

California Tsunami Preparedness & Hazard Mitigation Program

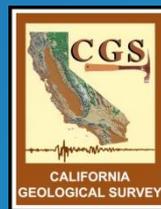


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**National Tsunami Hazard Mitigation Annual Meeting
February 6-10, 2012**

We are a state level tsunami hazard reduction program that promotes tsunami planning, preparedness, and hazard mitigation among California's coastal communities.

- 100% Federal funding from NOAA via the NTHMP, and FEMA through a Co-operative Partnership Agreement
- 8 Program Staff (includes EQ)
 - 4 CalEMA
 - 2 CA Geological Survey
 - 2 CA State Humboldt University
 - Subcontract with University of Southern Calif., URS, and University of Alaska (new)
- Coordinate activities with Weather Forecast Offices (5)
- Local Level Emergency Managers (20 Coastal Counties)
- Regional Workgroups

Tsunami-related Challenges

1) Public: Education

- Know NOT to go down to shore
- Know NOT to over-evacuate
- Other languages

2) Emergency management community: Education about Alert Levels

- Information (sometimes just more than information)
- Watch (Misunderstood: What? When? Why?)
- Advisory (not EAS; not taken seriously enough)
- Warning (Which info in bulletins is important?)

3) Internal:

- 2012 staff reductions
- State/Local Budgets

4) Other Planning needs:

- Jurisdictions
- Maritime Community
- Media



Provide services to

Coastal Counties & Cities

State & Local Parks

Port & Harbor Authorities

Schools/Districts

Regional/Community Organizations

Other Coastal Entities



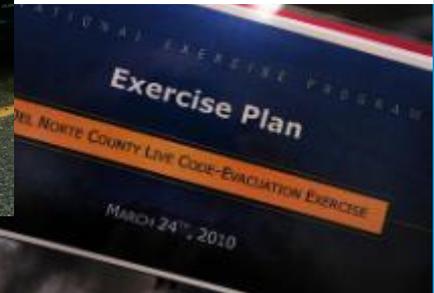
Outreach Services

- Community Earthquake & Tsunami Preparedness Training
- Workshops and facilitation of exercises (12 in 2010-11)
- Purchase of tsunami Hazard Signs (3,000+ to date)
- Fund tsunami information kiosks
- Preparedness and public education materials



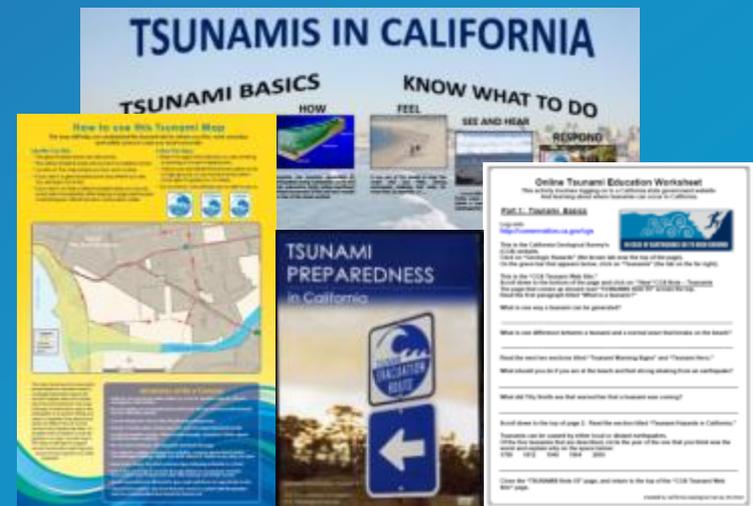
Technical Assistance

- Assistance with inundation map interpretation
- Evacuation planning & drills
- Sign placement
- TsunamiReady Assistance
- Tsunami Scenario “Playbooks” for Emergency Managers
- Hazard maps and guidance for maritime community
- GIS Assistance/Projects



Public Outreach and Education

- Coordinated activities including Tsunami Preparedness Week
 - Distributed thousands of brochures, pamphlets, videos, and posters (500,000 copies)
- Living on Shaky Ground
 - Printed and distributed 300,000 copies
- Produced/Distributed tsunami lesson plan/worksheet for schools
- Heightened Media Attention
 - Post – Japan EQ/Tsunami 2011



Program Accomplishments

- Established 24/7 EQ/TSU Duty Officer Program
- Conducted “Live Code” Tsunami Warning Communications Test (4th Year)
- Observed Tsunami Preparedness Week (3rd Year)
- Supported TsunamiReady (18 communities)
- Chair Tsunami Steering Committee for 20 counties
- Lead on USGS SAFRR Scenario project subgroups: Geology, Preparedness/Outreach, and Policy
- Completed tsunami inundation modeling/mapping



Tsunami Hazard Mapping Programs

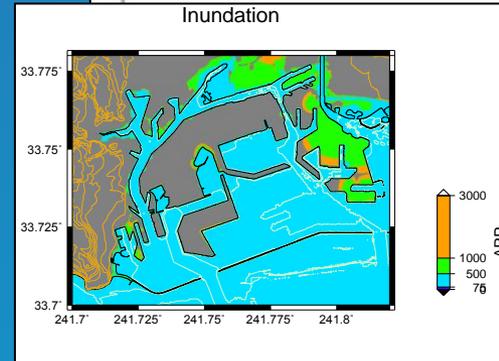
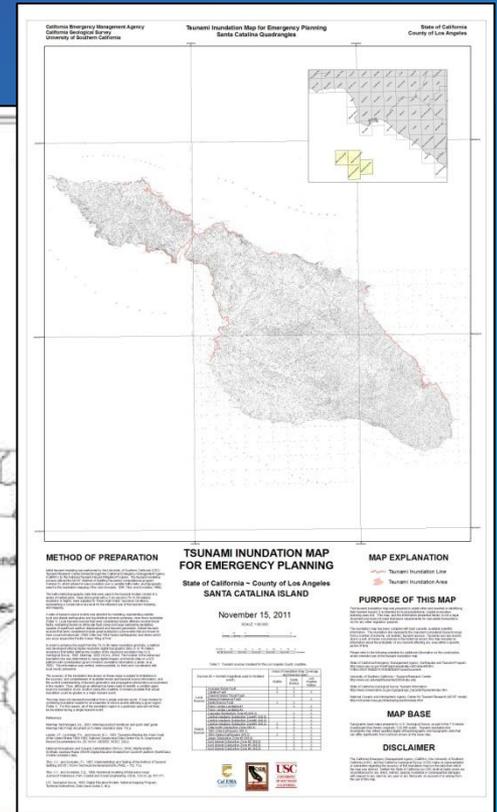
1. Tsunami Inundation Mapping
 - Statewide mapping with USC (Catalina)
 - High-resolution modeling validation/comparison
 - Re-eval of Cascadia SZ
 - Playbooks will assist with smaller Warning-level events like March 11

Guidance for Evacuation & Emergency Response Planning

2. Land-Use Planning Maps (PTHA)
 - Probabilistic workshop (PEER)
 - Coordination URS/Caltrans

Guidance for Land Use Planning & Building Code Development

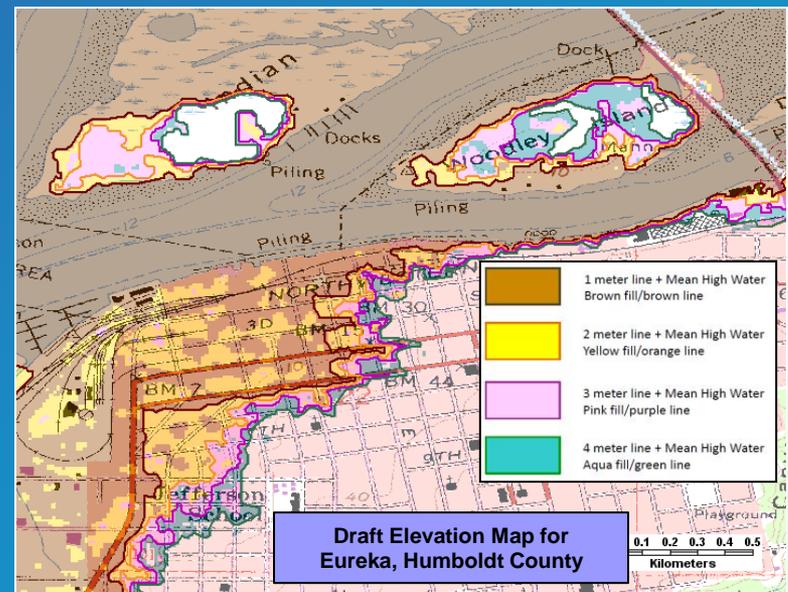
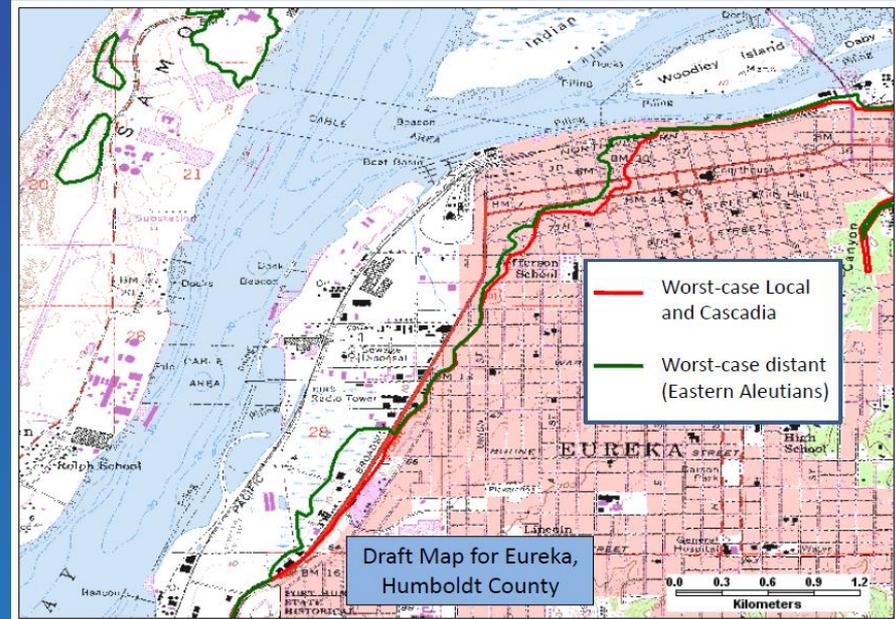
3. Tsunami Guidance for Maritime Community



Draft Tsunami Playbook

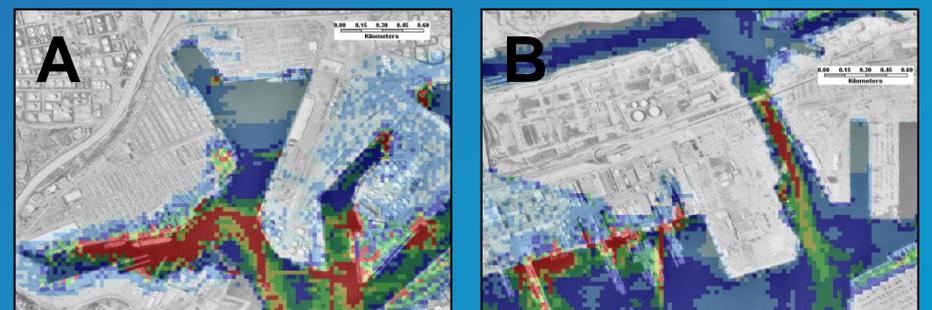
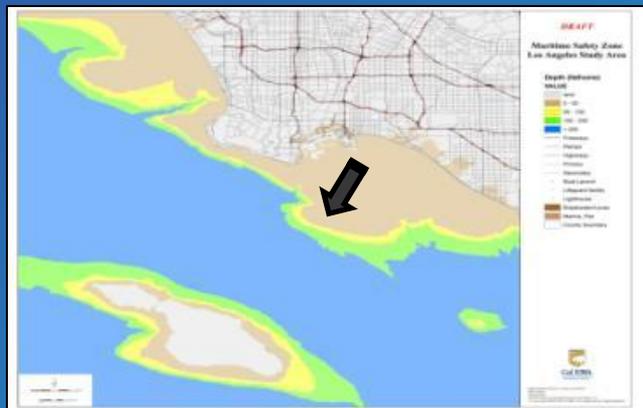
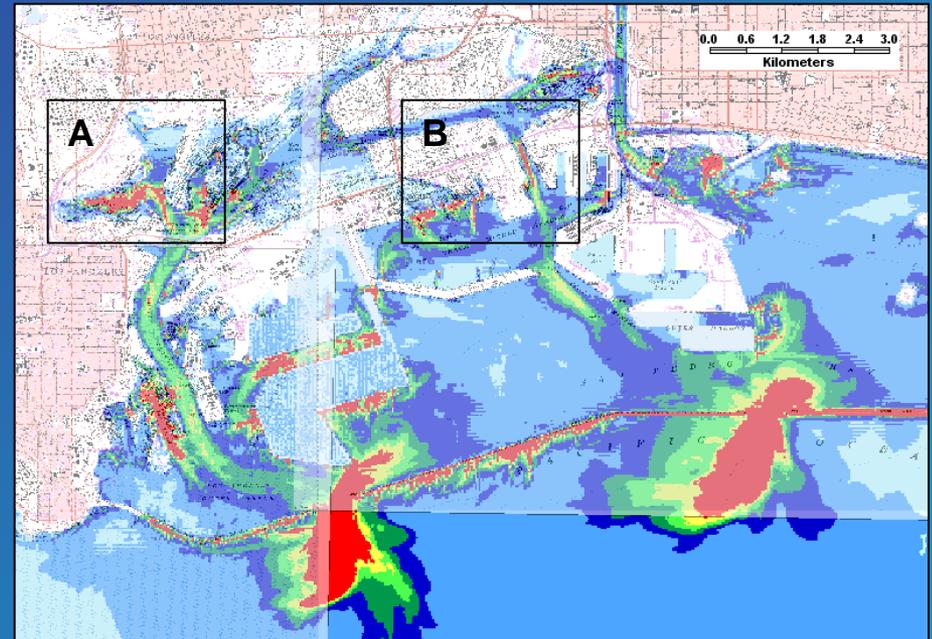
Identifying tsunami hazard areas for scenarios that:

1. Allow little time (short tsunami travel time) for emergency managers to make decisions on evacuation:
 - Worst-case local event (10-15 minutes)
 - Large Cascadia source event (10 -120 minutes)
 - Worst-case distant event - Eastern Aleutians (4-6 hours)
2. Capture particular tsunami run-up elevation when more lead time and forecasted amplitudes are available (“tweener” events such as March 11, 2011 in California):
 - 1m + MHW = “Advisory” level
 - 2m + MHW = Small “Warning” level
 - 3m + MHW = Moderate “Warning” level
 - 4m + MHW = Large “Warning” level



CA Tsunami Maritime Safety Goals

1. Create offshore safety zone maps [for use by harbors that recommend sending vessels to sea]
2. Create in-harbor hazard maps by modeling 5 major harbors' tsunami hazards [damaging currents]
3. Provide statewide guidance for evacuation planning and harbor protection [based on above results]

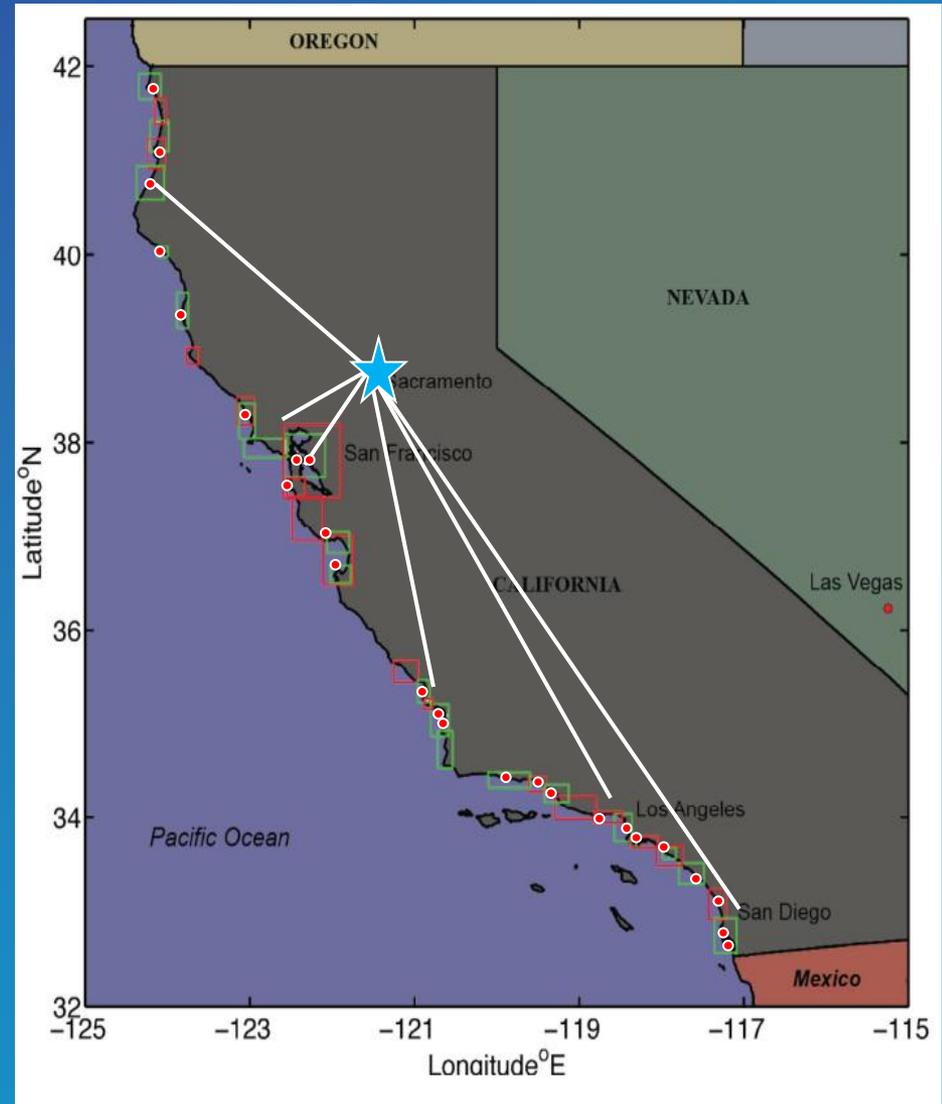


2011 – CGS/CalEMA/USC

Potentially damaging tsunami currents (lt green = 4 knots; yellow = 5 knots; red > 6 knots) for Ports of Los Angeles and Long Beach from M9.2 earthquake on eastern Aleutian Islands subduction zone (PRELIMINARY INFORMATION)

Pre-/Post-Tsunami Field Team and Information Clearinghouse

- Before event
 - Establish network
 - Determine field locations
 - Local coordination
- During event
 - Clearinghouse to CalEMA
 - Collect real-time information
- After event
 - Collect perishable data
 - Report



THANKS!

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