

NTHMP 5-Year Review STATE OF OREGON

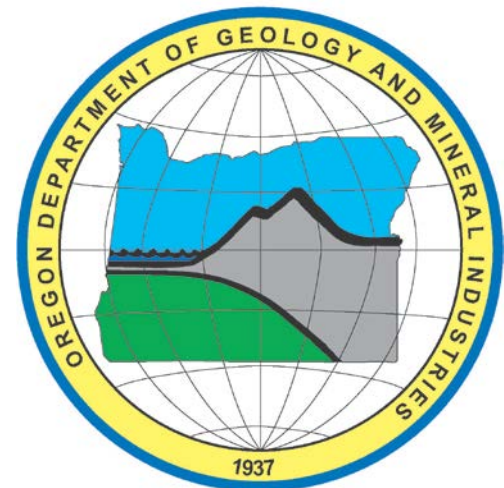
Jay Wilson

Oregon Emergency Management

George Priest

Oregon Dept. of Geology and Mineral Industries

May 15, 2007

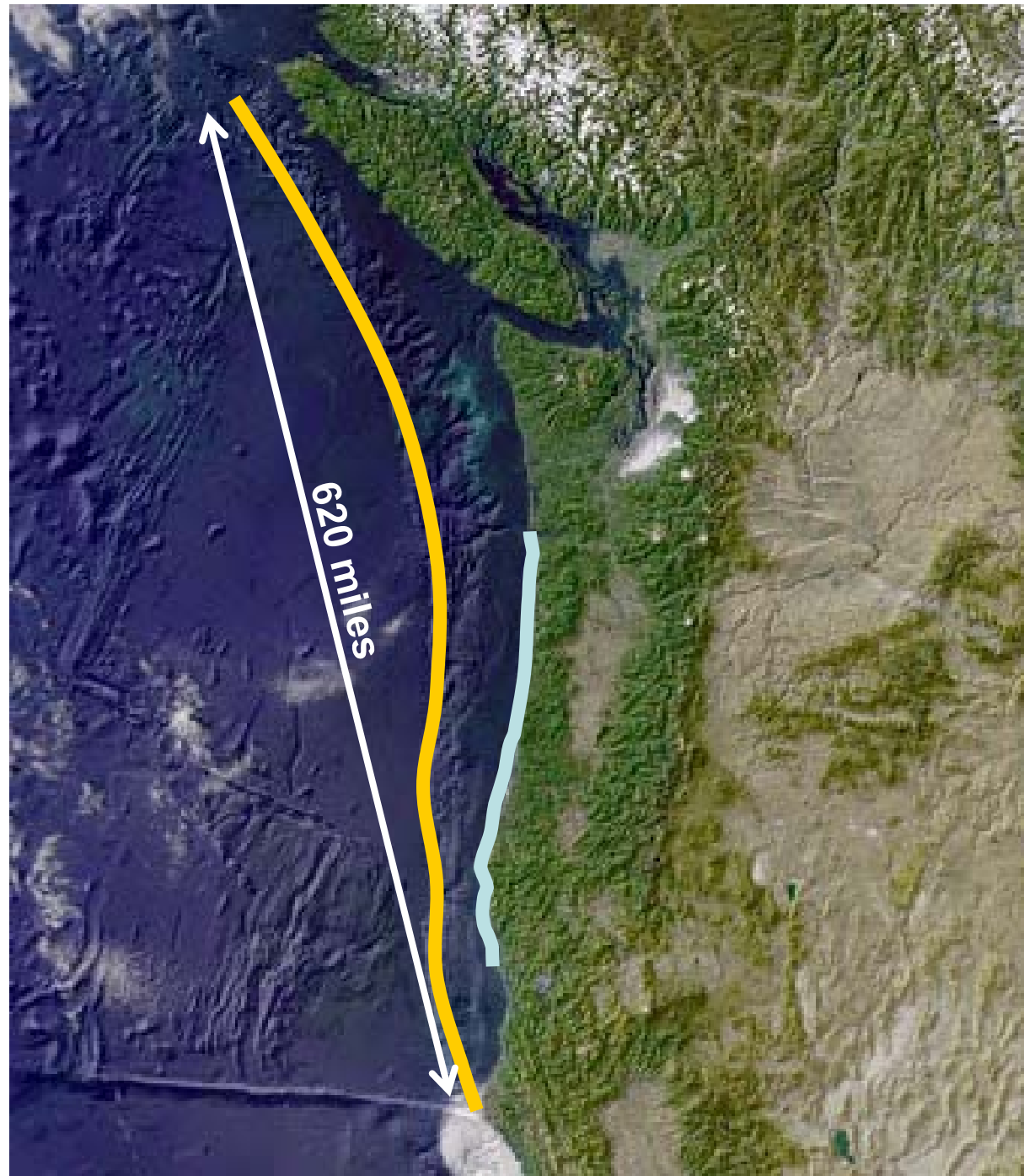


CASCADIA

Priority is the
Local Tsunami a
“Sumatra-Level”
Hazard

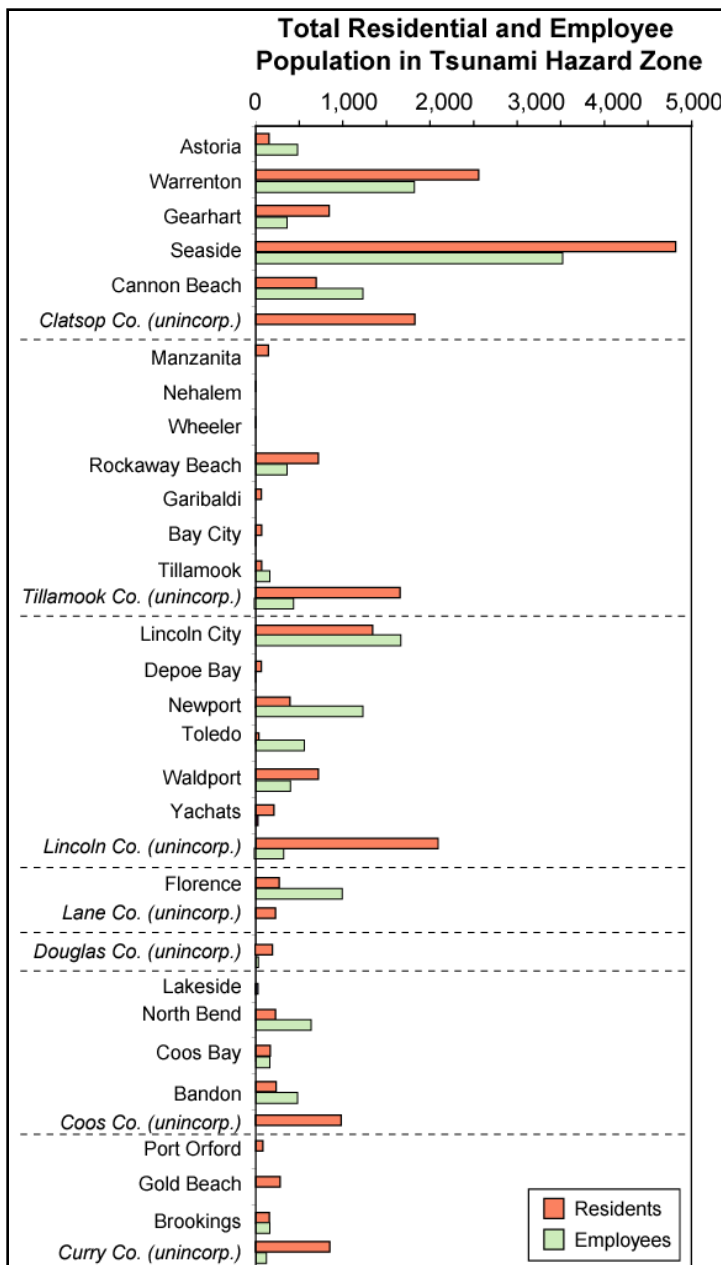
**Cascadia
Subduction
Zone
Fault Line
(yellow)**

**Oregon
Coastline
(light blue)**



Last Cascadia Event = AD 1700

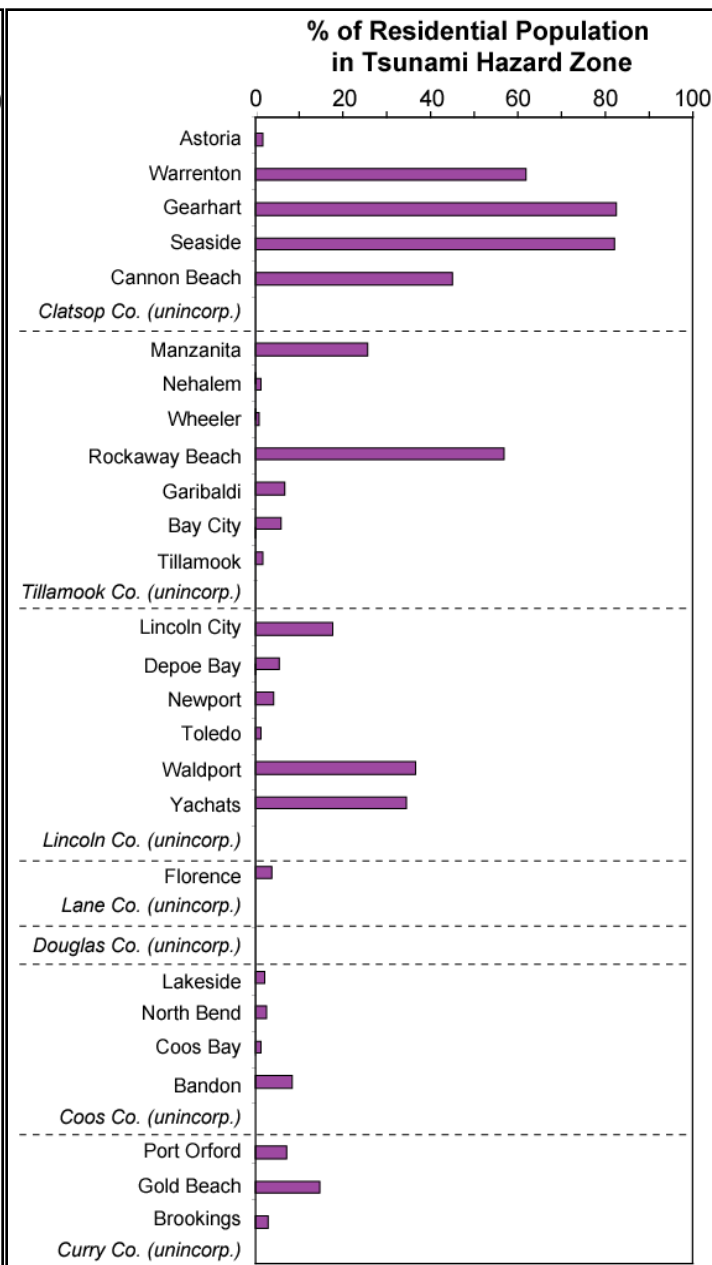
Which community members are in the tsunami hazard zone?



Residential Population - U.S. Census Bureau, 2000
 Employee Population - InfoUSA database, 7/05
 Hazard Zone defined by ORS 455 Tsunami Line



(Wood, in prep.)



Residential Population - U.S. Census Bureau, 2000
 City Limits -- 2003 -- OR Geospatial Ent. Office (GEO)
 Hazard Zone defined by ORS 455 Tsunami Line

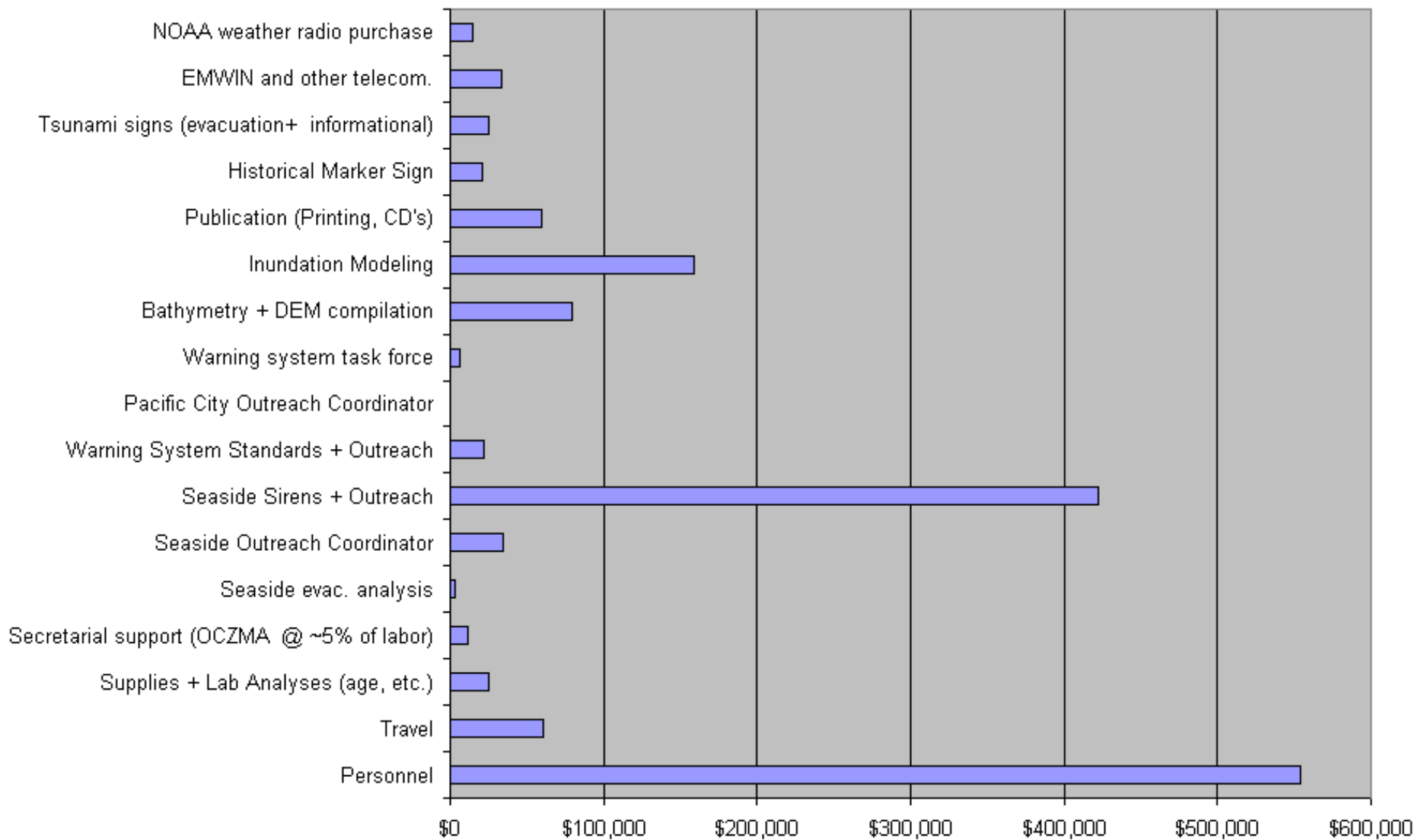


(Wood, in prep.)

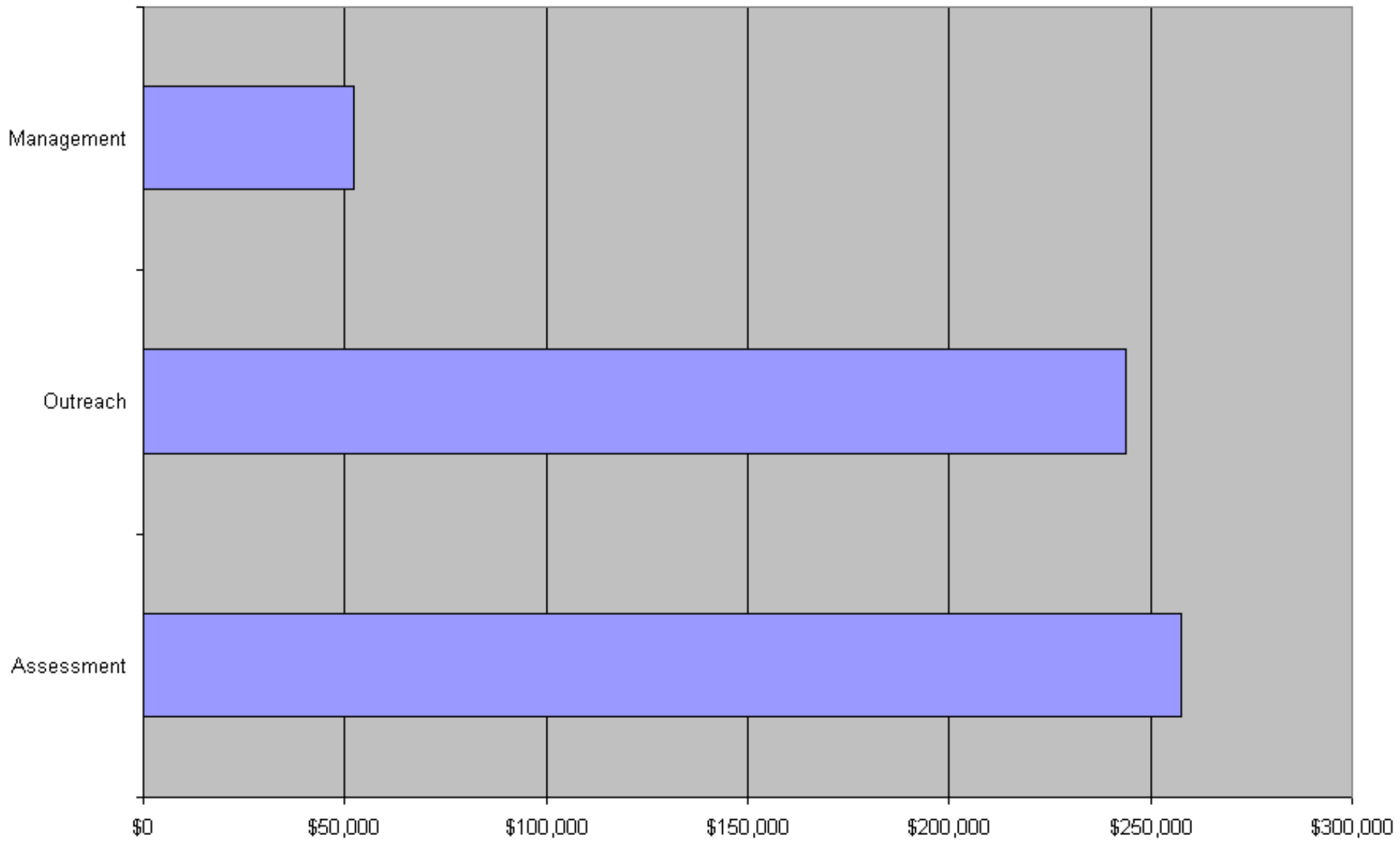
OREGON ACCOMPLISHMENTS – LAST 5 YEARS

- Majority of evacuation brochures done.
- Inundation mapping technology updated; 3 maps with old technology + 4th using the new technology (Cannon Beach).
- Template for door-to-door outreach – Seaside Outreach Project.
- Legislation: Guidelines for warning system standards + preparedness for lodging facilities, state parks, & camp sites
- New Historical marker sign – Coastal Tribe format.
- Cascadia catastrophic exercise – Pacific Peril
- Legislature and Governor buy in – 2005 Tsunami Summits.
- Tsunami Warning Standards Work Team – Draft Standards
- Numerous talks and meetings – outreach, networking at grass roots level.
- Technology improvement: more accurate inundation mapping.
- Partnered for Cannon Beach Recovery Planning Workshop (CREW, OEM, ONHW, USGS)

OREGON PROPOSED EXPENDITURES - FY 2002 TO FY 2006



OREGON PROPOSED PERSONNEL EXPENDITURES - 2002 TO 2007



NTHMP 5-Year Review

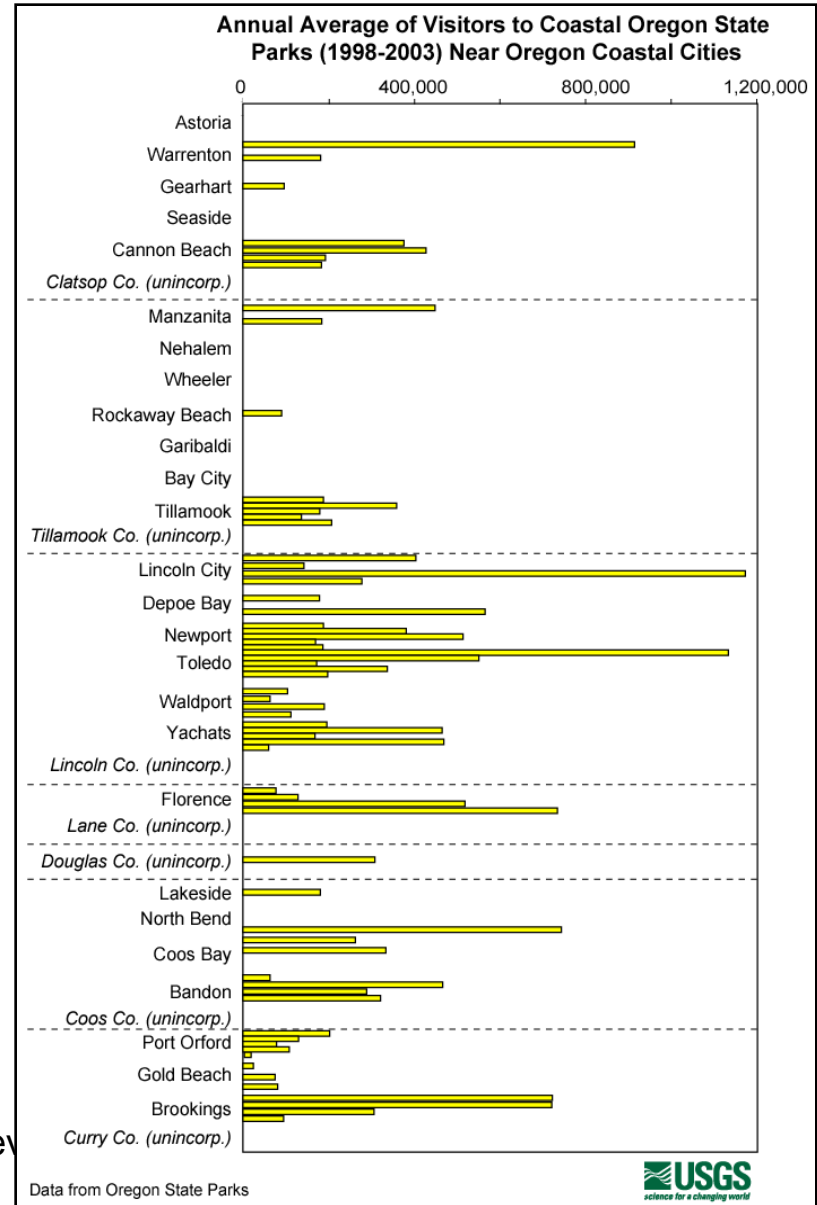
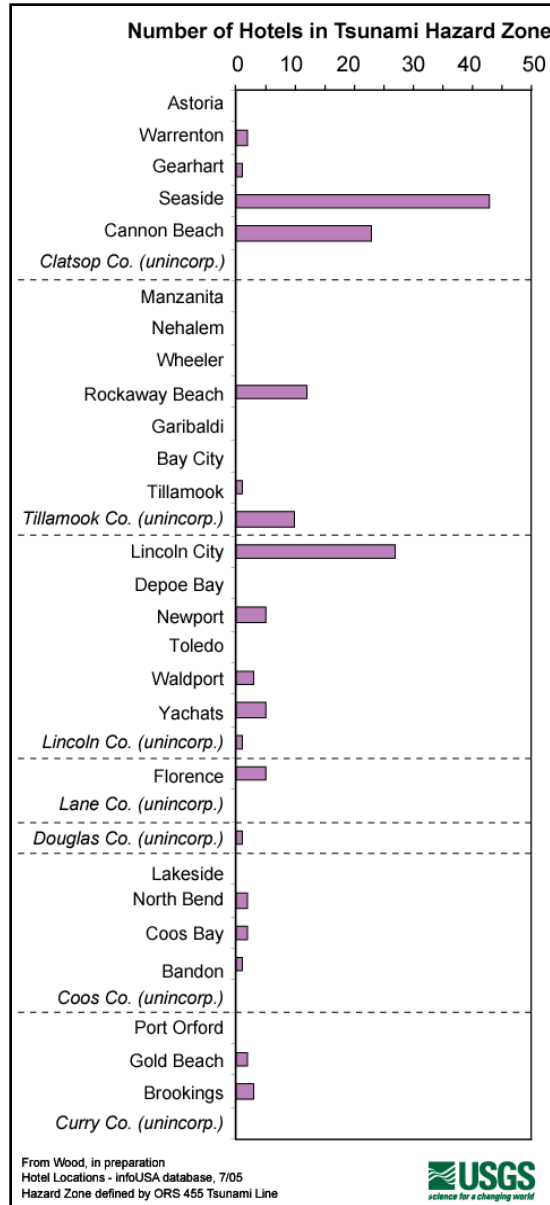
OREGON NTHMP

CHALLENGES/DEFICIENCIES

- Loss of TIME Center (support for DEM's + archive and distribution of numerical models and output).
- Inundation map review process needed.
- TsunamiReady program revision needed.
- NOAA warning mission overshadows other priorities (Better balance of priorities between warning, assessment, and outreach/mitigation).
- Improved program management and engagement with states from NOAA/NWS and other federal agencies
- **Sumatra lessons**: Revisit all Cascadia inundation and evacuation maps. New sources for S. Cascadia.
- Accelerate inundation mapping.
- Increase regional coordination for Casacdia event planning
- Improve understanding of tsunami/EQ vulnerability

How many visitors could be in the disaster zone?

- Libraries
- Shopping centers
- Parks
- Historical places
- Museums
- Theaters
- Casinos
- Amusement parks
- Zoos/Aquariums
- Festivals
- Sporting events
- Houses of worship



OREGON ASSESSMENT MILESTONES

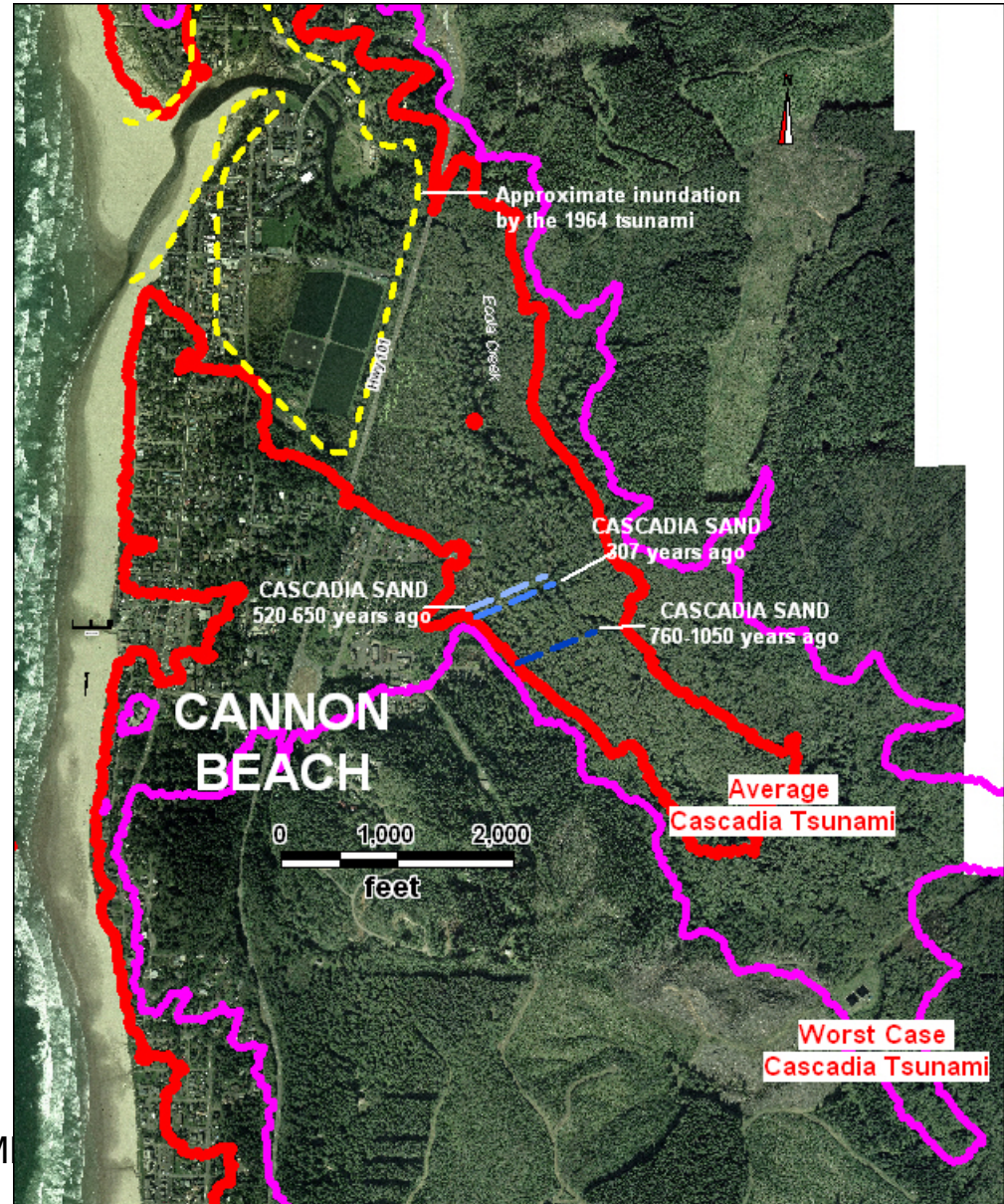
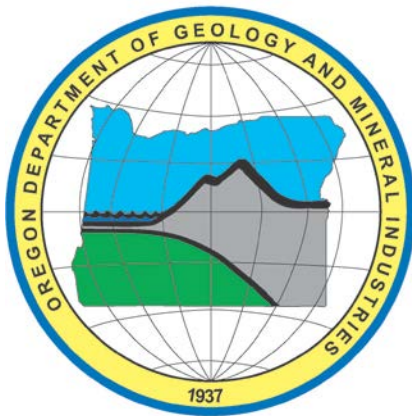
- **1995:** SB379 - publication of the “tsunami line”
- **1995-1997:** 3 inundation maps (Lincoln City, Newport, Seaside).
- **1997:** NTHMP started (support from Senator Mark O. Hatfield)
- **1997-2001:** 3 inundation maps (Gold Beach, Astoria, Warrenton)
- **2002-2006:** 3 inundation maps (Coos Bay, Waldport, Florence)
- **2004:** Sumatra tsunami (25-35-m run-up; Cascadia analogue)
- **2006-2007:** Cannon Beach inundation map - **NEW APPROACH.**
 - **New models:** hydrodynamic (Y.J. Zhang, OHSU); fault sources (Kelin Wang, PGC)
 - **Parametric analysis** of Cascadia source earthquakes (Chris Goldfinger, OSU)
 - **Ground truth** with paleotsunami deposits (Rob Witter, DOGAMI + Curt Peterson, PSU)
 - Extreme events larger than previously thought:
(new extreme run-up = 20-28+ m; old extreme run-up = 15-20 m)
 - Revise previous maps; complete new maps; accelerate map production.

CANNON BEACH, OREGON

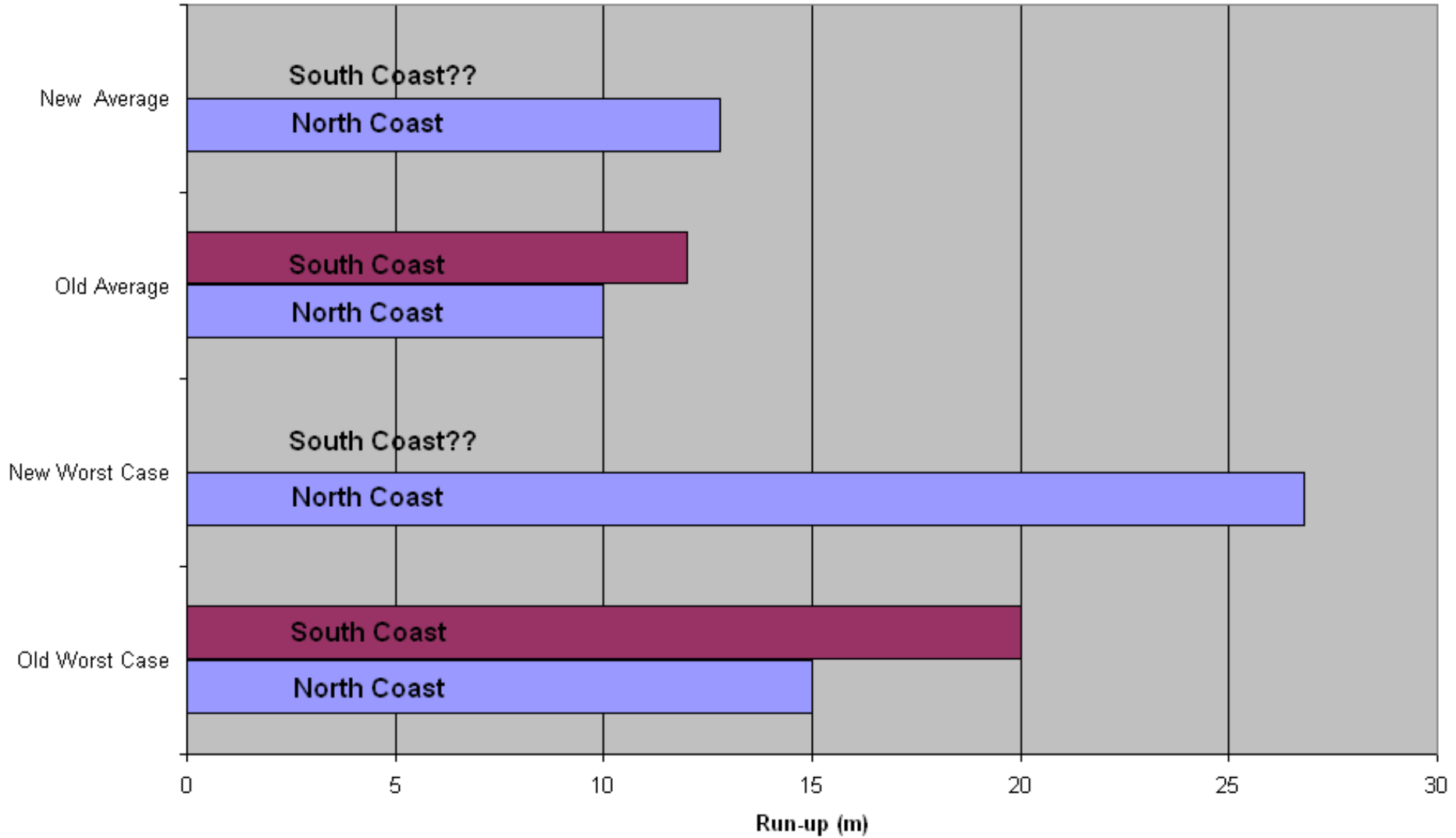
Model Tsunami Inundation versus Tsunami Sand Extent

Oregon Dept. of Geology and Mineral Industries (DOGAMI) preliminary map of tsunami inundation and inland extent of tsunami deposits in the Cannon Beach area.

Inundation data is from Y. Joseph Zhang Oregon Health & Science University; paleotsunami data interpretation is from Rob Witter, DOGAMI, all information depicted is subject to revision upon review and acquisition of additional data.



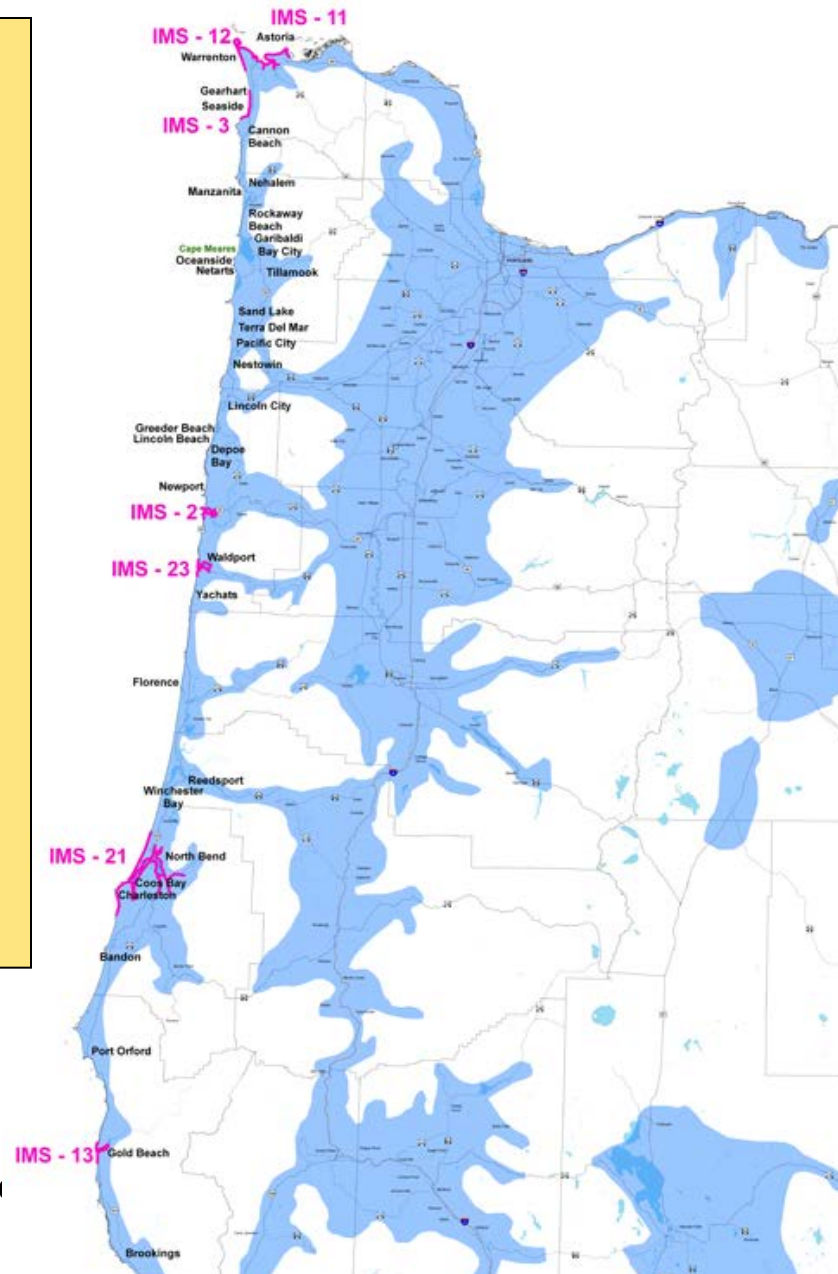
Old versus New Tsunami Run-up (from Cannon Beach Parametric Analysis)



Tsunami Inundation Map Completion

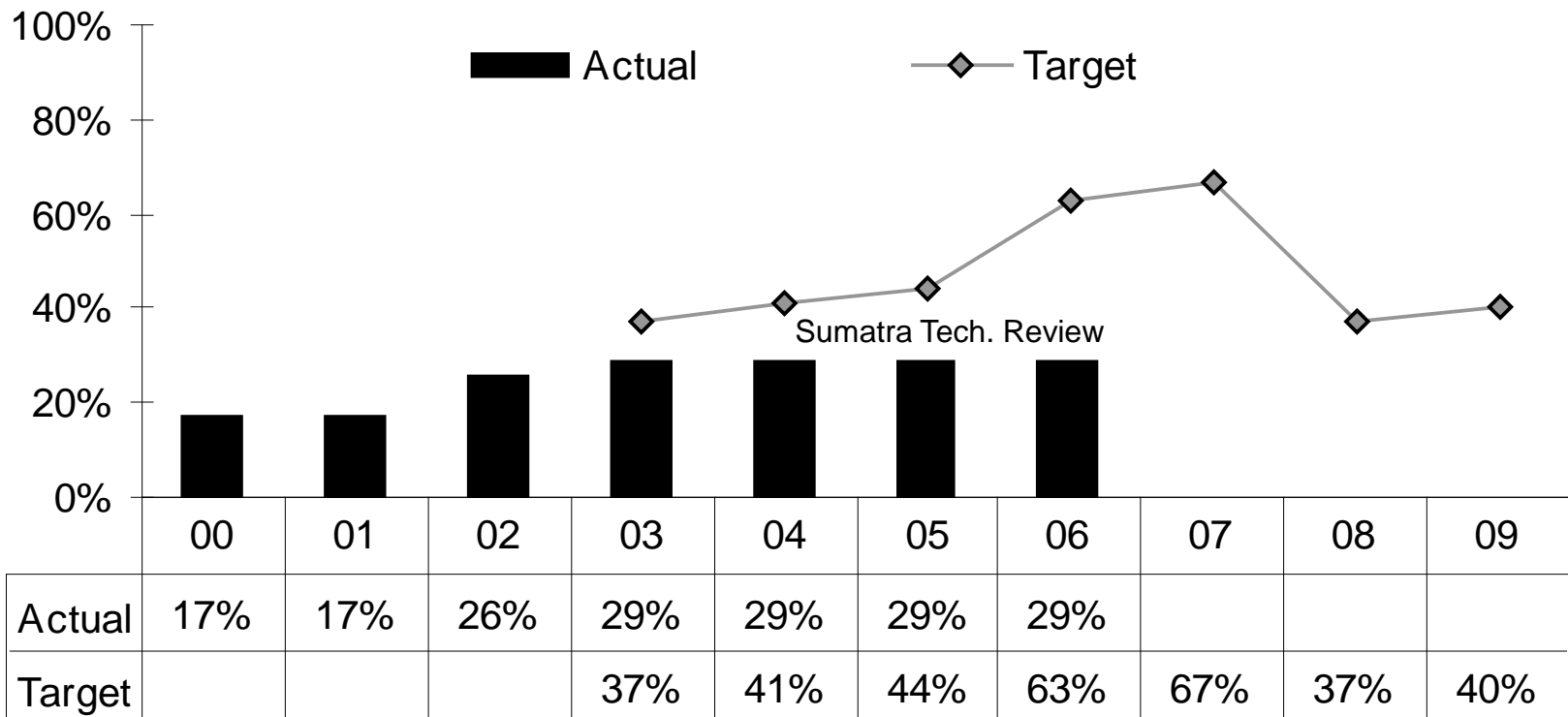
Tsunami Inundation Maps:

- 10 of Target 35 Communities in 19 Pop. Centers Have Maps
- Each Map Requires Bathymetry & Computer Simulation Model
 - Funding From NOAA NTHMP
- Florence Inundation Map Complete.**
- Cannon Beach & Pacific City Work In Progress
- City of Cannon Beach Funding Paleo-Tsunami Sand Deposit Field Work
- Schedule is To Complete Maps For 35 Target Communities by 2019



OREGON INUNDATION MAPS

% Tsunami Inundation Maps Completed



OREGON AWARENESS MILESTONES

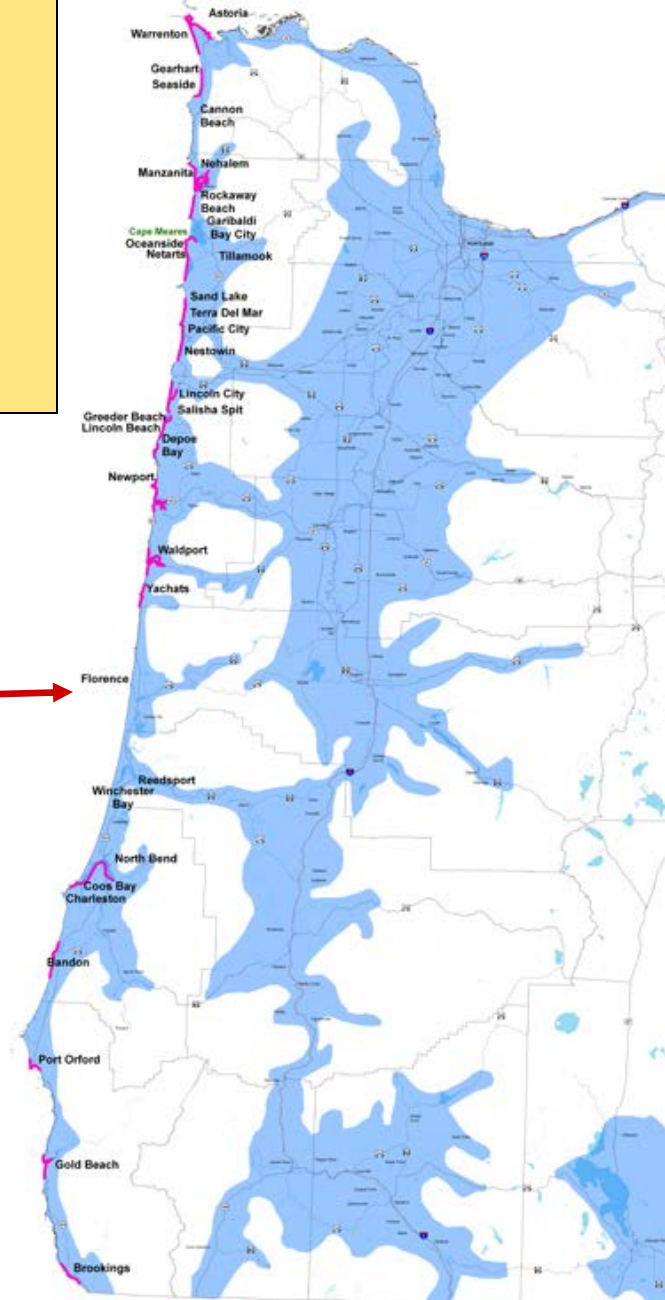
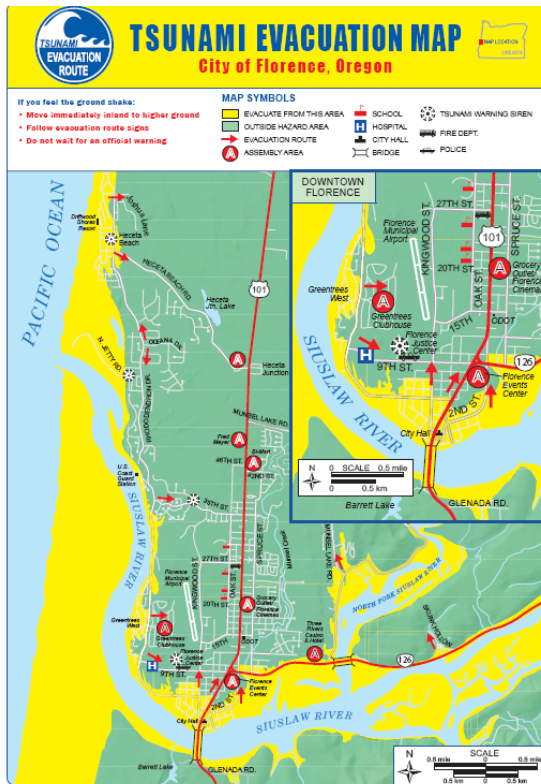
- 1995: SB378 - School evacuation drills mandated
- 1995: Public hearings on SB379 “tsunami line”
- 1995-1997: Outreach + 3 grade-level school curricula + signs
- 1997-2001: Evacuation brochures - 12% done; video produced.
- 2003: Highway 101 “Entering” and “Leaving” signs
- 2004-2005: **Sumatra tsunamis and earthquakes (2004 and 2005):**
 - » Tsunami Summits (emergency officials; legislators)
 - » Congressional hearings
 - » CREW Cascadia Scenario released
 - » SB557- lodging facilities legislation
 - » Lodging facilities CD released
 - » Seaside outreach report released
 - » Began production of 1964 tsunami video
- 2006: Evacuation brochures – 75% done
Pacific Peril exercise
Four Tsunami workshops with NWS
- 2007: Annual Coastal Fire Chiefs Conference



Tsunami Evacuation Map Brochure Completion

Tsunami Brochures:

- 30 of Target 40 Communities in 19 Pop. Centers Have Brochures
- High Interest Following Sumatra EQ
- 210,000 Re-printed in 2006
- Florence Map Completed 2006; To Be Published 2007



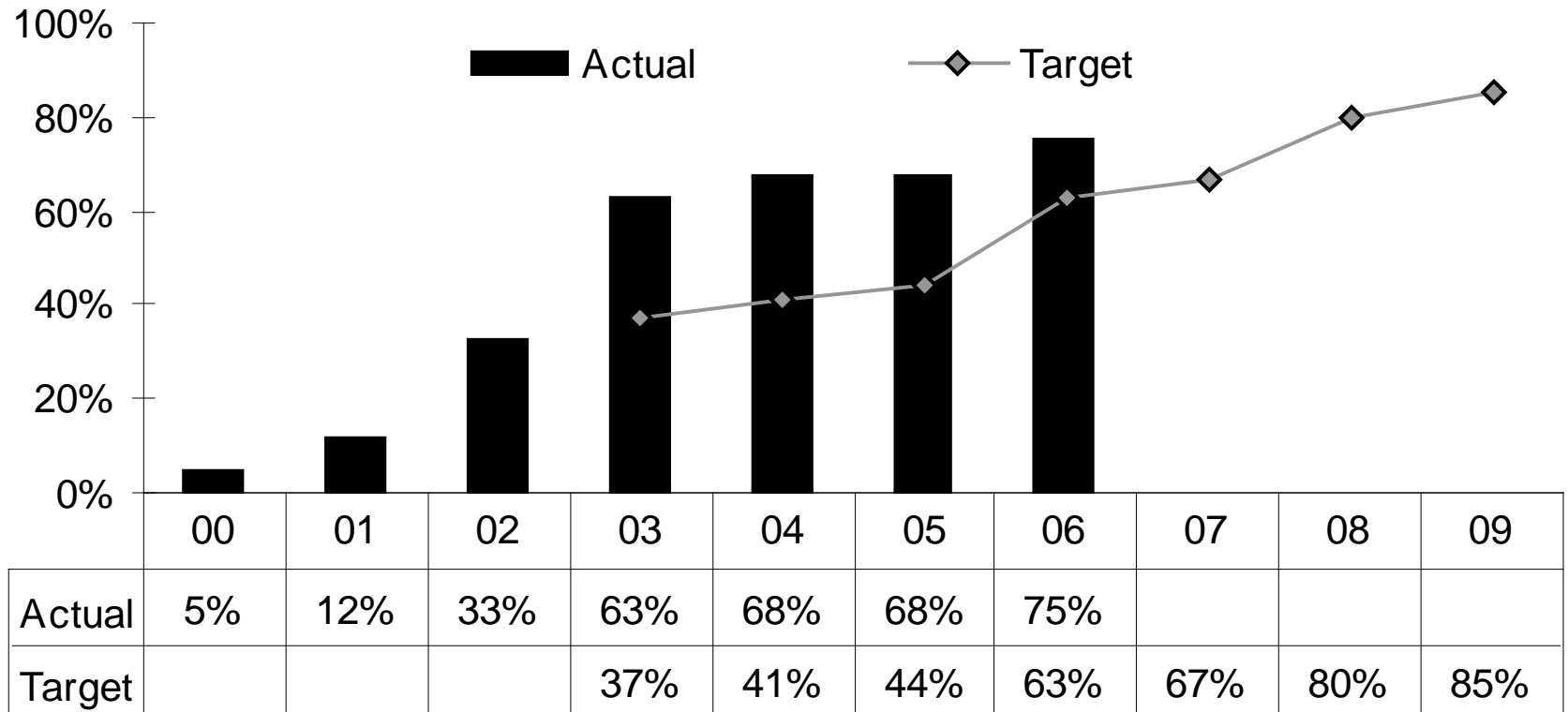
NTHMP 5-Year Review

WORKS
This evacuation route map was developed by the Oregon Department of Emergency Management (ODEM) in collaboration with local emergency officials. It is intended to provide a visual aid for evacuation routes and assembly areas. The evacuation route map was developed by local emergency officials and is subject to change without notice. ODEM is not responsible for any errors or omissions. The map is intended for emergency response and should not be used for any other purpose.



OREGON EVACUATION MAPS

% Tsunami Evacuation Brochure Completion



Oregon TsunamiReady Communities

1. Cannon Beach
2. Manzanita, Wheeler, and Nehalem
3. Rockaway Beach
4. Lincoln City
5. Tillamook County
6. Coos County



Lincoln City, March 2005

Unified Tsunami Warning Standards

SB-557 Multi-agency work team to recommend Administrative Rules

- Type, Duration, Volume and Location
 - Duration – 3 minutes, continuous
 - Pitch: Steady === or Wavering ~~~
- Instructions for public
 - Tune in for emergency information?
 - Go to high ground immediately?
- Re-entry/Cancellation Notification
- Monthly Testing procedure
- Use of Blue Strobe Beacon
- Coordination with revised FEMA Outdoor Warning Standards
- National and International interest

NTHMP 5-Year Review



OREGON

FUTURE NTHMP ACTIVITIES FUNDING SHORTFALLS

1. Accelerate map production - new inundation and evacuation maps
 - a) Updated to “**Sumatra-level**” sources
(NOTE: N. Calif. + Washington affected by this update)
 - b) Inundation maps include teletsunami.
 - c) ~\$2.4 million (NTHMP is ~\$2 million short over the next 5 yrs).
2. Door-to-door outreach in 19 population centers – ~\$2.85 million (NTHMP is ~\$2.8 million short).
3. “All-city” evacuation drills for 19 communities
4. Tsunami warning system standards/rules
5. Evacuation planning for Lodging facilities + visitors
6. Outreach + evacuation maps for coastal parks.
7. NOAA weather radios in all coastal businesses

OREGON

Contact Information

If you have additional questions during the review period, you may contact

- **Jay Wilson** – 503-378-2911 x 22237
- **George Priest** – 541-574-6642

Thank You!