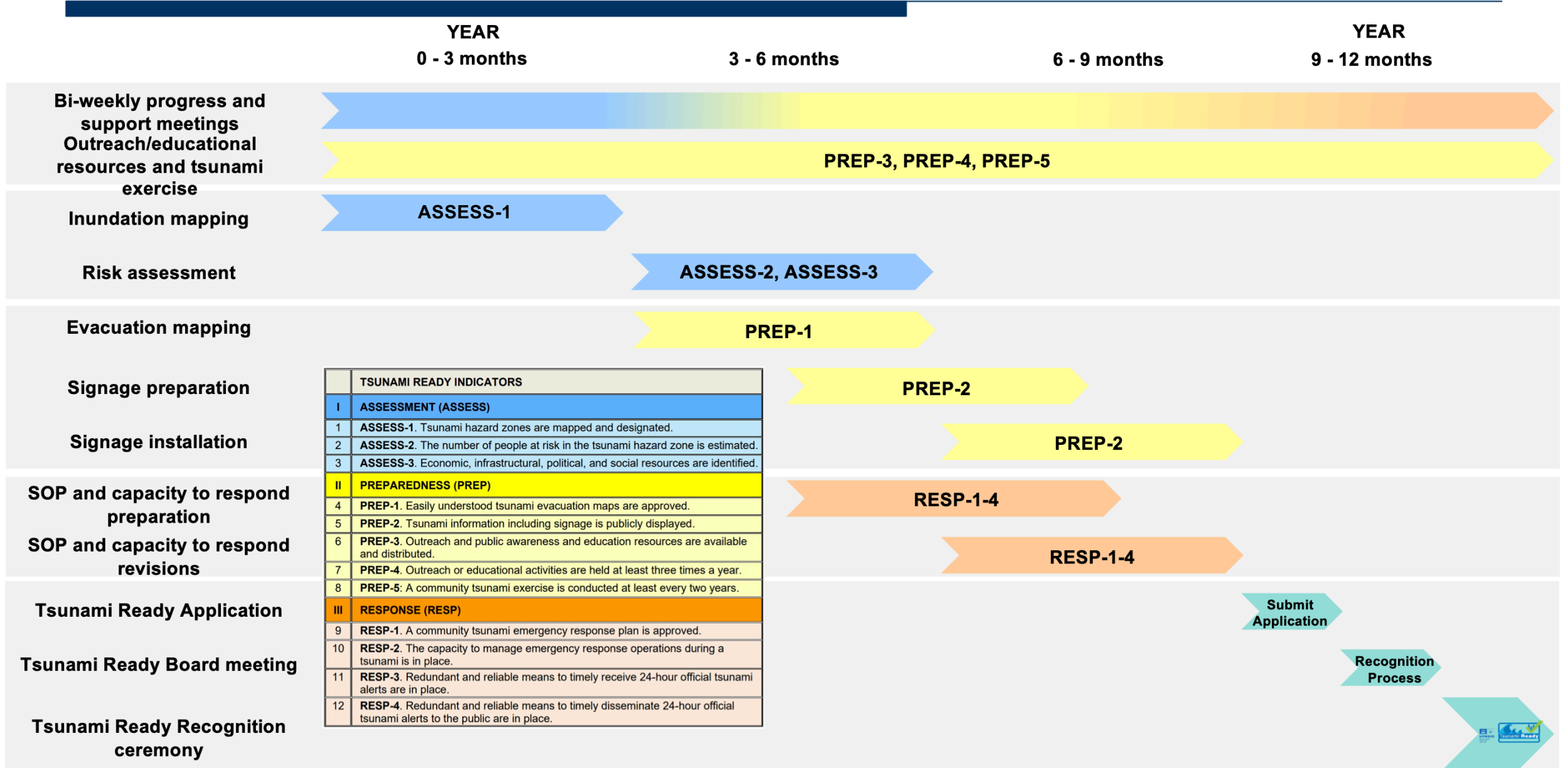
Verification, Recognition, Renewal Processes



- **Verification Process – site visit by IOC Tsunami Information Centre representative (ITIC for Pacific) to confirm community has met requirements**
- **Tsunami Ready Recognition Ceremony**
- **Recognition for 4 years, after which it needs to be renewed**
- **Over the 4 years, there should be maintenance, advancement and improvements. Include in**
 - National Reports to ICG/PTWS
 - PTWS Regional Working Group (PICT) reports
 - PTWS WG 3 (Disaster Risk Reduction and Preparedness) report
 - EXERCISE PACIFIC WAVE (PacWave) post-exercise surveys



Tsunami Ready Recognition 1 year timeline



UNESCO/IOC TSUNAMI READY RECOGNITION PROGRAMME (TRRP)

54
TSUNAMI READY COMMUNITIES

- 11 – **IOTWMS**
- 20 – **PTWS (16/46 countries)**
- 20 – **CARIBE-EWS**
- 3 – **NEAMTWS**
- – in progress (next yr)

Spain ○ France ● Italy ○ Türkiye ● Greece ○ Israel ○ Egypt ●

MAJOR ACTIVITIES IN 2021-2024+

- **Ramp-up for Tsunami Ready**
- **Development of a global Tsunami Ready Interactive Map Viewer**
- **Hosting by ITIC of the Tsunami Ready web site**
- **Development of a new Tsunami Ready Board Game**
- **Publication of the IOC Manuals and Guides 74 «Standard Guidelines for Tsunami Ready Recognition Programme»**



Fiji Coral Coast: Nayevuyevu and Sila Villages

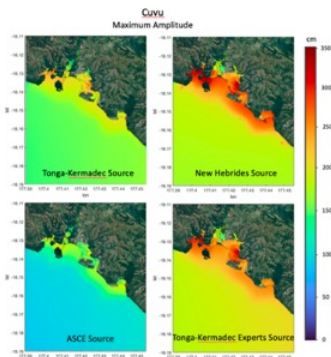


TR Recognition Ceremony: Nov 3, 2023

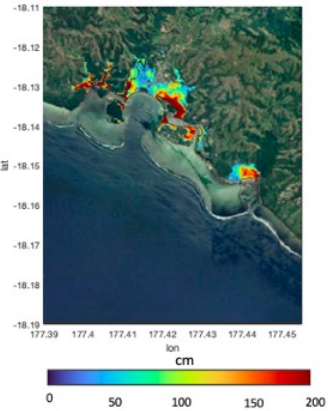
Implementation Approach - Stakeholders

Mineral Resources Dept, National Disaster Management Office, Ministry of Lands, Provincial Administrator, iTaukei Affairs, Plan International, Partners in Community Development (Fiji), People Living with Disability Organization

Preparedness: Hazard and Evacuation



Maximum Composite Flow Depth



Hazard Assessment: Tsunami Sources and Inundation

TSUNAMI EVACUATION PROCEDURE

- If you feel an earthquake - protect yourself! Do not panic. Drop, cover, and hold!
- After an earthquake, be aware that a tsunami may follow. Move away from the beach immediately as a precautionary measure. Look for more information through TV and Radio.
- After an intense and prolonged earthquake, evacuate immediately if possible or look for shelter in Higher Buildings.
- As a community visitor, please follow Community Disaster Management's instructions.
- The sound of the siren is the official call for evacuation.
- If the siren sounds, follow the evacuation procedure.

After the first tsunami wave, more waves are likely to come!

Wait for an official "All Clear" message before leaving the shelter.

If it is long or strong, get gone

COLA VINA!! WELCOME TO NAEVUEVU VILLAGE

TSUNAMI EVACUATION MAP

Legend

- Signage
- FRA Roads
- Districts
- Evacuation Area
- Evacuation Route
- Village Boundaries

DATE DEVELOPED: 2018/10/2023

NA I VAKARO MO MURIA NI YACO NA UA LOKA

- Kevaka na vavata na uneseke - vakaroti ni ve! Mea vakata, kakua ni toso me yacora ni oti na uneseke.
- Ni oti na uneseke, mo na dua nataka ni rava ni veveve me na sa na loka.
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TSUNAMI EVACUATION PROCEDURE

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COLA VINA!! WELCOME TO SILA VILLAGE

TSUNAMI EVACUATION MAP

Legend

- Signage
- FRA Roads
- Districts
- Evacuation Area
- Evacuation Route
- Village Boundaries

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Community participatory training, Sep 2023

OFFICIAL WARNINGS

when tsunami travel across the ocean from far away, we have more time to warn people what to do.

WARNING	Move to higher ground or inland IMMEDIATELY!	DANGER	A Tsunami is imminent. Flooding and dangerous currents.
ADVISORY	Stay out of the water and away from the shore.	STRONG CURRENTS AND DANGEROUS WAVES	It is your safest option.
WATCH	Be prepared to take action. Avoid level they change zones. Stay tuned to local Radio/TV.	TSUNAMI POSSIBLE	Alert level they change zones.
INFORMATION STATEMENT	Move to higher ground or inland IMMEDIATELY!	NO ACTION REQUIRED	RELAX

Alerts & Warnings

- Outdoor Sirens
- Social Media
- Telephone Notifications
- Radio
- Wireless Emergency Alerts and Text Messages
- Television

IF YOU FEEL AN EARTHQUAKE THAT IS LONG AND STRONG, A TSUNAMI MAY FOLLOW

WHAT TO DO IN CASE OF A TSUNAMI

- Drop, cover & hold during an earthquake
- Move inland or to a higher ground quickly, or use local evacuation route
- Wait for official ALL CLEAR before returning to the beach

Sila Village Nadroga Province, Fiji is Tsunami Ready

IN CASE OF STRONG OR LONG EARTHQUAKE OR ANY OFFICIAL MESSAGE, GO TO HIGHER GROUND OR FURTHER INLAND

The recognition does not imply approval or promise that a community can or will perform at a certain level in case of tsunami. Tsunami Ready recognition does not mean that a community is tsunami proof. UNESCO-IOC recognizes that the community have built their capacity and implemented measures in accordance to the agreed indicators of UNESCO-IOC Tsunami Ready Programme, and that they will continue to maintain and ensure the sustainability of this preparedness level.

- | English | iTaukei (Fijian) |
|-------------------------------|---|
| • Tsunami Hazard Zone | • Na Vanua oqo e rawa ni cabeta na Ualoka |
| • Tsunami Evacuation Route | • Na sala mo ni muria kina i drodro ni Ualoka |
| • Tsunami Safe Zone | • Nai drodro ni Ualoka |
| • Wait for Official All Clear | • Waraka me soli nai vakaro ni veisukayaki |

Warning, Response, Awareness



UNDRR

UN Office for Disaster Risk Reduction



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Intergovernmental
Oceanographic
Commission

Call to Action!

Making **100%**

of at-risk communities

Tsunami Ready by **2030.**