

Safe Schools for Our Students

Building a Better Future

Doug Dougherty

It All Started in Cannon Beach...

- **City and School held Town Hall meetings (1994)**
- **Model for tsunami evacuation** (TV, National Geographic, Department Of Geology And Mineral Industries) (1994-98)
- **Tsunami Inundation Zone set at 38-40 ft. (1995)**
Intent: new essential facilities (schools, hospitals, police, fire) constructed beyond threat of tsunami inundation. No state or federal money was allocated to pay for new construction

Our Students Are At-Risk

DOGAMI Oregon Seismic Needs Assessment Project, 2007.

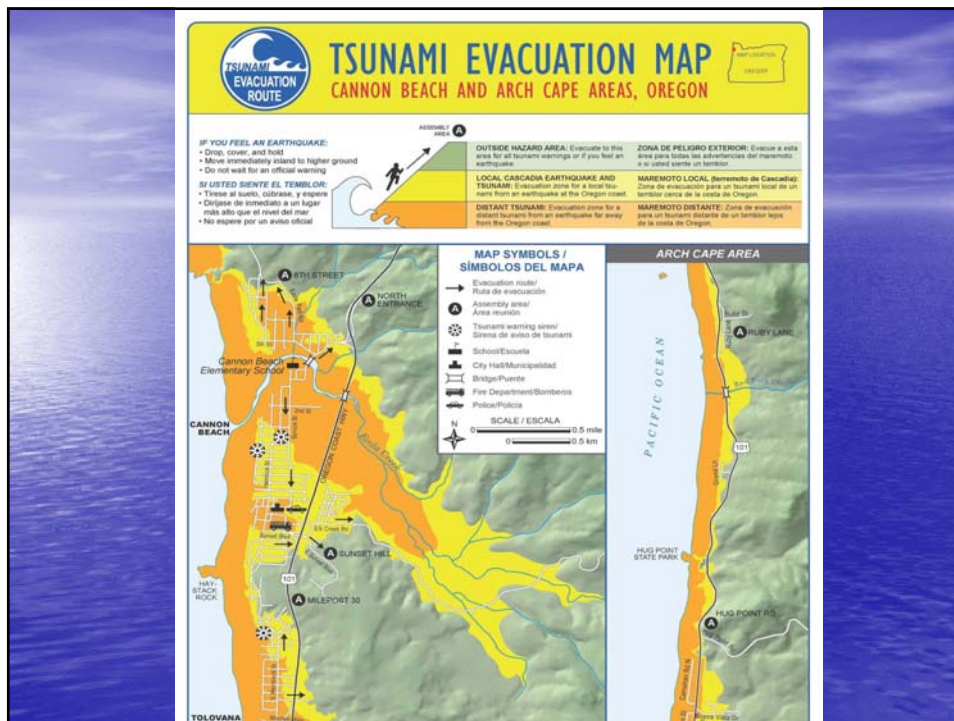
- There are seven public schools at high risk of tsunami inundation in Oregon. Four of those schools are in Seaside School District.
- Cannon Beach Elementary School
- Gearhart Elementary School
- Broadway Middle School
- Seaside High School
- All are 5 to 15 feet in elevation.

Tsunami Evacuation

- Seaside High School - 475 students
Evacuate 1.2 miles (East 12th Ave. Bridge)
- Broadway Middle School - 350 students
Evacuate .7 miles (East Broadway Bridge)
- Gearhart Elementary School - 275 students
Evacuate .7 miles to get to 45 feet
- Cannon Beach Elementary School - 110 students
Evacuate 1.2 miles (South through town)

Basing Decisions on Science

- The local building inspectors would allow new schools to be built in the inundation zone (2004).
- Seaside School District, City of Cannon Beach, and Cannon Beach Fire and Rescue contracted with DOGAMI to determine a safe elevation based on historic tsunami inundations (Original cost was \$30,000, completed in 2 months, 2005).



Cascadia Earthquakes

Chris Goldfinger, OSU Marine Geologist and Geophysicist
Yumei Wang, Geotechnical Engineer, DOGAMI

- The recurrence interval for magnitude 9-plus earthquakes off the North Oregon Coast is about 330 years.
- We are in year 309 since the last Cascadia event.
- The earthquakes will last between four to six minutes and they will be very destructive.
- Our four schools within the tsunami inundation zone have a high potential for catastrophic seismic collapse.

Cascadia Tsunamis

DOGAMI 2009

- About 10 minutes after the earthquake, the beaches will see evidence of the incoming tsunami.
- Downtown streets will become inundated within about 20 minutes.
- The peak inundation of the first tsunami will be occur within about 30 minutes.
- Typical tsunami wave heights occurring in the Pacific Ocean have been 20 to 65 feet at the shoreline. However, because of local conditions, a few waves have been much higher - as much as 100 feet.

Recommendations

George Priest, Tsunami Geologist, DOGAMI

Rob Witter, Paleoseismologist, DOGAMI

- As a result of the Cannon Beach tsunami study, Seaside School District needs to site the new schools on property that is:
- Relatively flat
- Geologically stable
- At least 80 to 100 feet in elevation
- The cities of Cannon Beach, Gearhart, and Seaside do not have land that meet these specifications.

Where Can We Build?

- Weyerhaeuser owns the only property meeting these requirements. Geologists, engineers, and architects have identified several potential sites.
- Weyerhaeuser excluded the area Seaside School District is investigating from their sale to Campbell Group.
- Relocating all of our schools to one large campus is the safest, most educationally sound, and cost efficient option.

