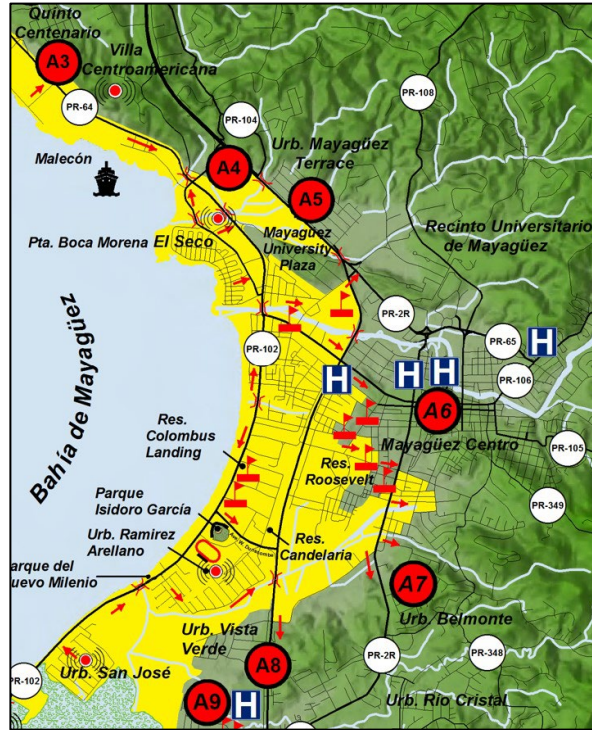




United States National Tsunami Hazard Mitigation Program Strategic Plan for 2024 - 2029



Message from the Chair



1. *Tsunami inundation map for Ocean Shores, Washington*
2. *Tsunami evacuation map for Mayagüez, Puerto Rico*
3. *Tsunami evacuation route sign from Cannon Beach, Oregon*
4. *The National Tsunami Warning Center in Palmer, Alaska*
5. *The nation's first tsunami vertical evacuation tower, built by the Shoalwater Bay Indian Tribe and located in Tokeland, Washington*
6. *A sign used for the NWS TsunamiReady® Program*
7. *A tsunami-evacuation painting on the road to direct people to safety in Puerto Rico*
8. *Tsunami outreach by Guam Civil Defense*



Executive Summary

- Encourage national consistency of products
- Leverage continuing research and emerging technology
- Incorporate evidence-based approaches from social-science research
- Integrate equity into NTHMP efforts
- Recognize the potential impacts of climate change
- Promote economic development to enhance the New Blue Economy

Table 1.

Theme	Goals	Strategies
Hazard And Risk Assessment	<ul style="list-style-type: none"> • • • 	
	<ul style="list-style-type: none"> • • 	
Tsunami Education and Preparedness	<ul style="list-style-type: none"> • • • • 	
	<ul style="list-style-type: none"> • • • • • 	<ul style="list-style-type: none"> • • • • •
	<ul style="list-style-type: none"> • • 	<ul style="list-style-type: none"> • •
Mitigation and Recovery	<ul style="list-style-type: none"> • • • • • 	
	<ul style="list-style-type: none"> • • 	
Alert, Warning, and Response	<ul style="list-style-type: none"> • • • 	
	<ul style="list-style-type: none"> • • • 	
	<ul style="list-style-type: none"> • • 	
	<ul style="list-style-type: none"> • • 	

Table of Contents

National Tsunami Hazard Mitigation Program Partners



Background

NTHMP Mission:

NTHMP Vision:

Tōhoku tsunami (18,428 fatalities in Japan and



Foundation

by tsunami hazards similar to the 2011 Tōhoku



Policy Context



NTHMP Structure



Coordinating Committee

**Mapping
and Modeling
Subcommittee**

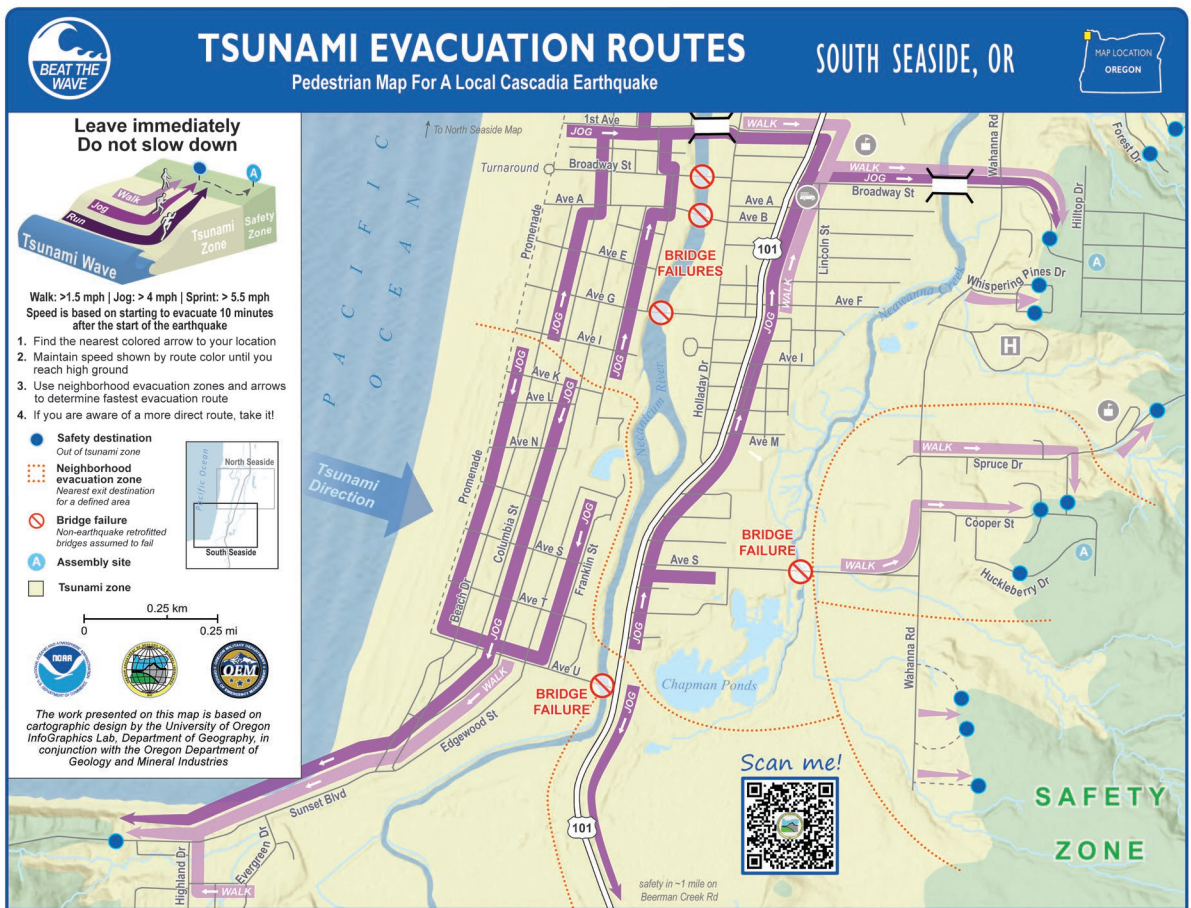
**Mitigation
and Education
Subcommittee**

**Warning
Coordination
Subcommittee**

**Mitigation and Recovery
Planning Work Group**

Island Caucus

Theme 1: Hazard and Risk Assessment



Goal 1.1: Tsunami hazard assessments identify areas where risk-reduction planning is needed

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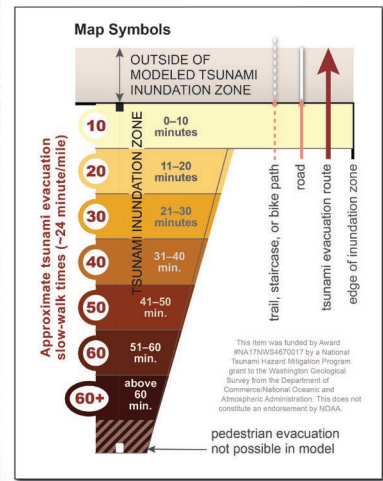
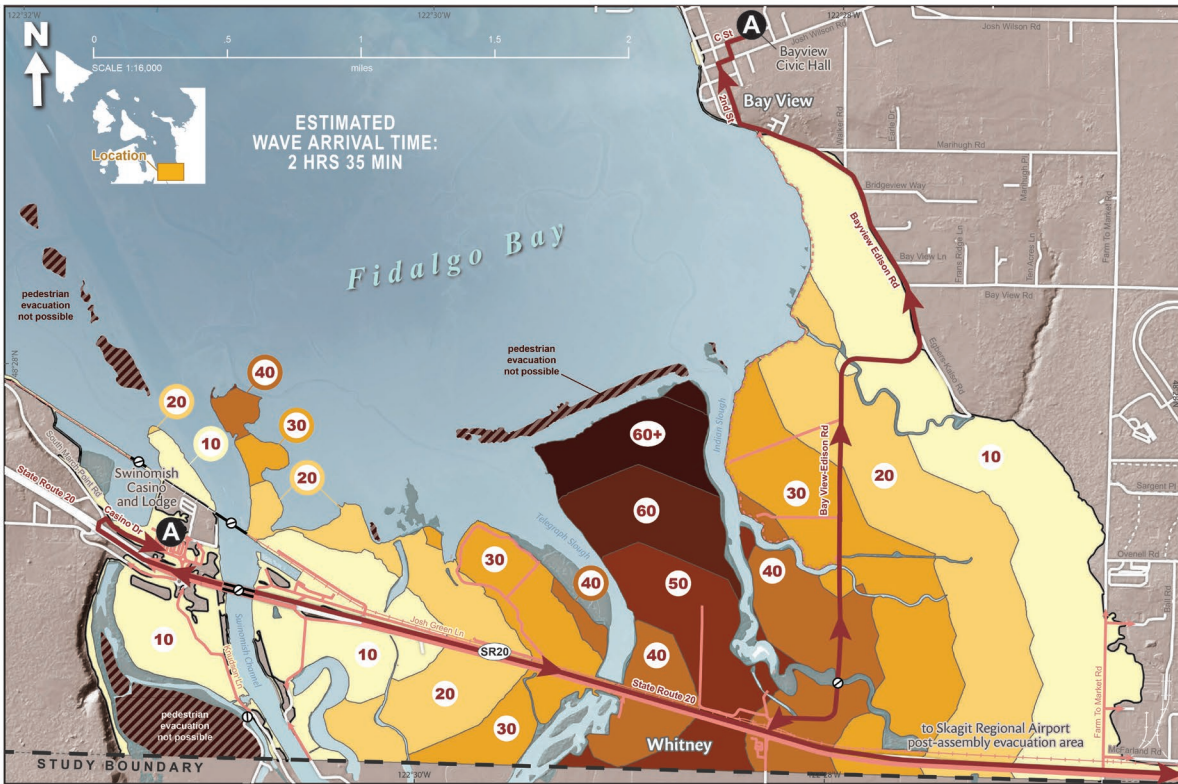
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disaster that originated in Japan



Goal 1.2: Methods to characterize and communicate societal risks to tsunamis are developed and properly applied to support risk-reduction planning





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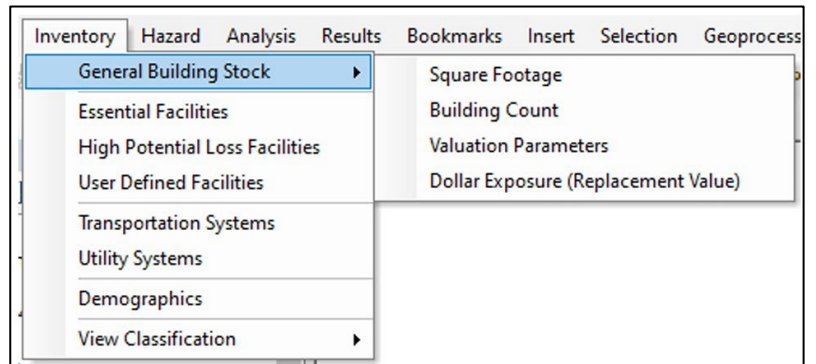
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Hazus Tsunami Model User Guidance

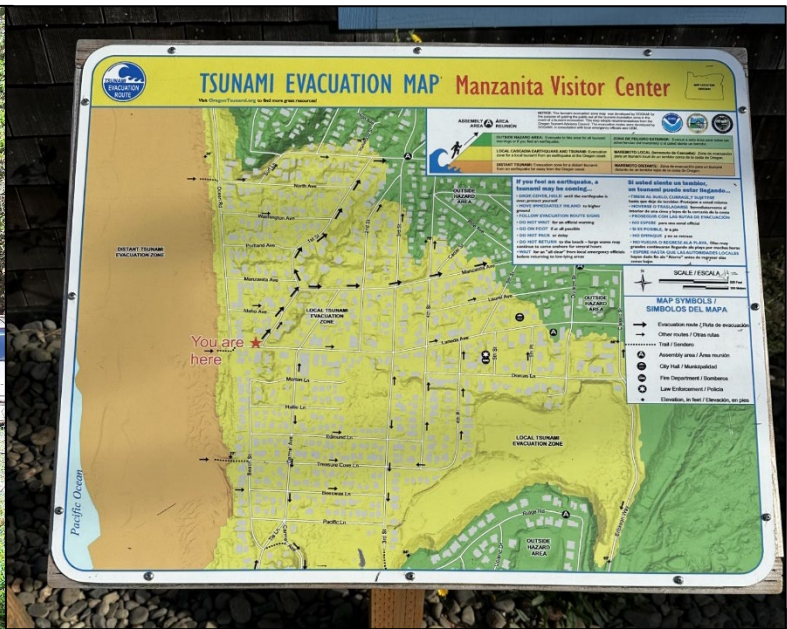
Hazus 5.1

April 2022



Theme 2: Tsunami Education and Preparedness

Japan), much emphasis has been placed on the



Goal 2.1: At-risk populations are informed and prepared to respond appropriately to tsunamis

		
DROP!	COVER!	HOLD ON!
Protect Yourself During Earthquakes		
		
GO TO HIGH GROUND OR INLAND!		
The Shaking is Your Tsunami Warning		
		
STAY THERE!		
Tsunami Waves May Arrive for Hours		

Be *Tsunami Ready*

If you're near the coast and you feel an earthquake, **drop, cover, and hold on**, then move to high ground!



mi  mil.wa.gov/tsunami

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Goal 2.2: New TsunamiReady® sites established and existing locations maintained

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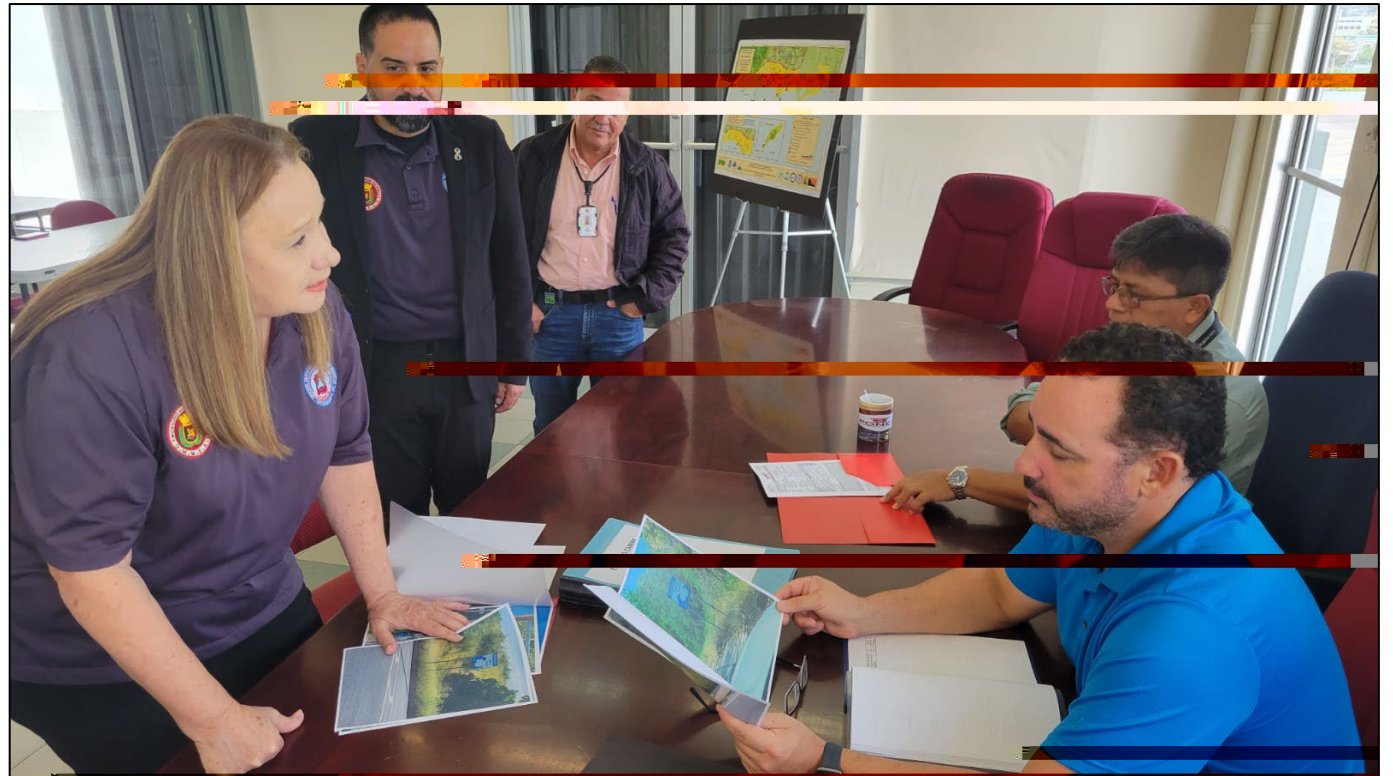
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Goal 2.3: Local tsunami preparedness efforts are supported

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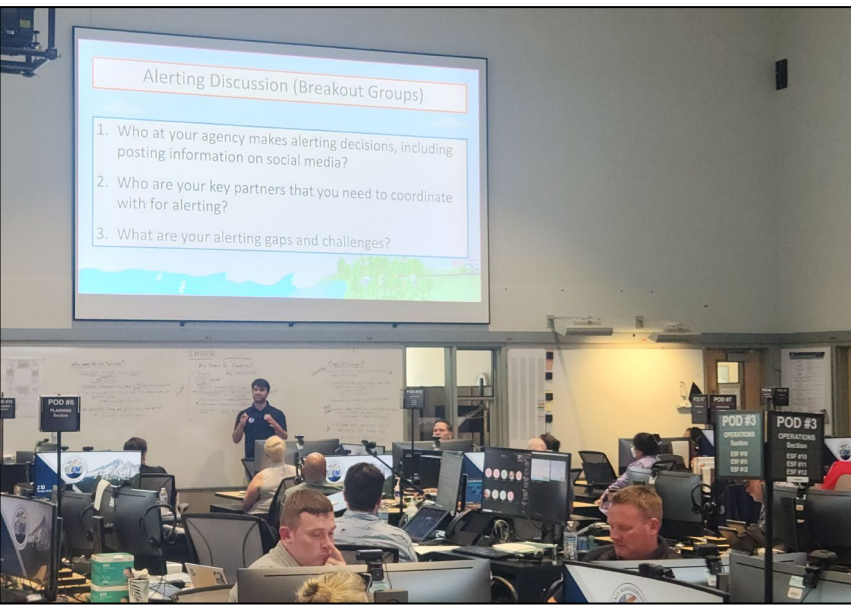
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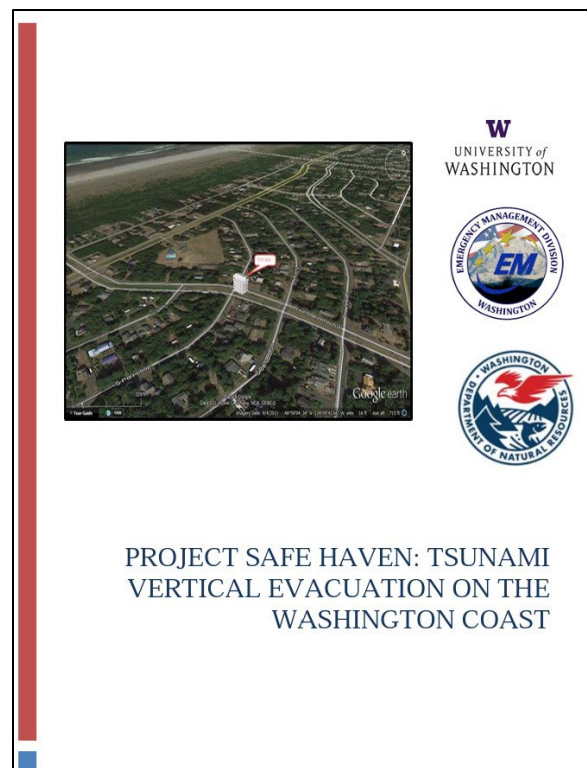
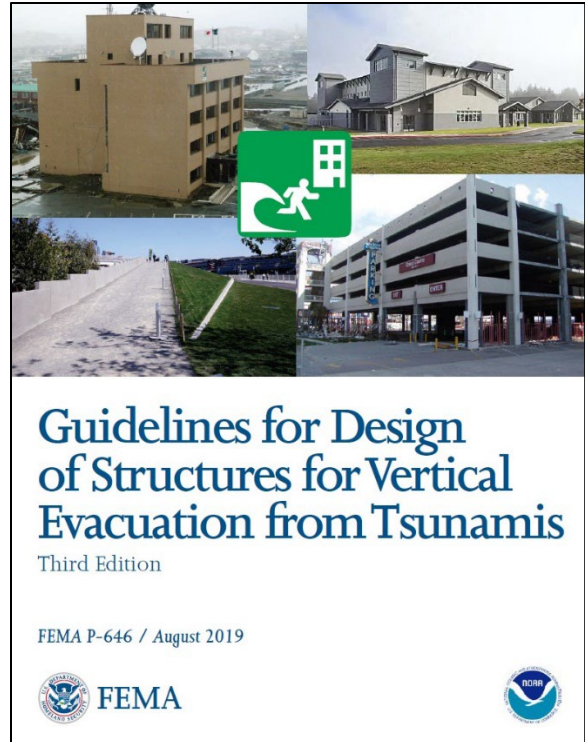
Theme 3: Mitigation and Recovery



NOAA

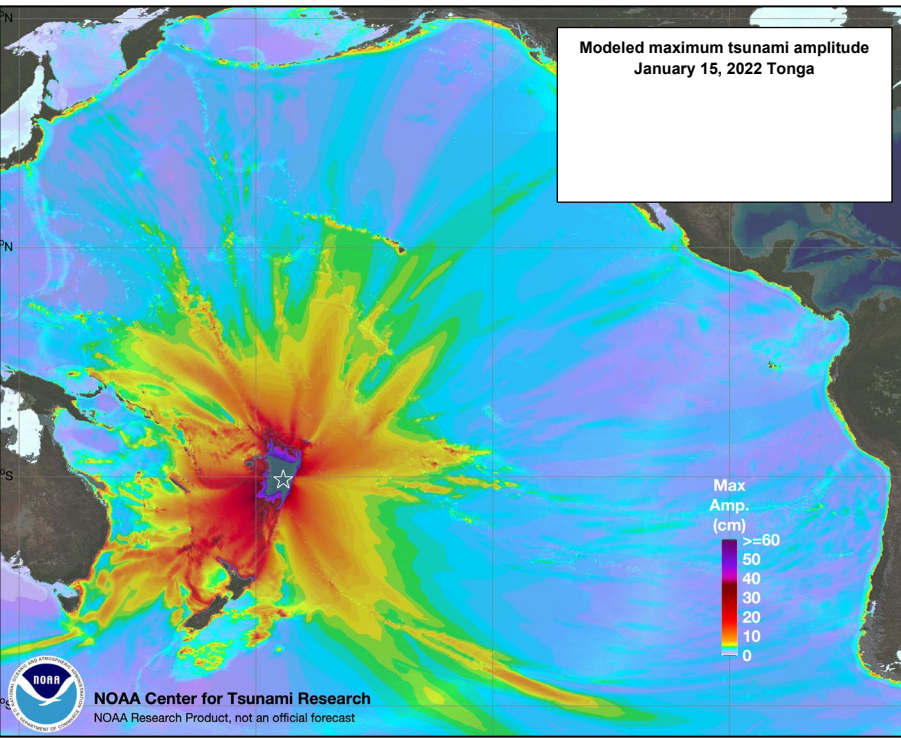


Goal 3.1: Mitigation and recovery strategies are developed for long-term community planning





from the January 15, 2022



Goal 3.2: Mitigation and recovery strategies are initiated and incorporated into long-term community planning



Theme 4: Alert, Warning, and Response


PTWC Coastal Tsunami Amplitude Forecast Polygons

Actual amplitudes at the coast may vary from forecast amplitudes due to uncertainties in the forecast and local features. In particular, maximum tsunami amplitudes on atolls and at locations with fringing or barrier reefs will likely be much smaller than the forecast indicates.

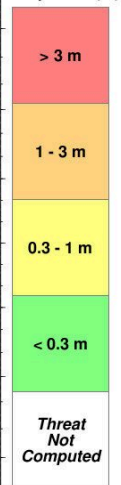
This message is issued for information only in support of the UNESCO/IOC Pacific Tsunami Warning and Mitigation System and is meant for national authorities in each country of that system. National authorities will determine the appropriate level of alert for each country and may issue additional or more refined information.

Earthquake:

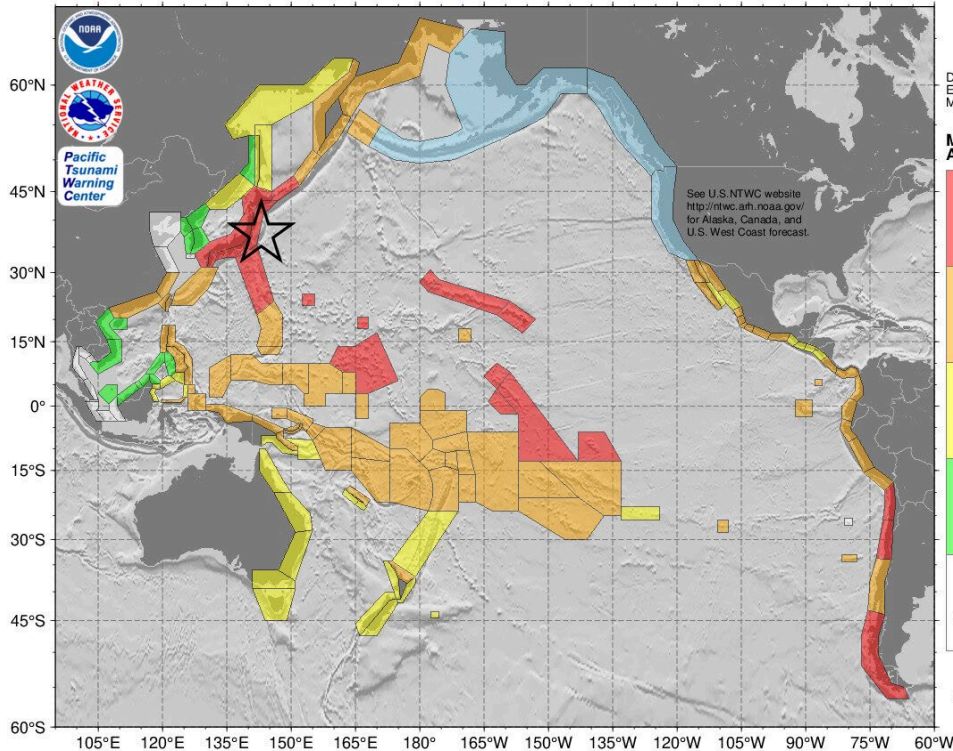
07 Sep 2023
23:23:23 Z
Lat: 37.52°N
Lon: 143.05°E
Depth: 20 km
 M_w : 9.08

Determined Earthquake Mechanism: 

Maximum Amplitude (m)

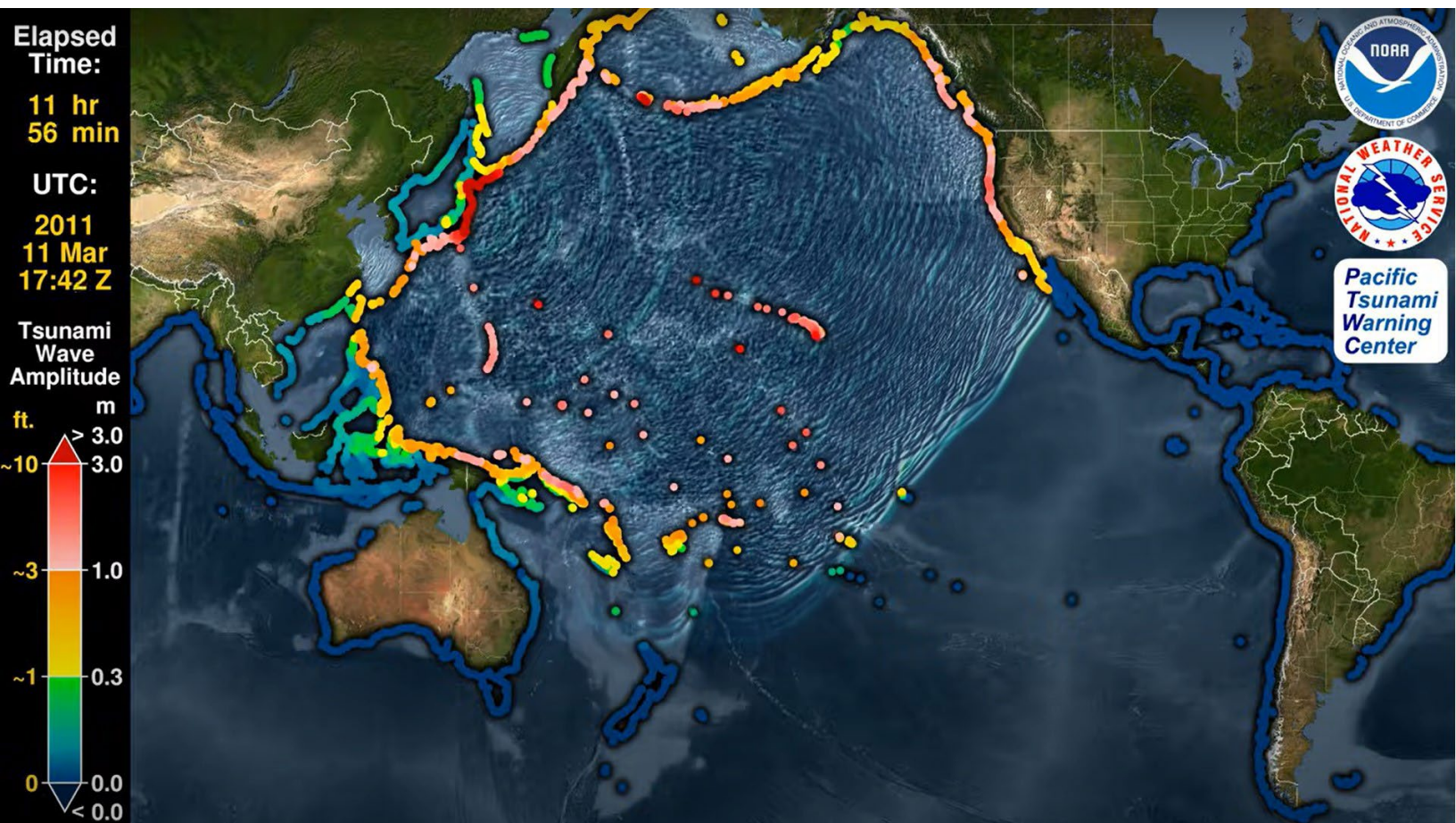
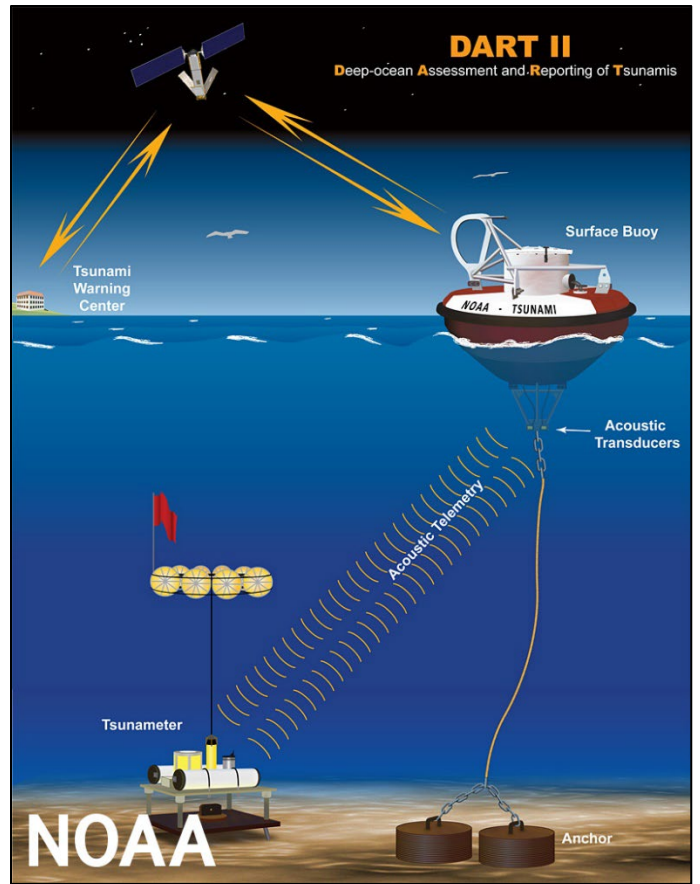


model run at:
07 Sep 2023
23:23:57 Z



Goal 4.1 Tsunami Warning Center products are understandable, effective, and actionable





WEPA41 PAAQ 110851

TSUNAMI

BULLETIN

TSUNAMI MESSAGE NUMBER 4

PER PALMER AK

NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER

1251 AM PST FRI MAR 11 2011

CONDITIONS HAVE CHANGED IN THIS

THE WARNING AND ADVISORY STATUS RECOMMENDED ACT

WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS OF OREGON FROM POINT CONCEPCION CALIFORNIA TO THE OREGON BORDER...

...THE TSUNAMI WARNING OF CALIFORNIA AND OREGON-WASHINGTON...

WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS FROM AMCHITKA PASS ALASKA/125 MILES W OF ADAK/ TO ATTU

...THE TSUNAMI WARNING OF ALASKA FROM AMCHITKA PASS ALASKA...

ADVISORY CONTINUES IN EFFECT FOR THE COASTAL AREAS FROM THE CALIFORNIA-MEXICO BORDER TO POINT CONCEPCION CALIFORNIA...

...THE TSUNAMI ADVISORY OF CALIFORNIA FROM THE CALIFORNIA-MEXICO BORDER TO POINT CONCEPCION CALIFORNIA...

ADVISORY CONTINUES IN EFFECT FOR THE COASTAL AREAS OF BRITISH COLUMBIA AND ALASKA FROM THE OREGON BORDER TO AMCHITKA PASS ALASKA/125 MILES W OF ADAK/...

...THE TSUNAMI ADVISORY OF WASHINGTON - BRITISH COLUMBIA AND ALASKA FROM THE OREGON-WASHINGTON BORDER TO AMCHITKA PASS ALASKA/125 MILES W OF ADAK/...

CONDITIONS

RECOMMENDED ACTIONS

TSUNAMI GENERATED WHICH IS EXPECTED TO CAUSE DAMAGE TO D/OR ADVISORY REGIONS LISTED IN THE HEADLINE. COASTAL AREAS SHOULD BE ALERT TO INSTRUCTIONS FROM LOCAL EMERGENCY OFFICIALS. EVACUATIONS ARE ONLY ORDERED BY EMERGENCY RESPONSE AGENCIES.

A TSUNAMI HAS BEEN GENERATED WHICH IS EXPECTED TO CAUSE DAMAGE TO D/OR ADVISORY REGIONS LISTED IN THE HEADLINE. COASTAL AREAS SHOULD BE ALERT TO INSTRUCTIONS FROM LOCAL EMERGENCY OFFICIALS. EVACUATIONS ARE ONLY ORDERED BY EMERGENCY RESPONSE AGENCIES.

TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO

- PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO HIGHER GROUND

OUT OF

- PERSONS IN TSUNAMI ADVISORY COASTAL AREAS SHOULD MOVE OFF THE WATER... OFF THE BEACH AND OUT OF HARBORS AND MARINAS

MEASUREMENTS OR REPORTS OF TSUNAMI ACTIVITY

	LOCATION	LAT	LON	TIME	AMPL
7M	TOSASHIMIZU JAPAN	32.8N	132.9E	0747UTC	00.9FT/00.29
5M	TOKAI JAPAN	33.8N	137.6E	0645UTC	00.8FT/00.24
9M	OFUNATO JAPAN	39.0N	141.8E	0605UTC	10.8FT/03.29
2M	HANASAKI JAPAN	43.3N	145.6E	0643UTC	09.3FT/02.83
3M	BOSO JAPAN	34.8N	140.8E	0609UTC	02.6FT/00.79

TIME - TIME OF MEASUREMENT
AMPL - TSUNAMI AMPLITUDES ARE MEASURED RELATIVE TO NORMAL SEA LEVEL. IT IS ...NOT... CREST-TO-TROUGH WAVE HEIGHT. VALUES ARE GIVEN IN METERS AND FEET.

GENERATED. DEEP OCEAN SENSORS INDICATE A LARGE TSUNAMI HAS BEEN GENERATED.

PRELIMINARY EARTHQUAKE PARAMETERS

- MAGNITUDE 8.0
- TIME - 2046 AKST MAR 10 2011
- 2146 PST MAR 10 2011
- 0546 UTC MAR 11 2011



**Goal 4.2 Forecast dissemination
is effective and reliable**

®

TSUNAMI WARNING COMMUNICATIONS TEST

Del Norte, Humboldt, and Mendocino Counties

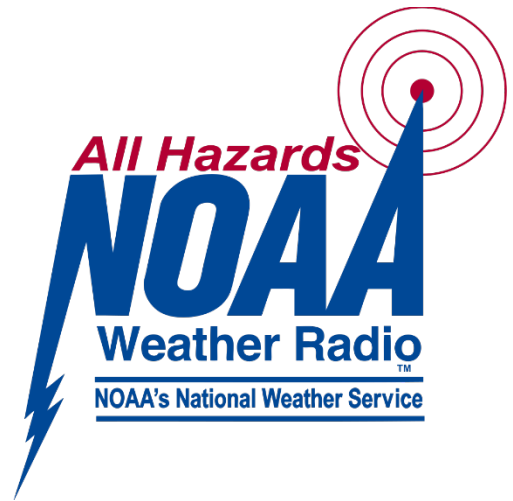
WHEN: Wednesday, March 29, 2023, between 11:00 a.m. and 12:00 Noon

WHERE: Del Norte, Humboldt, and Mendocino counties.

HOW: Interruptions of TV* and Radio Stations, and activation of NOAA Weather Radios and Outdoor Sirens.

**Not all Cable and Satellite TV Stations may be able to participate*

WHY: To test the Tsunami Warning System to ensure it works properly during a real tsunami emergency.



®

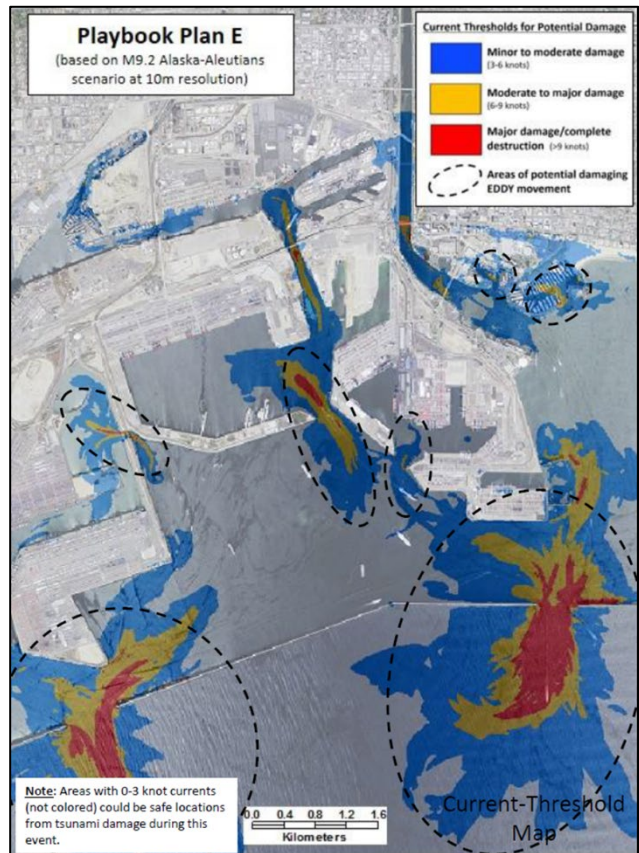


Goal 4.3 Tsunami response is effective

Are You in the Zone?
#TsunamiReady



Find Out:
TsunamiZone.org



Goal 4.4 Field data collection and communication efforts are coordinated after a tsunami





Implementation and Execution



Appendix A: NTHMP Strategic Plan Work Group

Dr. Grant Cooper

Corina Allen

Nicolas Arcos

Mark Benthien

Michael Crop

Edward Fratto

Wildaomaris González Ruiz, Puerto Rico Emergency Management, San Juan, Puerto Rico

Victor Huerfano Moreno

Kara Jacobacci

Jasmine Johnson-Divinity

David Kochevar

Charles McCreery

Elinor Lutu-McMoore

Christopher Moore,

Jason R. Patton

Althea Rizzo

Stephanie L. Ross

David Snider

Elyssa Tappero

Nathan Wood

Ian Sears

Appendix B: References

Goltz, J. C. Jonientz

Ross, S.L., L.M. Jones, K.M. Miller, A. Wein, R.I. Wilson, B. Bahng, A. Barberopoulou, J.C. Borrero, D.M. Brosnan, J.T. Bwarie, E.L. Geist, L.A. Johnson, S.H. Kirby, W.R. Knight, K. Long, P. Lynett, C.E. Mortensen, D.J. Nicolsky, S.C. Perry, G.S. Plumlee, C.R. Real, K. Ryan, E. Suleimani, H. Thio, V.V. and N.J. Wood. 2013. Executive summary and introduction. In *The SAFRR (Science Application for Risk Reduction) tsunami scenario*, eds. S.L. Ross and L.M. Jones. U.S.

Wilson, R.I., A.R. Admire, J.C. Borrero, L.A. Dengler, M.R. Legg, P. Lynett, K.M. Miller, A. Ritchie, K. and 2011 Japanese tsunamis in California (USA). *Pure and Applied Geophysics*

Wu, J.Y. and M.K. Lindell. 2004. Housing

Disasters.