California Tsunami Preparedness & Hazard Mitigation Program

Hazard Identification → Mitigation and Preparedness

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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
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]

*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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