

**2022 TSTAP
Annual
Update for
NOAA SAB**

**Tsunami
Science &
Technology
Advisory Panel**

Corina Allen & Rocky Lopes, TSTAP Co-Chairs

Why This Report?

P.L. 115-25 (TWERA) and TSTAP *Terms of Reference*:

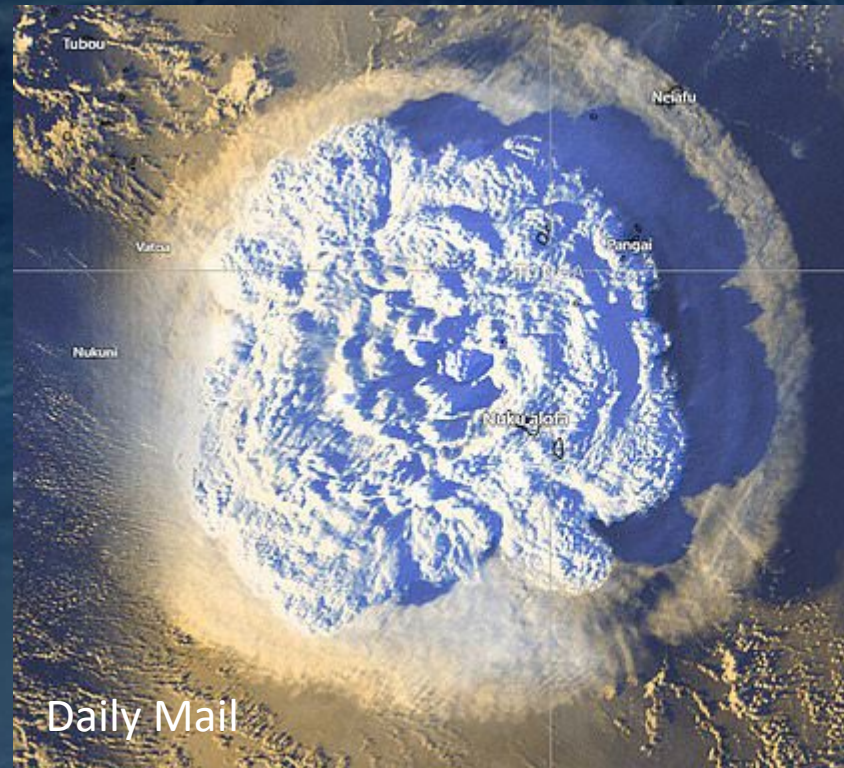
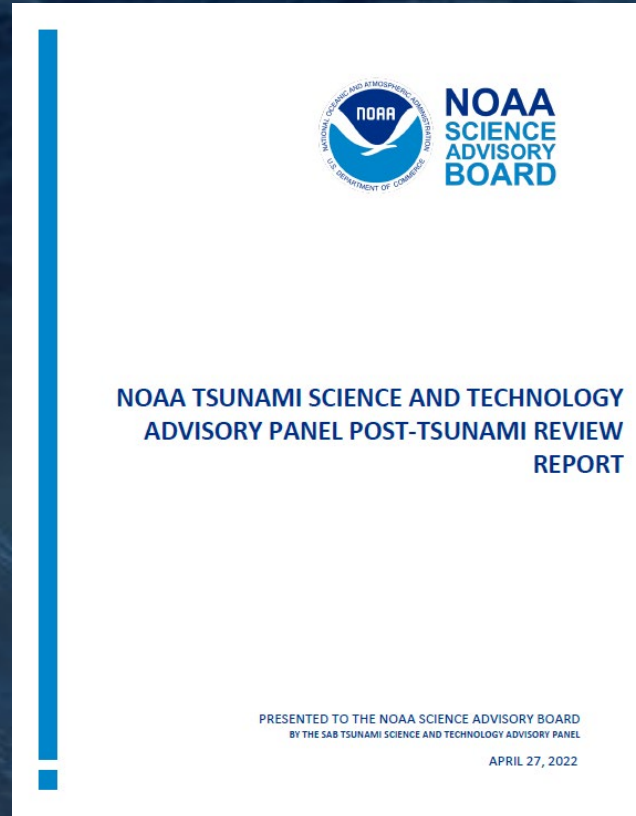
In the years in which a report is not submitted to Congress by the NOAA Administrator, the TSTAP shall provide a report on its activities to the SAB at one of the SAB's in-person meetings.

2022 TSTAP Administrative Work

- Developed *TSTAP Strategic Plan* – approved by SAB
- Recommended two individuals to fill vacancies on TSTAP – appointed by NOAA Administrator Spinrad in April 2022.
- Planned first in-person TSTAP meeting – deferred until May 2023 due to NWS funding availability.
- Co-Chair position rotation – TSTAP is authorized to elect its leadership; developed two-year overlap rotation scheme. Corina Allen from the Washington Geological Survey is the new Co-chair.

Timely Event Review and Report: Hunga Tonga

Developed review and report on Tonga volcanic eruption and tsunami – approved by SAB and sent to NOAA, April 2022.



TSTAP Expert Briefing: Tsunami Vulnerability and Risk

The U.S. does not currently have an adequate understanding of populations vulnerable to tsunamis.

***Findings:** Need for a national effort to determine the “Tsunami Hazard Zone” and the number of people in local tsunami zones as well as infrastructure at risk. A national dataset developed in conjunction with federal/state/local partners would ensure the use of proper and well-vetted data.*

So, how do we reduce loss of life from tsunamis?

By understanding where and why people could die and figuring out how to minimize that

Exposure

How many people and assets are in hazard zones?

Sensitivity

What characteristics of people or assets influence vulnerability?

Adaptive Capacity

Are people or systems currently able to reduce or manage vulnerabilities?

Risk Reduction

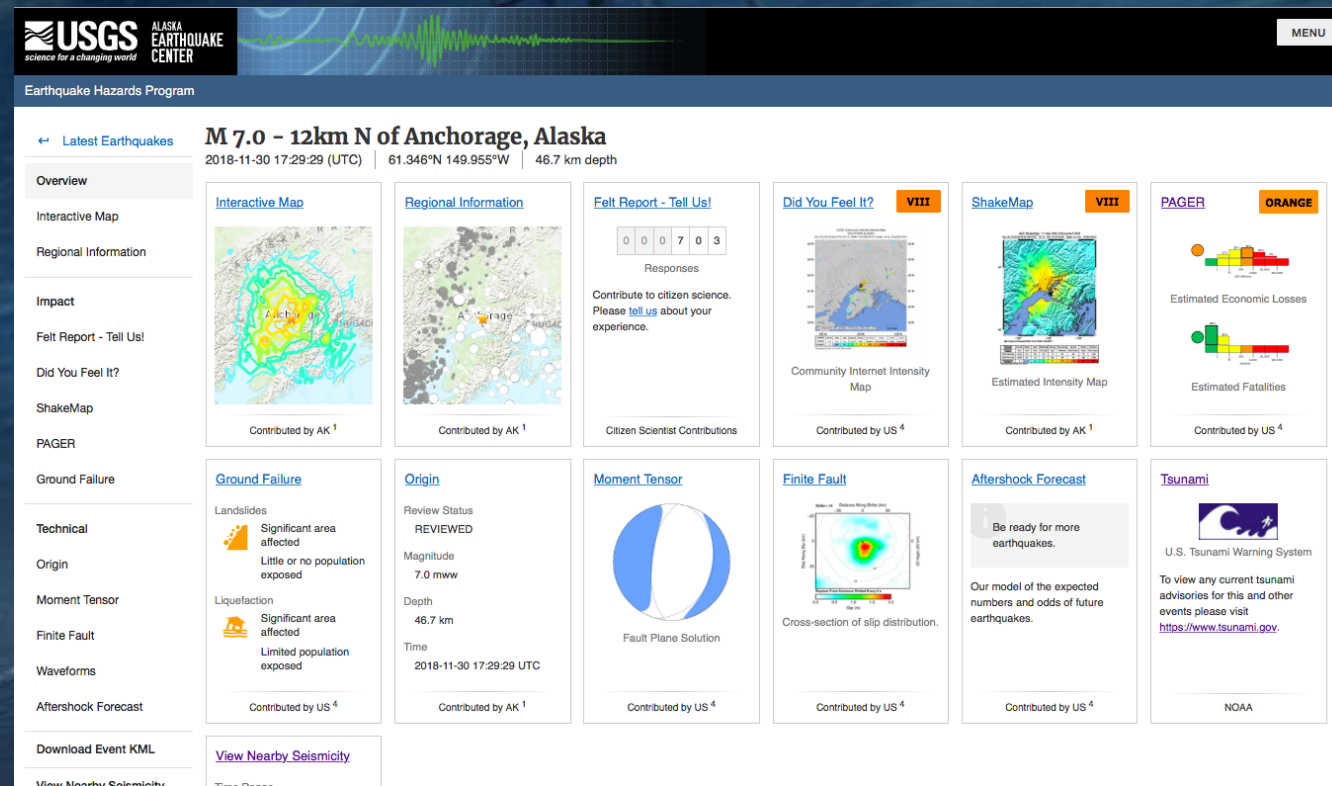
What new efforts can be done to reduce or manage risks?



TSTAP Expert Briefing: Social Science on Alerts and Warnings

We can learn from tsunami-specific social science applied in other countries such as New Zealand or the USGS earthquake program.

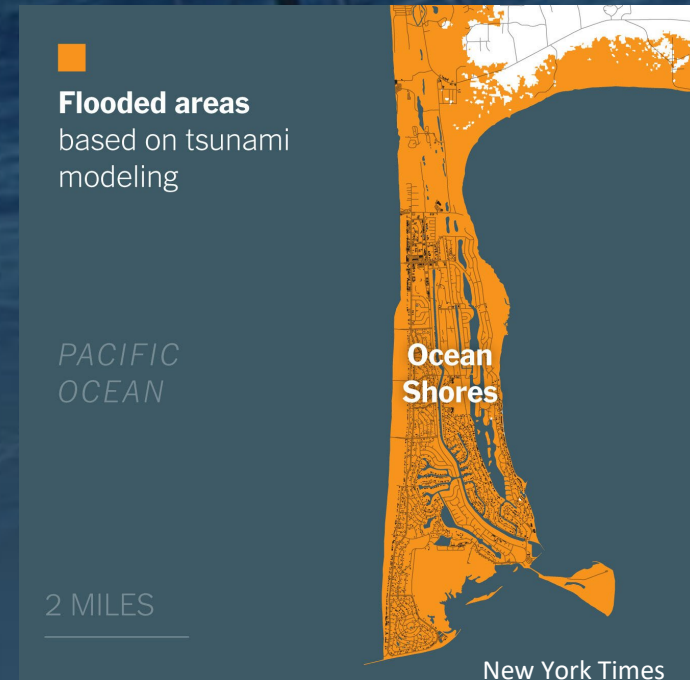
Findings: Pre-written templates informed by social scientists for forecasts improve accuracy, timeliness of release, and message clarity will lead to better understanding by the public and media. The USGS efforts for earthquake forecasts can be applied to tsunami forecasts by qualified social scientists.



TSTAP Expert Briefing: NWS TsunamiReady® Recognition Program

This is an NWS-managed recognition program with a goal of improving community tsunami hazard preparedness.

Findings: TsunamiReady® builds relationships and supports Impact Based Decision Support Services; there may be benefits to adding flexibility to the program to accommodate individual community circumstances; TR recognition may promote a false sense of security in communities that do not have evacuation options (Ocean Shores, WA pictured on right is one example).



TSTAP Expert Briefing: NWS AWIPS Transition for Tsunami

There are plans for the two tsunami warning centers to disseminate tsunami products through the Automated Weather Information Processing System (AWIPS).

Findings: Rapid dissemination of consistent forecast and decision support products is a critical need of community emergency managers seeking life-saving guidance, especially in the first few hours following tsunami generation. (Anticipate NOAA Response TSTAP Quadrennial Report to inform further).

A software framework for meteorological data ingest, management, and display







Allows forecasters to view, combine, analyze large amounts of graphical weather data; and to generate weather forecast and warning products

TSTAP Expert Briefing: Tsunami Alerts

The NWS intends to eliminate all Advisory level alerts by 2024. For tsunamis, there is one Tsunami Advisory (amplitude between 0.3 to 1.0 meters) that has been well-socialized with users.

Findings: The NWS has had social science studies done on the “Advisory” term and has shown the term is confusing to the public. The TSTAP agrees that there may be a need to replace it. However, ...

Tsunami Alerts		
Alert Name	Actions	Potential Hazards
 WARNING	Get to high ground or inland IMMEDIATELY Follow tsunami evacuation signage	DANGER! TSUNAMI IMMINENT! Flooding/powerful currents Wave heights > 3 ft. or unknown
 ADVISORY	Stay out of the water and away from the shore	STRONG CURRENTS AND DANGEROUS WAVES in or very near coastal water Wave heights of 1 - 3 ft.
 WATCH	Be prepared to take action Stay tuned to local radio/TV/ NOAA “alert” weather radios	TSUNAMI IS POSSIBLE Alert level <i>will</i> change once more information is known
 INFORMATION STATEMENT	No action needed	NO TSUNAMI IMPACT EXPECTED Alert level may change once more information is known
THREAT Message: Intended to alert international partners only. Not applicable to U.S. coasts		
THE NATIONAL TSUNAMI WARNING CENTER ISSUES OFFICIAL TSUNAMI ALERTS FOR WASHINGTON. CHECK TSUNAMI.GOV OR WEATHER.GOV WEBSITES FOR TSUNAMI ALERT DETAILS.		

TSTAP Expert Briefing: Tsunami Alerts *Findings* (continued)

Social science done for the NWS in its HazSimp process was about weather advisories, not ocean-related terminology. Extrapolating social science about weather terminology to tsunami alerts is not recommended because extrapolation is inconsistent with current social science practices. Therefore:

EISWG and TSTAP concur that until an extensive tsunami-specific social science study is completed and fully socialized with the user community to obtain agreement on any term change, the NWS retain the "Tsunami Advisory" term and alert level.



TSTAP Expert Briefing: NWS Director Ken Graham

Ken Graham briefed the TSTAP on how the Tsunami Program and TSTAP efforts align with NWS priorities.

Findings:

- *Tsunamis are one of the “top ten” priorities for the NWS.*
- *(EISWG highlight): The TSTAP recommendations in the 2021 quadrennial report are helping to drive the requirements and plans for TWC harmonization and the NWS Tsunami Program. With tsunamis as one of the top ten priorities of the NWS, TSTAP efforts and recommendations can support this NWS priority.*