



National Tsunami Hazard Mitigation Program | Oregon

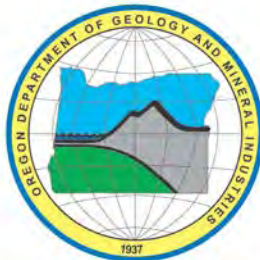
TsunamiReady, TsunamiPrepared
Outreach and Education Program
Year Three, 2011-2012

Prepared by staff of the Oregon Department of Geology and Mineral Industries (DOGAMI)

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OREGON DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES

OREGON EMERGENCY MANAGEMENT

SEPTEMBER 2012

SPECIAL THANKS and ACKNOWLEDGEMENT

We wish to thank all the individuals and organizations involved with Tsunami Outreach Oregon, and especially the National Tsunami Hazard Mitigation Program for funding this important work.

Without the participation and services of the many organizations, businesses, and government agencies, our outreach strategies would not have been possible. Participating groups included all those listed in the following pages, from local steering committees and emergency managers to civic groups, businesses, schools, and preparedness advocates.

Finally, we extend our appreciation to the dedicated volunteers of these communities whose hard work exemplifies this program's goal of building a culture of tsunami preparedness. These volunteers truly make Oregon's coast a special – and a safer – place.

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INTRODUCTION

The Oregon Department of Geology and Mineral Industries (DOGAMI) is funded to conduct tsunami preparedness outreach along the Oregon coast through a four-year grant from the National Tsunami Hazard Mitigation Program (NTHMP), formed in 1995 by Congressional action. This report summarizes year three of DOGAMI's Tsunami Outreach Oregon (TOO), conducted from August 2011 to July 2012. This phase focused on two community clusters – Tillamook Bay region on Oregon's north coast and the Coos Bay/North Bend region on the south coast.

Year three of the grant was led by DOGAMI staff members George Priest (principal investigator), Don Lewis (assistant director), and Rachel Lyles Smith (project operations manager), in partnership with Althea Rizzo (geologic hazards program coordinator, Oregon Emergency Management) and Tyree Wilde and Ryan Sandler (warning coordinator meteorologists, National Weather Service). Additional statewide partners included the Oregon Red Cross and the U.S. Coast Guard. DOGAMI also

hired four community organizers, two per region, who were part-time employees residing in one of the focus communities to lead the *local* outreach component of the TOO program.

Tsunami Outreach Oregon was conceived as a locally-driven education and outreach program, giving each community the ability to design how best to achieve agreed upon objectives. Based on successful components of the City of Seaside's 2005 Tsunami Awareness Program, priorities for each community included active support by local and county governments; targeted neighborhood campaigns in evacuation zones; distribution of tsunami evacuation and preparedness information; engagement of local schools; and a community-wide tsunami evacuation drill. An essential part of the program is involving local volunteers and community groups to foster self-sustaining, volunteer-based outreach. An additional long-term goal is to increase the number of *TsunamiReady* communities on the coast over the four years of the grant.



TILLAMOOK BAY REGION (NORTH OREGON COAST)

Overview

DOGAMI community organizers (COs) Jeannell Wyntergreen and Jerry Rilette led a very effective outreach effort, particularly in the city of Tillamook, whose inland residents generally didn't believe they were at risk. Jerry brought deep experience having worked as a community organizer during year one outreach (2009-10) in Rockaway Beach, along with his background as a retired firefighter and emergency manager. Jeannell, though relatively new to the coast, forged strong relationships with local media and community members.

Each year at the beginning of the TOO program, a local steering committee is formed to provide guidance to the COs and participate in various outreach activities. Jerry and Jeannell met with the steering committee members individually and it was determined that dividing the Tillamook Bay region into three sub-regions would be easier to organize than tackling the entire region at one time. Therefore, outreach activities were conducted within each of the following geographic sub-regions, listed from north to south:

- North Tillamook Bay: included the cities of Garibaldi and Bay City, and the unincorporated area of Barview.
- City of Tillamook: included a portion of Wards 1 and 2, primarily west of US Hwy 101, and businesses located along US Hwy 101 in Ward 2.
- Cape to Cape: included the unincorporated areas of Cape Meares, Oceanside, and Netarts.

Steering committee

The Tillamook Bay region steering committee was chaired by Gordon McCraw, Tillamook County emergency manager, and included elected officials, police and fire representatives, local amateur (ham) radio group representatives, and other preparedness advocates

Figure 1. Tillamook Bay region steering committee

Name	Affiliation
Gordon McCraw	Tillamook County Emergency Mgr.
Rick Adams	Tillamook Fire Chief
Dan Burdick	Tillamook County Sheriff's Office, Search & Rescue
Tim Carpenter	Netarts/Oceanside Fire Chief
Rueben Descloux	Tillamook Fire
Charlie Downey	Rockaway Beach Emerg. Mgmt.
Steve Forster	Tillamook City Council
Terry Kandle	Garibaldi City Council
Dave Kettner	Tillamook 911
Linda Kozlowski	Emerg. Volunteer Corps of Nehalem Bay
Linda Kay Marshall	Tillamook County Citizen Corps Council
Jay Marugg	Garibaldi Fire Chief
Brian Oglevie	Netarts/Oceanside Fire Dept. (NOFD)
Ceci Pratt	ARC Readiness Specialist
Chris Spence	Cape Meares Emerg. Outreach
Jeff Underwood	Ham Radio

The committee met eight times and its members were a key resource in deciding where to conduct pre- and post-surveys, how to generate turnout at the community rally and evacuation drill, and by bringing local knowledge to the overall outreach effort. They also assisted in identifying candidates for the community organizer positions with DOGAMI and participated in both the community rally and evacuation drill.

Door-to-door education

TOO staff and volunteers visited homes to speak with residents and leave a small bag of informational materials including an evacuation brochure, tsunami fact sheet, evacuation drill flyer, OEM's *Living on Shaky Ground*, and in some cases, the Winter 2012 edition of DOGAMI's newsletter, *Cascadia*, featuring articles on Japan's 2011 tsunami. Over 500 door-to-door bags were distributed the week prior to the drill.

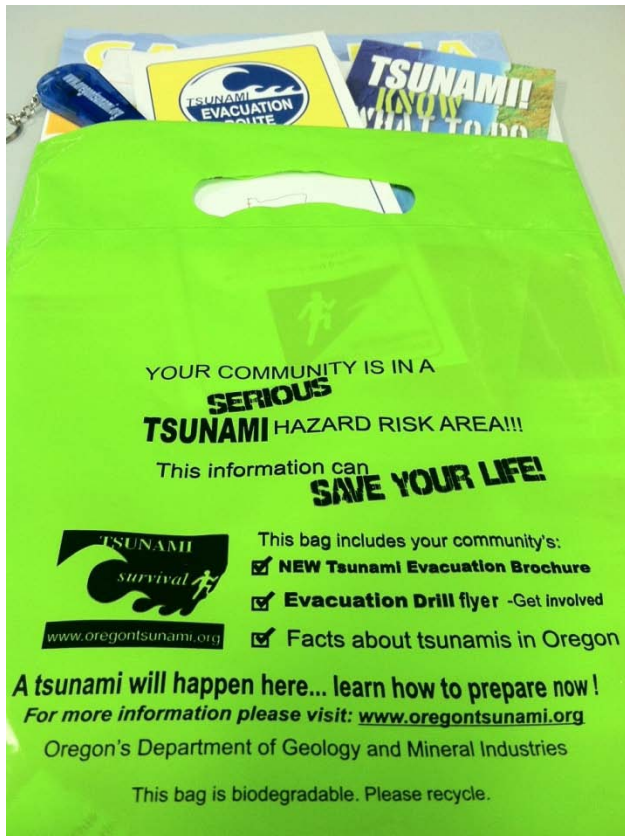


Figure 2. Example of info bags distributed during door-to-door outreach, which contained an evacuation map, a whistle/flashlight, and other resources.

North Tillamook Bay: On April 25, 2012, the door-to-door campaign commenced in the North Tillamook Bay area. Fire district volunteers, CERT groups, and the DOGAMI COs passed out packets of information to residents and commercial businesses in Barview, Bay City, and Garibaldi.

City of Tillamook: On May 16, 2012, approximately 300 packets were delivered to homes and apartments in Tillamook Ward 1. This was conducted by the COs, the Tillamook Fire District operations chief and several of their volunteers, the Tillamook Police Chief and Sergeant and their volunteers and Cadets, and a Salvation Army volunteer.

Cape to Cape: On March 17, 2012, approximately 500 information packets were delivered to homes in Cape Meares, Netarts, and Oceanside. Cape Meares has a long-standing emergency group that took charge of their door-to-door campaign, which works well in a small community. Additionally, the majority of homes are in the inundation zone and there are no commercial businesses in the community. The Netarts/Oceanside door-to-door campaign was conducted with the local fire department (NOFD). They also requested a supplemental evacuation brochure from DOGAMI to support outreach in the South Netarts Bay area and at Cape Lookout State Park (both south of Netarts), as this area is part of their fire protection district. Park officials also participated in the outreach campaign by handing out packets of information to registered campers who were entering the park the day before the Cape to Cape evacuation drill.

Community rally

The Tillamook Bay region community rally was held on March 11 – the one-year anniversary of Japan's earthquake and tsunami – in order to educate the public on the earthquake/tsunami hazard, to officially unveil the new inundation maps for the area, to distribute new evacuation brochures to residents, and to generate interest in the area's three evacuation drills. The rally was a big success, attended by about 250 people, with informational booths set up by a dozen community partners and emergency management agencies. Speakers included Don Lewis and Rachel Lyles Smith from DOGAMI, Althea Rizzo of Oregon Emergency

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Management, and steering committee chair and Tillamook County emergency manager, Gordon McCraw.

The anniversary date turned out to be an excellent decision for promoting the event. The extensive media coverage about the one-year anniversary of Japan's tsunami helped build enthusiasm for the event. The majority of comments from attendees expressed that the rally was a success in bringing together residents and local and state emergency management groups.

Information booths were on hand from the following groups

- CERT: Three groups, Netarts, Tillamook, and Manzanita
- Oregon Emergency Management
- Red Cross
- Salvation Army
- TEARS Ham Radio Group
- Coast Guard (brought a boat for static display)

- Tillamook County Search & Rescue
- Tillamook Fire District
- Netarts/Oceanside Fire District
- Tillamook Estuaries Partnership

Tsunami evacuation drills

Three separate evacuation drills were conducted from March-May 2012 in the Tillamook Bay region. They were a tremendous learning experience for everyone involved. For example, all of the communications between the fire, county sheriff, city police, and ham radio groups were tested and the drill provided the opportunity for unknown problems to be resolved. Local citizens were able to walk their evacuation route and many brought "go kits" to confirm they could carry the weight of the pack to the assembly areas within 15-20 minutes. Below is a summary of each of the three drills.



Figure 3. Residents heading to high ground, some with their pet carriers, during an evacuation drill.

North Tillamook Bay: This drill on May 5, 2012 in Bay City, Barview, and Garibaldi was a success with 389 participants, of which 119 were drill personnel and volunteers. Fire apparatus were used to signal the start of the drill. The Tillamook County 911 system was also used to place phone calls one hour prior to the drill to alert residents in the area of the drill and to test the "reverse 911" capabilities. The reverse 911 call provided a notification in English and Spanish. The US Coast Guard Civil Air Patrol was also used to alert residents of the drill using a speaker system mounted to a small airplane. Drill surveys were passed out to participants who walked to the assembly areas. A summary of the drill survey information can be reviewed in Appendix C. A debrief or "hot wash" was conducted immediately after the drill to discuss the successes and failures of the event, as well as the potential for future drills and improvements needed.



Figure 4. Outreach to this hotel in the hazard area generated helpful notification about the drill.

City of Tillamook: On May 23, 2012 at 1pm, the evacuation drill in the City of Tillamook began with three minutes of continuous fire and police sirens. A comprehensive number of participants was not calculated since the drill included multiple private and public facilities who practiced "shelter in place" drills or a modified version of the drill where participants did not evacuate to an official assembly area. However, there were approximately 100 participants at the two assembly areas, and 34 drill personnel and volunteers. Five schools and the county hospital also participated with some type of preparedness drill, ie..shelter in place, evacuation of specific buildings/floors of buildings, etc.. Drill surveys were passed out to participants who walked to the assembly areas. A summary of the drill survey information can be reviewed in Appendix C. A debrief or "hot wash" was conducted immediately after the drill to discuss the successes and failures of the event, as well as the potential for future drills and improvements needed.

Cape to Cape: The Cape to Cape drill on March 24, 2012 was a big success with approximately 700 participants. In Cape Meares, approximately 250 percent of their permanent population were evacuees. The drill date was chosen specifically to reach those who are second homeowners or visitors to the area during spring break, and to coincide with National Tsunami Awareness Week. This statistic indicates that the local outreach prior to the drill was successful in reaching this group of the population. The drill involved two fire districts and three communities, as well as Cape Lookout State Park. The Tillamook County "reverse 911" system was tested the morning of the drill and fire apparatus sirens, as well as emergency sirens in Oceanside, were used to indicate the start of the drill. The US Coast Guard Civil Air Patrol was also used to alert residents using an announcement from a small plane. Drill surveys were passed out to participants who walked to the assembly areas. A summary of the drill survey information can be reviewed in Appendix C. A debrief or "hot wash"

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was conducted immediately after the drill to discuss the successes and failures of the event, as well as the potential for future drills and improvements needed.

Figure 5. Cape to Cape drill participation

Location of participants	Number
Cape Meares	144
Oceanside	141
Netarts	172
Cape Lookout State Park	50
Cape Meares Light House	48
Drill personnel and volunteers	125
Total	~700 participants

Areas for improvement

Post-tsunami drill survey findings point to the following areas for improvement:

- The siren was not loud enough in some areas. Oceanside Chapel assembly residents have many reports of a faint siren, and that it was too mono-toned for the hard of hearing.
- Cape Lookout State Park needs to improve evacuation signage.
- Reverse 911 has too many decision points and a long lag time before announcement. Survey respondents wrote that they almost hung up on the phone call because of the long pause between receiver pickup and the start of the announcement.

Schools outreach (K-12)

Over the course of the program, the community organizers (COs) worked with 12 educators, two school principals, and one school resource officer. The COs provided educational information, resource links, and contact information for obtaining related preparedness information for their classrooms. Presentations were not given directly to the students as the teachers preferred to present the material themselves following a meeting with the COs. Copies of the cartoon booklet *Tsunami Warning!* were provided to the local schools and libraries. One school participated

in the City of Tillamook evacuation drill since it also serves as an official assembly area.

Media outreach and coverage

News coverage included radio interviews on KTIL Tillamook and on Portland radio stations; TV coverage by KGW Channel 8 for the March 24 evacuation drill in Cape to Cape; and consistent coverage each week in March in Tillamook's weekly newspaper *The Headlight Herald*, featuring large cover stories and a full-page reprinting of the evacuation maps. Copies of news coverage are found in Appendix E.

Media coverage of the one-year anniversary of Japan's Tohoku earthquake and tsunami helped to generate interest in local preparedness efforts.



Figure 6. This Tillamook area newspaper provided thorough coverage of tsunami outreach and maps.

Workshops and events targeting key audiences

Targeted outreach was also conducted with key audiences via one-on-one meetings, workshops, presentations, and at community gathering places.

Local government leadership: Multiple presentations were given to the city councils of Garibaldi, Bay City, and Tillamook, as well as the Tillamook County Commission. Many of these were

televised throughout Tillamook County on the Tillamook County public television channel.

Critical facilities: DOGAMI management and tsunami expert George Priest met with the Tillamook County General Hospital administration to discuss the TOO program, the new tsunami inundation maps, and the implications for the hospital, which is inside the XXL inundation zone.

Businesses: The COs held dozens of small group presentations with local businesses and employees, especially those in the inundation zones. Two presentations were given to a total of 190 Fred Meyer store employees. The store director was very concerned about the safety of the employees and shoppers, and indicated she will follow up with employees with information on "go kits" and in-store employee evacuation drills. The COs also held a Tillamook Ward 2 / Hwy 101 business meeting that included management personnel from local businesses, the county's emergency manager, Tillamook's fire and police departments, and the Red Cross. These measures were taken because the businesses didn't want to close their stores to participate in the evacuation drill, although they wanted to be informed to discuss future evacuation drills, their role in local outreach, and the safety of their staff and customers.



Figure 7. Jerry Rilette, TOO community organizer, giving a presentation to 190 employees of Fred Meyer grocery store in Tillamook.

Spanish-speaking outreach: Throughout this outreach year, the COs were involved with the Tillamook County Health Department and Hispanic Outreach coordinator. They attended their tsunami awareness presentation to the local Latino community. During evacuation drills, bilingual Spanish/English messages were included in reverse 911 calls, aerial announcements by Civil Air Patrol, and loudspeakers used on trucks. The COs also distributed outreach materials (English and Spanish) to schools, libraries, emergency agencies, and human service agencies. Dollars from this NOAA grant paid for translation and graphic design services that were needed for the creation of Spanish outreach materials.

Outreach kiosk: In autumn 2011, the City of Tillamook and Tillamook County Transportation District (TCTD) provided use of a room inside the public transit center, next to City Hall, as an outreach materials kiosk. For the duration of the program, the COs used this hub to distribute brochures, Map Your Neighborhood information, evacuation maps, and more. This kiosk provided secure storage for all of the outreach materials shipped to Tillamook and used during the outreach campaign.

Other outreach: Staff also held meetings with or gave presentations to the following local groups (when counted, the number of attendees is in parentheses):

- US Coast Guard, Tillamook station master
- US Coast Guard command staff and general staff
- Port of Garibaldi staff (42)
- United Methodist Church emergency services group
- TEARS Ham Radio Group (15)
- Map Your Neighborhood presentation, Bay City (12)
- Oceanside community
- Netarts community
- Fisherman's Advisory Council of Tillamook
- Tillamook Farmers Market (125)

CERT training

Community organizer Jerry Rilette conducted a CERT training in the Cape to Cape region, with 18 residents completing the eight-week course. Training included: disaster responses, types of disasters - with emphasis on tsunamis, emergency medicine, triage, light search and rescue, live fire training, team building exercises, and involvement in the Cape to Cape evacuation drill.

This was the first time a preparedness class had been taught in this area. CERT graduates helped with the evacuation drill by staffing check-in sites, assembly areas, and helping to direct pedestrians safely across Highway 101. CERT is one of our most valuable tools for training and sustaining local efforts. This newly formed team has already requested additional training on a variety of subjects and wants to find funding for another CERT class.

This small community was extremely organized by the CERT team leader that was trained in phase 1 of the Tsunami Outreach Program. As a local fire officer stated, “this community would have had a great evacuation drill, with or without, the fire department...they were that well organized”.

At the March 11 community rally, three CERT groups – from Netarts, Tillamook, and Manzanita – hosted information booths.

Tsunami evacuation signage

Using NOAA grant dollars, DOGAMI purchased and delivered roadway and assembly area signs for the local jurisdictions to use and erect as needed. These included round evacuation route signs with matching arrows to be used to identify the direction to high ground, and 24" x 36" assembly area signs to indicate the location of high ground for evacuees. Eighty-three round evacuation route signs and

matching directional arrows were distributed, as well as 26 assembly area signs.



Figure 8. Summary of evacuation signage.

City	Set of evacuation route signs (round), directional arrows	Assembly area signs
Cape Meares	12	5
Oceanside & Netarts	18	7
Barview	10	1
Garibaldi	15	6
Bay City	12	2
Tillamook	16	5

Map Your Neighborhood

North Tillamook Bay: Efforts to use MYN did not result in any new groups, although there were requests for presentations to local churches and committees, primarily from TOO participants who were trying to engage their local neighborhoods.

City of Tillamook: Outreach staff were not able to achieve MYN participation in the City of Tillamook. It was offered at multiple presentations; at the outreach kiosk a 3' x 3' map was hung in the window with information, and city councilors tried to get neighbors involved. Community organizers believe it was a challenge because the City has only two wards (out of six) that will be impacted by a tsunami, so the citizens still feel somewhat immune to the threat. In addition, this is the first time the city of Tillamook has had an evacuation brochure. The final comment from the City is that they have also been unable to start a neighborhood watch program. Perhaps over time, Tillamook residents

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will take to this program, but it was unsuccessful during Tsunami Outreach Oregon.

Cape to Cape: There are existing MYN programs in Netarts and Oceanside that were enhanced by the TOO program.

TsunamiReady certification

The TsunamiReady program, developed by the National Weather Service, is designed to help cities, towns, counties, universities and other large sites in coastal areas reduce the potential for disastrous tsunami-related consequences. TsunamiReady communities are better prepared to save lives through better planning, education and awareness. Communities have fewer fatalities and property damage if they plan before a tsunami arrives.

Prior to this outreach phase, TsunamiReady requirements had already been met by Tillamook County as well as the cities of Manzanita, Nehalem, Wheeler, and Rockaway Beach. As a result of the COs' outreach, many communities in the Tillamook Bay region are closer to meeting requirements but will need assistance completing the necessary paperwork. In the coming year, DOGAMI and Oregon Emergency Management are committed to providing these cities with guidance on program requirements.

Community organizers reviewed TsunamiReady information with each community and understand that the City of Tillamook is going to work toward certification when they update their incident response plan with Oregon Emergency Management.



Figure 9. Tillamook County is certified as TsunamiReady, and several cities in the county expect to become certified in the near future.

Lessons learned for future outreach

One region vs. sub-regions: Early in the process, outreach staff decided to divide the Tillamook Bay region into three sub-regions because of local politics, staffing, and the extent of evacuation drill needs, which were different for each community. Limited resources were also a consideration. For example, during the North Tillamook Bay evacuation drill, there were dozens of people crossing US Highway 101. Garibaldi has only one part-time police officer. To help assure participant safety, additional sheriff deputies and US Coast Guard personnel were asked to participate to help control crossing points and to help alert oncoming traffic of heavy pedestrian use during the drill. If all three Tillamook regions had an evacuation drill at the same time, the limited resources would have been spread too thin.

In summary, a sub-regional approach was chosen because:

- Each has definable geographical boundaries.
- Each has its own community leaders (including unincorporated communities).
- The entire Tillamook Basin is very limited in the critical safety personnel and equipment needed for evacuation drills.

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- The COs could apply “lessons learned” from one drill to the next.
- Extensive media coverage happened not just once, but three times.

Survey results

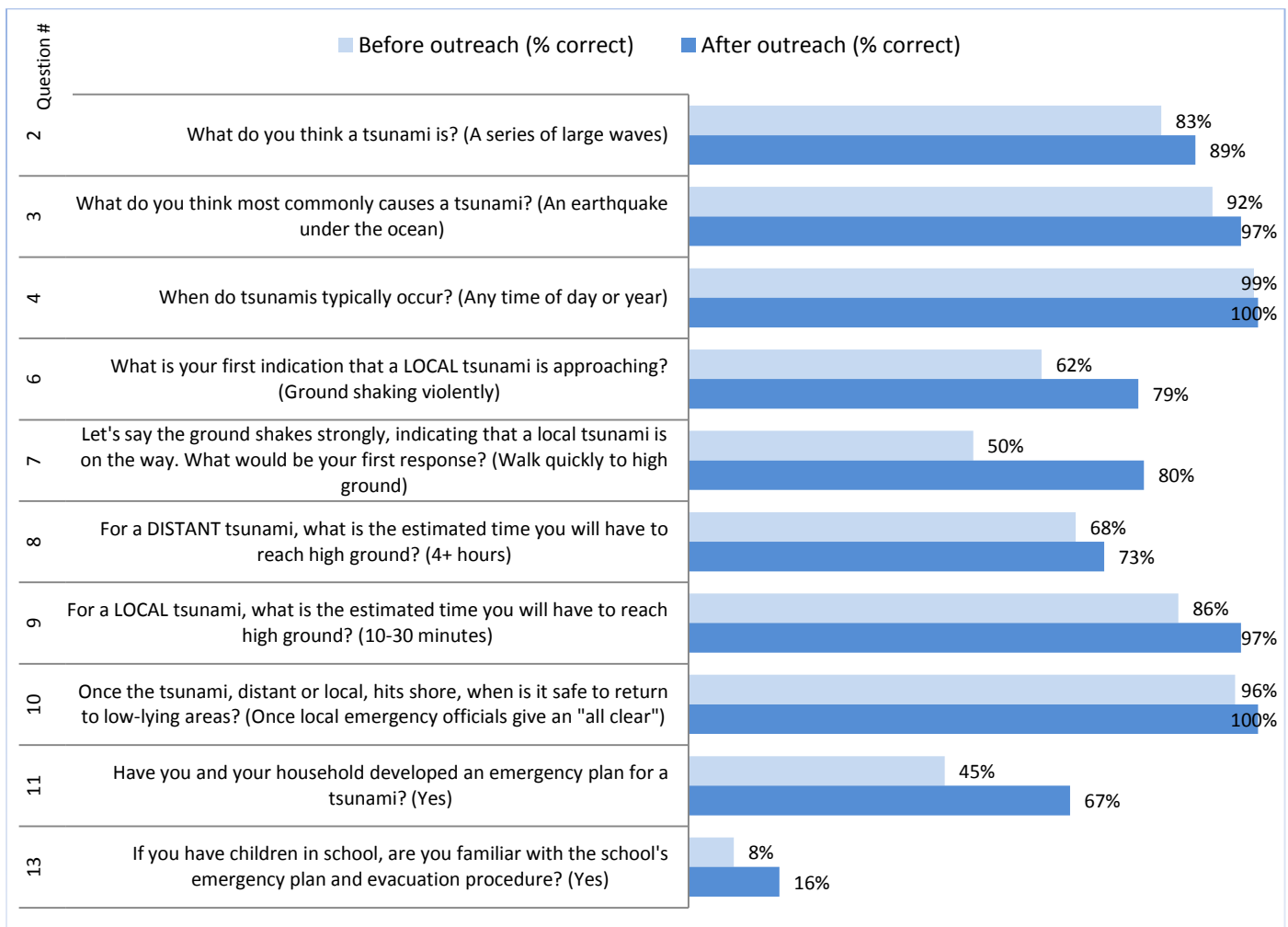
The TOO program conducted three surveys per region to measure awareness of tsunamis: before the outreach program began, after outreach was completed, and after the tsunami evacuation drill. Below is some analysis and results from each. For more complete summaries of individual survey questions, please see the appendices.

Outreach surveys (before and after)

The pre- and post-outreach surveys were distributed and collected by the community organizers at local events, community gathering places, businesses, schools, and in some cases by telephone using volunteers. The pre-surveys were conducted in January 2012 and the post-surveys over the course of April to June 2012. Survey questions and methodology are based on the City of Seaside’s 2005 tsunami outreach pilot project.

Below is a chart summarizing responses to key questions, followed by analysis and survey questions not included below that require more explanation.

Figure 10. Correct survey responses, before vs. after outreach, showing improved awareness (Tillamook Bay region)
 Note: Correct (or desired) answers are after the questions, in parentheses



General awareness of what tsunamis are, their cause, and when they can occur saw modest improvements of one to six percent, though these levels of awareness were already high. More dramatic improvement – 17 to 30 percent – is seen in knowledge of a local tsunami’s first sign (ground shaking violently) and the importance of walking quickly to high ground. Regarding how long people have to reach high ground in the event of a local or distant tsunami; there were modest improvements of five to 11 percent.

Perhaps the most encouraging results are in how many respondents have now developed an emergency plan for their household – from 45 percent before outreach to 61 percent after – and in the number of respondents with children who are now familiar with their school’s evacuation procedure (which doubled from eight percent of all respondents to 16 percent).

Survey questions not summarized in the chart above (but found in the appendices) include:

5. What is your first indication that a distant tsunami is approaching?

This question is complicated because the correct answer – either “3-minute siren blasts” or “emergency personnel notifying you” – depends on whether sirens are used in the local jurisdiction. Communities are mixed in their use of sirens. Oregon Emergency Management does not encourage their use, except in very limited circumstances when there are large outdoor populations with no other means of notification. This is a difficult matter, as coastal residents and visitors often want the illusion of assurance that sirens bring, even though emergency personnel have more effective means of evacuating the beaches after a distant tsunami, including reverse 911 alerts, aerial loudspeaker announcements, and more.

Moreover, many coastal areas are dismantling their sirens because they no longer want the responsibility and financial burden of maintaining them, and new regulations from the Federal

Communications Commission will soon make the current siren radio activation system illegal after January 1, 2013. For a helpful series of frequently asked questions on the topic of sirens, please visit http://www.tillamookheadlightherald.com/news/article_0a927184-e6f8-11e1-8b96-0019bb2963f4.html

Despite the complexity of this question, for results please see Appendix A, question 5. Nearly half of all respondents still believe that a siren warning will be their primary notification, which highlights the need for future education on this topic.

Drill survey

These were conducted on site at assembly areas after each evacuation drill, as well as Cape Lookout State Park, a restaurant, and a Map Your Neighborhood group in Oceanside. For full results, see Appendix C.

Grab and go kits ("go kits"): Two questions were asked about whether respondents had a “grab-and-go bag” of emergency supplies ready before the drill and whether they brought it with them as practice. To the first question, about half had such a bag prepared, while fewer brought it on the drill (16 to 34 percent, depending on sub-region). One strategy for improving these results might include partnering with other organizations and businesses to make more grab and go bags available for sale at reduced cost, pre-assembled with supplies, since assembling a such a shopping list can be time-consuming and buying a pre-made kit can be costly. These bags could be made available at disaster preparedness fairs and other outreach events.

Evacuation signage: Ninety-one percent found evacuation signs not difficult, easy, or very easy to follow, with only nine percent responding difficult or very difficult.



Figure 11. Residents completing their post-drill surveys, which provided valuable data for assessing the drill's effectiveness. Survey results are in Appendix C.

Evacuation time and difficulty: A similar number (91 percent) found it not difficult, easy, or very easy to evacuate in 20 minutes or less, and just nine percent said difficult or very difficult. To a similar question, some 96 percent said it took under 20 minutes to get to an assembly area. It may be helpful to edit the survey question to make it explicit that the question is asking about evacuating "on foot," since a small number of respondents wrote comments about evacuation by car.

Age: The Tillamook Bay region has an older population with many seniors and retirees. Thirty-

three percent of respondents from all three sub-regions replied that they are over age 65, while 35 percent are aged 50-64. Eighteen percent are aged 30-49, and just 13 percent under age 29.

Assembly area choice: When asked why they chose an assembly area, 48 percent said it was closest to where they began the drill, in addition to other reasons, including 15 percent who based it on where they expected friends or family to be.

Conclusion

The primary goal of the TOO program and the community organizers is the sustainability of these programs. The COs have accomplished this goal. Hundreds of people are informed and motivated to get involved with local emergency planning and activities; from the Cape Meares Emergency Group and the Cape to Cape CERT group to Hwy 101 merchants in Tillamook becoming keenly aware of the fact that they are in an inundation zone and what that means for their employees and customers. Local elected officials are motivated to help find funding for ongoing efforts. And finally, the two community organizers plan to carry on their work in a volunteer capacity as champions for tsunami readiness.



Figure 12. Signage advertising the drill included this banner, as well as an electronic reader board along Highway 101.

COOS BAY REGION (SOUTH OREGON COAST)

Community organizers (COs) Lindsey Bishop and Mikel Chavez led the outreach effort in the Coos Bay/North Bend area. Lindsey brought experience having worked for the US Peace Corps on grass roots efforts and sustainability. Mikel has a marketing and media background with local radio, as well as leading a grass roots tsunami awareness program for the Coos Bay area called Safer Coastlines.

The COs elected not to divide the Coos Bay region into sub-regions, but some of their work was naturally organized by jurisdiction including the Cities of Coos Bay and North Bend and the unincorporated towns of Charleston and Barview. The Coos Bay region's population is approximately 33,000, including unincorporated areas of Coos County that were part of the TOO program.



Figure 13. Community organizers Mikel Chavez and Lindsey Bishop conducted outreach to the Oregon's coast's largest year-round population.

Steering committee

The Coos Bay region steering committee was organized and led by the two COs and included elected officials, police and fire, tribal government representatives, local amateur (ham) radio group representatives, education leaders, and other preparedness advocates.

Figure 14. Coos Bay region steering committee

Name	Affiliation
Drew Adams	Coquille Tribe - Assistant Health and Human Services Administrator
Mike Baird	US Coast Guard
Bob Bennett	Coos Transit
Dan Bissell	Coos County ARES/RACES
Anne Cook	Coquille Tribe Housing Authority Administrator
Howard Crombie	Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians
Stan Gibson	Coos Bay Fire Chief
Glenda Hales	Coos County Emergency Management Program Manager
Michele Hampton	Concerned Citizen/Private Industry (Sterling Savings Bank)
Don Ivy	Coquille Tribe Cultural Resources Program
Linda Kridelbaugh	SW Ore. Community College V.P. Administration
Dave McKinney	SW Ore. Community College Facilities and Maintenance
Ron Metzger	SW Ore. Community College Geology Instructor
Terence O'Connor	City of North Bend
Steve Scibelli	North Bend Police Chief
Joe Thomas	SW Ore. Community College Director of Security

Committee members were a key resource in deciding where to conduct pre- and post-surveys, how to generate turnout at the community rally and evacuation drill, in organizing and conducting the evacuation drill, and by bringing local knowledge to the overall outreach effort.

The community college had numerous members because their campus is a large assembly area, they sponsor CERT training classes, and provided meeting space for Tsunami Outreach Oregon.

Door-to-door education

The door-to-door campaign goal was to visit 4,000 homes located in the tsunami inundation zone to distribute newly published evacuation brochures, a

tsunami fact sheet, evacuation drill flyer, OEM's *Living on Shaky Ground*, and the Winter 2012 edition of DOGAMI's newsletter, *Cascadia*, featuring articles on Japan's 2011 tsunami. This was to be done prior to the evacuation drill to educate the residents and to encourage their participation in the drill. The door-to-door campaign was to utilize volunteers as neighborhood educators, based on the model used in Seaside, Oregon, in 2005.

Several factors prevented the COs from fully reaching the overall goal. The goal itself was large and would be impossible without a group of volunteers willing to participate in the door-to-door campaign. The efforts of the COs to attain a large group of volunteers never came to fruition and therefore the door-to-door campaign was never fully implemented. The COs were also concerned about their safety in some rural areas of the unincorporated communities. The steering committee recommended that male volunteers or fire/police servicemen participate in future door-to-door campaigns.

This component of the outreach was originally planned to take place a few weeks prior to the drill so that the information and materials would be fresh in the minds of the residents who were visited. Because of the lack of volunteers, the door-to-door campaign did not happen. The materials provided to the COs were used at other venues in order to reach the residents of the communities. The COs participated in local farmer markets, workshops, and community presentations during this time as a secondary approach to the door-to-door campaign.

Community rally

The community rally was a success and a great venue to bring awareness to the recently released evacuation brochure, the program's presence in the community, the ongoing local preparedness efforts, and the upcoming drill. The rally was held March 22, 2012 at 6:30 pm at the North Bend Community

Center, with approximately 320 attendees. DOGAMI's assistant director Don Lewis, project operations manager Rachel Lyles Smith, and Oregon Emergency Management's Althea Rizzo presented. The rally featured exhibits/booths by NOAA, local CERT teams, Oregon Red Cross, ARES/RACES Ham radio groups, Coos Bay Fire Department, and North Bend Fire Department. Attendees gave positive feedback and expressed appreciation for the information shared and resources offered.

Tsunami evacuation drill

A single evacuation drill was held May 31, 2012, at 2:00pm. Twenty-two assembly areas were staffed in preparation for the approximately 8,900 residents and visitors who participated in the drill. At each assembly area, educational materials, surveys, evacuation brochures, and water were provided. Each assembly area also had at least one person assigned to count participants, a person to help with the materials, a person to help with general logistics, and a communications leader. A consistent public media campaign and evacuation drill message aimed at 21 local media outlets including local newspapers, television, and radio, were used to advertise the drill the week prior.



Figure 14. Outreach to area businesses helped to get the word out about the evacuation drill, which succeeded in turning out nearly 9,000 participants.

One hundred fifty volunteers were used to greet and assist participants at assembly areas. They were provided by the drill organizers listed below:

Drill organizers and staff included:

- Bay Area Hospital
- Coos Bay Fire Station
- Coos Bay School District
- North Bay Volunteer Fire Department
- CERT
- Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians
- Coos County Emergency Management
- North Bend Police Department
- Southwestern Oregon Community College
- Coos County Mental Health
- Coos County Public Health
- Coast Guard Station
- Red Cross
- Coquille Tribe
- Port of Coos Bay
- North Bend Fire Department
- North Bend School District

Figure 15. Evacuation drill, May 31
Summary of participation (estimated)

Organization	Participants
North Bend School District - students/staff	2,669
Coos Bay School District - students/staff	3,000
Kingsview Christian School - Students/staff	80
Christ Lutheran School - students/staff	60
SW OR Community College - students/staff	425
Assembly areas	1,250
Organizations and churches	1,146
Coquille Tribe	60
Businesses	130
Residents High Ground	152
Total	8,972
<hr/>	
Summary by geography	Participants
North Bend Total	3,085
Coos Bay Total	3,416
County Total	416

Summary of other accomplishments

Assembly areas activated	22
Volunteers recruited and trained to greet and assist participants at assembly areas	150
Media outlets targeted with evacuation drill message	21

The drill was successful in its turnout and in bringing local stakeholders together to collaborate on the first community-wide evacuation drill for this area. Due to the COs’ knowledge of the community and their availability to assist the jurisdictions, community groups, businesses, and volunteers, the drill attracted broad participation.

The extensive media coverage, participation of the schools, and size of the evacuation drill contributed to positive and widespread feedback from the community. This awareness was visible in the hundreds of calls received and brochures disseminated by the community organizers, the media outlets, and the fire and police departments. The impact of the campaign and the evacuation drill continues as the fire and police departments report that residents and visitors are requesting evacuation brochures on a daily basis.

The steering committee was pleased with the participation numbers at assembly areas. It should be noted that these numbers do not reflect the many reports that the COs received of businesses located in the inundation sending one representative to practice the route and then reporting back to his/her fellow employees on wayfinding. The participation numbers also do not reflect the large number of people who were unable to participate in the drill, but as a result became aware of the local hazards of an earthquake and tsunami, picked up a map, created a 72-hour supplies kit, and began making a plan. These numbers are significant.

Recommendations:

Media coverage, earned vs. paid: The COs believe that their longstanding relationship with local media assisted greatly in their ability to saturate the market with a consistent message. Only a small amount of advertising was paid for by program funding. A more significant amount was donated by media outlets after COs convinced them of the community effort and taking ownership of the drill for the benefit of their listeners.

Leveraging local assets: Outreach staff believe it is imperative that relationships be established very early on in the project with local government agencies and businesses. The advantage in their project area, they believe, was having already-established relationships that helped win participation by community leaders in the drill.



Figure 16. Volunteers, staff, and other participants preparing for the Coos Bay region’s evacuation drill.

Schools outreach (K-12)

The COs trained and utilized Key Club volunteers from Marshfield High School and North Bend High School, as well as school staff, with the common message of “When the ground shakes, drop and cover. Hold on. Get to high ground in 15-20 minutes and stay there for 24 hours.” This was communicated at every grade level in the project area. As a result, the Coos Bay School District altered their science curriculum to include earth sciences with a focus on the Cascadia Subduction Zone. Kingsview Christian School is also integrating this information into their curriculum, with an additional focus on parent and family involvement and activities. The North Bend School District is considering adopting the same curriculum changes.

Both school districts and various private schools are also developing a more focused outreach and education program during Tsunami Preparedness

Week in March, as well as during the Great Oregon Shakeout in October.

Figure 17. School population impact

School name	Number of students reached
North Bend School District	2,669
Coos Bay School District	3,000
Kingsview Christian School	80
Christ Lutheran School	60
Southwestern Oregon Community College (SWOCC)	425

Media outreach and coverage

Outreach staff asked local radio to broadcast free public service announcements, and other local media to publish outreach events in newspapers and on Web sites. Limited advertising dollars were used for the evacuation drill, but they were strategically spent and were a catalyst for the COs to develop relationships with local media, to

establish credibility, and gain their support. As a result, the local media outlets supplemented the paid media coverage with additional free advertisement of the TOO workshops throughout the month of May, which resulted in an increased participation of workshop attendees. When events were promoted only through PSAs, attendees numbered from three to 20 people. But in May, following paid advertising, there were at least 17 people at each event.

In the week leading up to the evacuation drill, TOO information was featured on 14 Web sites, in four newspapers, and on three TV stations. Due to this attention, the Associated Press also featured four stories on the evacuation drill. The syndicated story was included in 1,500 newspapers throughout the country and on 1.2 million websites.

The attention directly contributed to the success of the drill. In the days before the drill, local fire and police, city halls, and media reported hundreds of local, statewide, and national calls about the evacuation drill and at least 500 evacuation brochures were distributed to area residents. The messaging and media coverage of the drill was noted by the Oregon Public Health Division's Emergency Preparedness Program as a model for future drills.



Figure 17.Headline from the online edition of The World, a daily newspaper in Coos County. Published June 2, 2012.

Workshops and events targeting key audiences

The concentrated outreach campaign began upon completion of the pre-outreach surveys in late January and was concluded after the evacuation drill in late May. During this four month period, the community organizers conducted 55 workshops in the Coos Bay region. Each was targeted to the specific audience with the community organizers' knowledge of the group, culture, and educational need. Audiences ranged from medical professionals and service groups to Cub Scout families and wilderness survival groups.

These workshops were very successful because they reached a large group of people in the one hour it took to conduct the presentation. All were scheduled based on local contacts, person to person outreach, and referrals from past presentations. The COs were willing to conduct workshops during evenings, weekends and to all interested groups. As a result, community preparedness groups are experiencing an influx of interested volunteers.

The local amateur (ham) radio operator group, ARES/RACES, also reported a significant increase in interest in their program. They reported that about four students generally register for new classes. Twenty-five people have already registered for the next class in the fall (2012).

CERT training

Outreach staff conducted workshops with a focus on personal and family preparedness, including information on Community Emergency Response Teams (CERT) and amateur (ham) radio groups. In conjunction with staff outreach efforts, 29 community members were certified as members of CERT at Southwestern Oregon Community College and 23 were certified at the Coquille Community Center. Thirty-nine people have already registered for the class in the fall (2012) and 40 are registered for the winter class.

Tsunami evacuation signage

DOGAMI provided local jurisdictions with wayfinding signage indicating evacuation routes and assembly areas. Seventy-four round evacuation route signs and matching directional arrows, and 15 assembly area signs were distributed.

Figure 18. Distribution of evacuation route signage

City	Set of evacuation route signs (round), directional arrows	Assembly area signs
City of Coos Bay	20	6
City of North Bend	20	6
County – other	30	2
County -- Charleston	4	1



Map Your Neighborhood

In January, the COs distributed 100 MYN publications to emergency preparedness groups and neighborhood watch associations. This program is a great way to facilitate preparedness and build on local resources through collaboration.

TsunamiReady certification

The TsunamiReady program, developed by the National Weather Service, is designed to help cities, towns, counties, universities and other large sites in coastal areas reduce the potential for disastrous tsunami-related consequences.

The COs met with Ryan Sandler of NOAA over the course of the year and provided time for him to speak to the steering committee at several meetings regarding the importance of the TsunamiReady program.

Survey results

The program conducted three surveys per region to measure awareness of tsunamis: before the outreach program began, after outreach was completed, and after the tsunami evacuation drill. Below is some analysis and results from each. For more complete summaries of individual survey questions, please see the appendices.

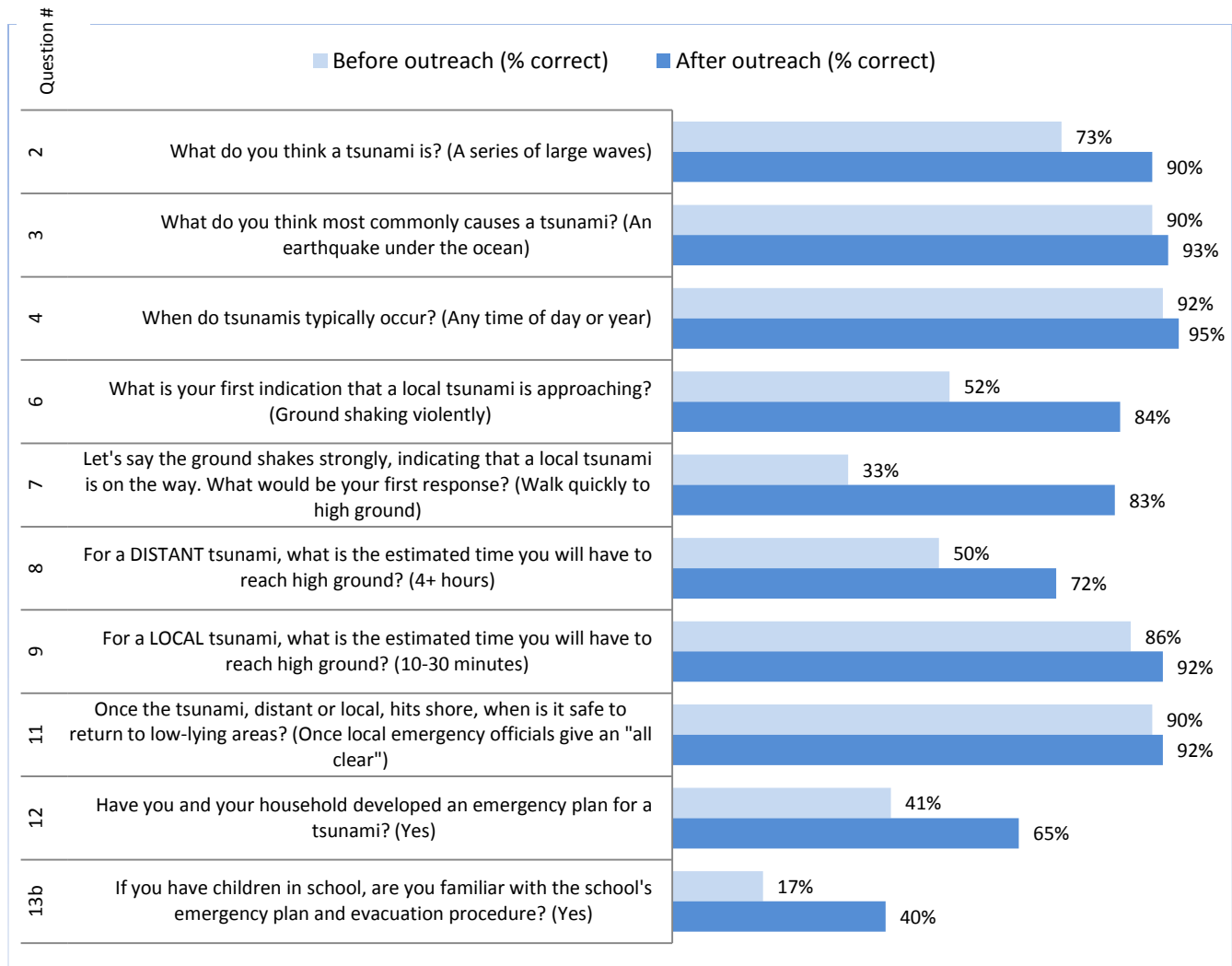
Outreach surveys (before and after)

The pre- and post-outreach surveys were conducted by the community organizers at events, community gathering places, businesses, schools, and in some cases by telephone. The pre-surveys were conducted in January 2012 and the post-surveys in June 2012. Survey questions and methodology are based on the City of Seaside’s 2005 tsunami outreach pilot project.

Below is a chart summarizing responses, followed by analysis and survey questions not included below that require more explanation.

Figure 19. Correct survey responses, before vs. after outreach, showing improved awareness (Coos Bay region)

Note: Correct (or desired) answers are after the questions, in parentheses



General awareness of what tsunamis are, their cause, and when they can occur saw modest improvements of three to 17 percent, though these levels of awareness were already high. More dramatic improvement is seen in knowledge of a local tsunami’s first sign (up 32 percent) and the importance of walking quickly to high ground (up 50 percent!). Regarding how long people have to reach high ground in the event of a local or distant tsunami, there were modest improvements of six to 22 percent. Clearly, many people did not realize they have four hours or more to evacuate after a distant tsunami.

Perhaps the most encouraging results are in how many respondents have now developed an

emergency plan for their household – from 41 percent before outreach to 65 percent after – and in the number of respondents with children who are now familiar with their school’s evacuation procedure (which more than doubled from 17 percent of all respondents to 40 percent). This is an especially good indicator, as the Coos Bay region has more families with children than Tillamook Bay.

Survey questions not summarized in the chart above (but found in the appendices) include:

5. What is your first indication that a distant tsunami is approaching?

This question is complicated because the correct answer – either “3-minute siren blasts” or “emergency personnel notifying you” – depends on whether sirens are used in the local jurisdiction. Communities are mixed in their use of sirens. Oregon Emergency Management does not encourage their use, except in very limited circumstances when there are large outdoor populations with no other means of notification. This is a difficult matter, as coastal residents and visitors often want the illusion of assurance that sirens bring, even though emergency personnel have more effective means of evacuating the beaches after a distant tsunami, including reverse 911 alerts, aerial loudspeaker announcements, and more.

Moreover, many coastal areas are dismantling their sirens because they no longer want the responsibility and financial burden of maintaining them, and new regulations from the Federal Communications Commission will soon make the current siren radio activation system illegal after January 1, 2013. For a helpful series of frequently asked questions on the topic of sirens, please visit <http://www.tillamookheadlightherald.com/news/ar>

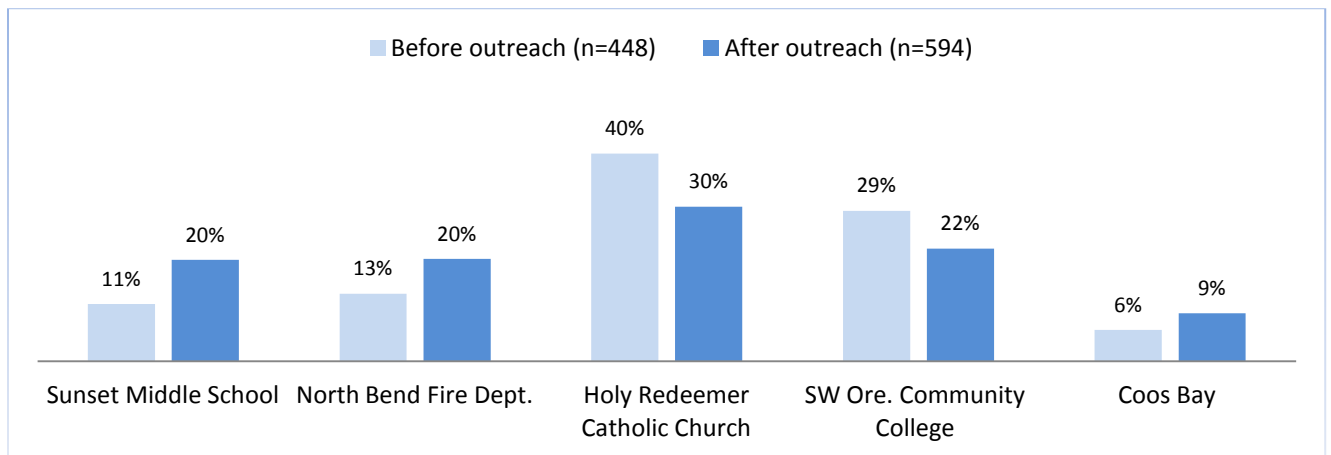
[ticle_0a927184-e6f8-11e1-8b96-0019bb2963f4.html](http://www.tillamookheadlightherald.com/news/article_0a927184-e6f8-11e1-8b96-0019bb2963f4.html)

Despite the complexity of this question, for results please see Appendix B, question 5. While sirens were generally used during the evacuation drills in the Tillamook Bay area, no sirens were used in Coos Bay. This may account for the improvement in respondents’ knowledge on this question, with answers of “3-minute siren blasts” dropping from 46 percent before outreach to just 22 percent after.

10. Which of the following locations on high ground are expected to be outside the tsunami hazard zone?

This question, not included in the Tillamook Bay region’s surveys, attempted to measure respondents’ knowledge of safe areas on high ground. All five locations below are outside the hazard zone; some are actual assembly areas. The responses don’t show much rhyme or reason, unfortunately. Ideally, these would have shown higher percentages after outreach, indicating that respondents had become familiar with the evacuation maps and assembly area locations.

Figure 20. Survey responses to question about locations on high ground



Post Tsunami Drill SURVEY

Thank you for participating in today's tsunami evacuation drill. Your feedback will help us improve our education program. Please take a moment to complete this survey now.

1. We would like to know where you began today's drill. What is the closest intersection to where you began today's drill?
I started today's drill near the intersection of: (ex: First St and Coast Ave)
Elrod/ Broadway

2. Was your "grab & go" kit ready before the drill?
 yes no

3. Did you bring your "grab & go" kit on the drill?
 yes no

4. If you would like more information on disaster preparedness, please share your contact information. (Optional)
Name: _____
Mailing Address: _____
Email: _____

5. What is your age?
 a. 0 - 10 yrs.

6. Please use this space to share comments, suggestions or more about your experiences during today's tsunami evacuation drill.
We followed the kids. We were not aware we had to go to top of Hill.

Thank you for taking this survey!

Figure 21. A post-drill survey showing the important role that children can play in educating adults about tsunamis.

Drill survey

These surveys were conducted on site at assembly areas after each evacuation drill. For full results, please see Appendix D.

Grab and go kits: Two questions were asked about whether respondents had a “grab-and-go bag” of emergency supplies ready before the drill and whether they brought it with them for practice. Results show 46 percent had a kit and 54 percent did not. When asked if they actually brought it on the drill, an additional 10 percent said no. As it’s clear that many residents still do not have a grab and go bag, one strategy for improving these results might include partnering with other organizations and businesses to make more such kits available for sale at reduced cost, pre-assembled with supplies, since assembling a such a shopping list can be time-consuming and buying a pre-made kit can be costly. These bags could be made available at disaster preparedness fairs and other outreach events.

Evacuation signage: Where signs are posted, respondents found them not difficult, easy, or very easy to follow (69 percent). Only 5 percent found them difficult or very difficult to follow, but a full 25 percent said there were no such signs in their area. This raises the question of whether new signs ordered for this area had been installed before the drill, as well as, whether or not enough signage is present in the communities.

Evacuation time and difficulty: About 95 percent left the hazard zone in less than 20 minutes and did not need assistance evacuating. But a higher number, 14 percent, said it would be difficult or very difficult to reach an assembly area in less than 20 minutes. It may be helpful to edit the survey question to make it explicit that the question is asking about evacuating “on foot,” since a small number of respondents wrote comments about evacuation by car.

Age: The Coos Bay region has a younger population than Tillamook Bay. About half of Coos Bay

respondents were aged 18-49, with the other half aged 50 or older.

Assembly area choice: When asked why they chose an assembly area, 56 percent said it was closest to where they began the drill, in addition to other reasons, including 9 percent who based it on where they expected friends or family to be.

Lessons learned for future outreach

Below are recommendations from the community organizers on ways to improve future phases of outreach.

Staff time: Additional COs are recommended for outreach in communities of this size. The geographically large region, coupled with high population, made the outreach goals difficult to reach.

Project timeline: Again, the goals were lofty for an area the size of the Coos Bay region. For larger communities, more time is needed to complete comprehensive outreach.

Conclusion

Outreach in the Coos Bay region increased the awareness and preparation of the public for

earthquakes and tsunamis, while promoting collaboration among local agencies and stakeholders. The greatest areas of improvement, as seen in survey results, were knowledge of a local tsunami's first sign (increased 32 percent) and the importance of walking quickly to high ground (up 50 percent).

Perhaps the most encouraging results are in how many respondents have now developed an emergency plan for their household – from 41 percent before outreach to 65 percent after – and in the number of respondents with children who are now familiar with their school's evacuation procedure (which more than doubled from 17 percent of all respondents to 40 percent).

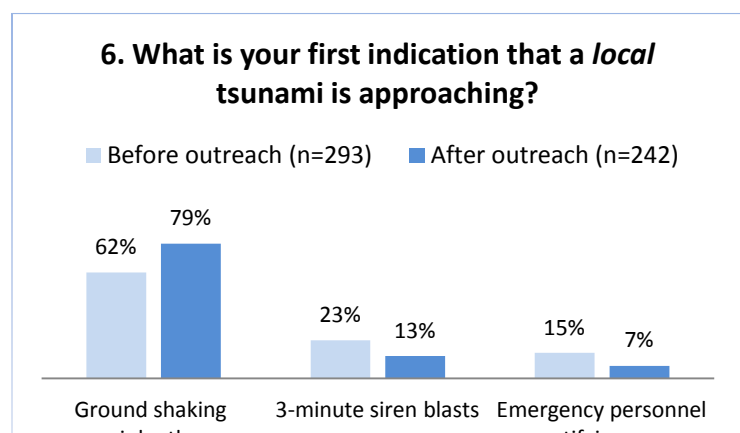
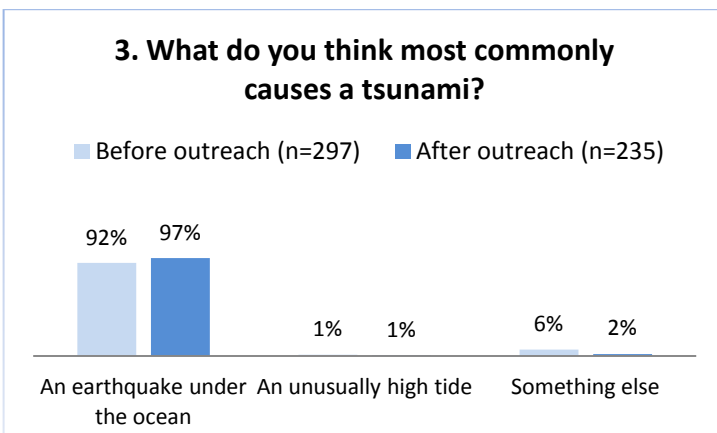
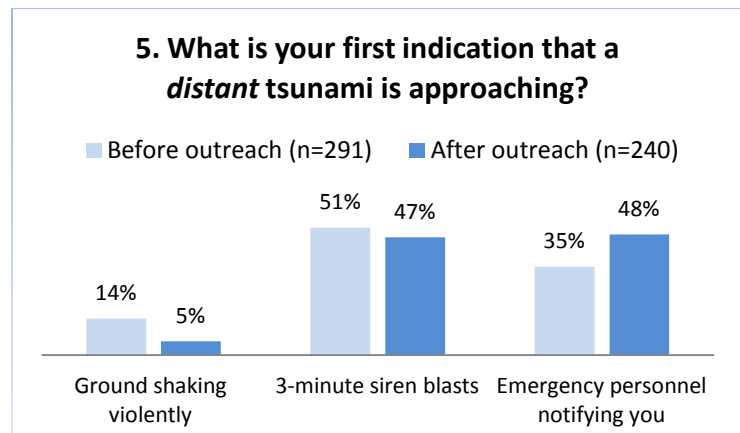
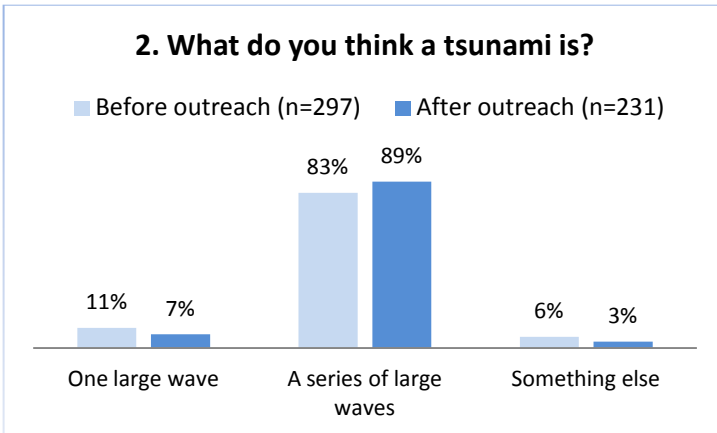
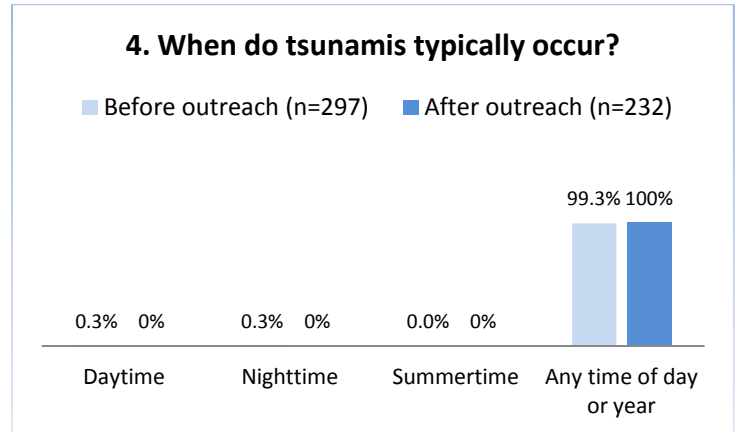
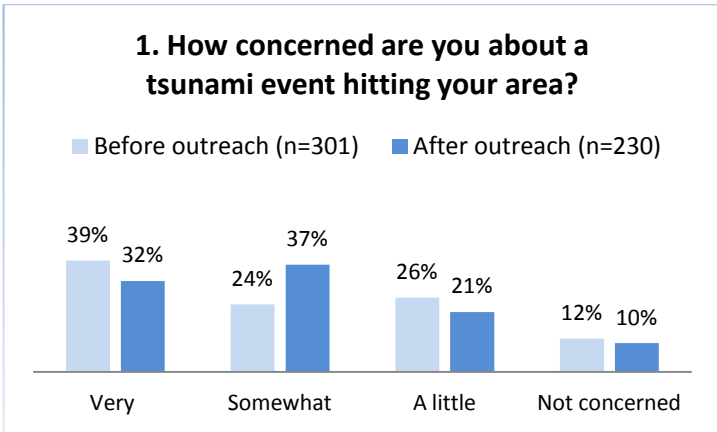
The primary goal of the TOO program and the community organizers is the sustainability of these outreach components. As a result of this program, a new tsunami advisory committee, led by the Coos County emergency manager, has been formed in order to continue the outreach efforts, solicit for federal grant dollars, and organize future evacuation drills and rallies in the Coos Bay region.



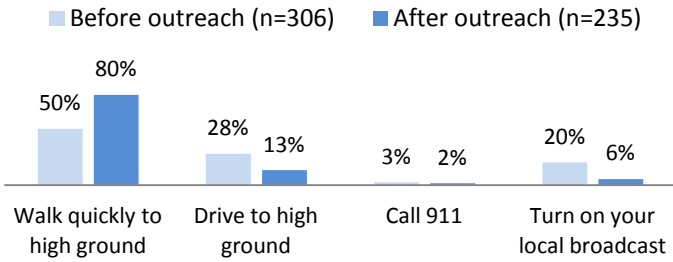
Figure 22. Residents gather at the sign-in and survey table of Celebration Center Church's assembly area during the May 31, 2012, tsunami evacuation drill. The team leader for this site was a CERT volunteer. Just about 200 feet away is the City of North Bend's designated assembly area at First Christian Church.

**APPENDIX A: TILLAMOOK BAY REGION
PRE- AND POST-OUTREACH SURVEY COMPARISON**

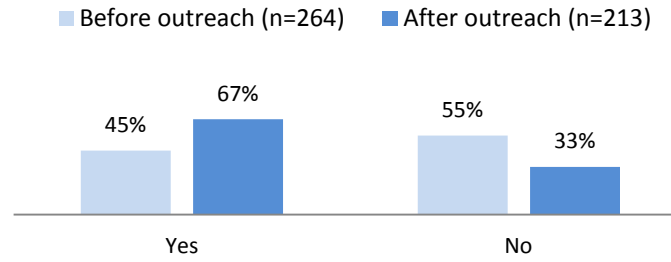
Below is a complete summary of survey responses; *n* is the number of respondents, which does not include the “no answer” category of those who skipped a question, unless otherwise noted. Note that the Tillamook surveys did not include a question – as the Coos Bay surveys did – asking “Which of the following locations on high ground are expected to be outside the tsunami hazard zone?” with corresponding community gathering places listed. This was an oversight.



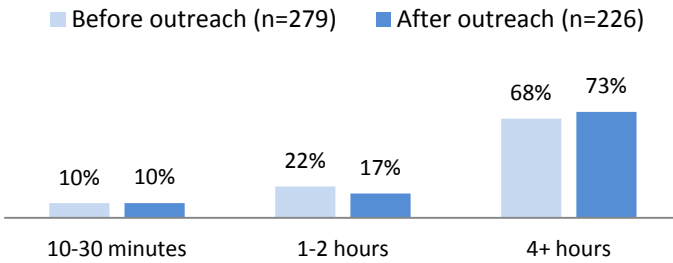
7. Let's say the ground shakes strongly, indicating that a local tsunami is on the way. What would be your first response?



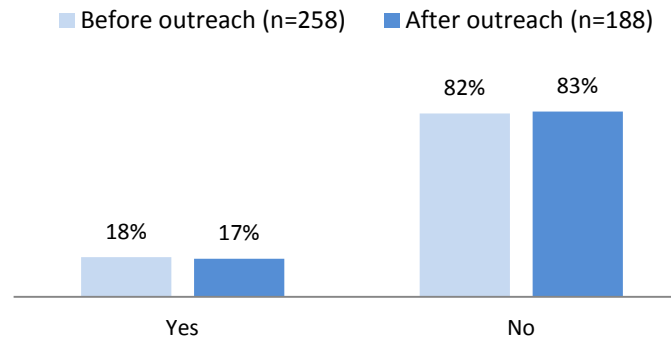
11. Have you and your household developed an emergency plan for a tsunami?



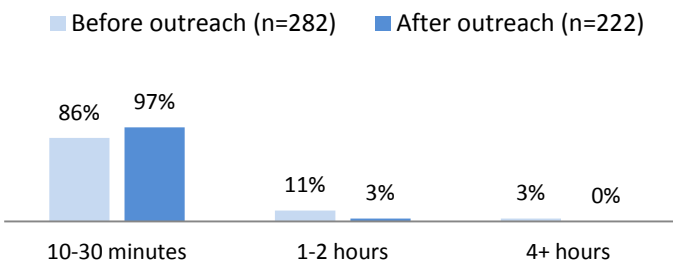
8. For a *distant* tsunami, what is the estimated time you will have to reach high ground?



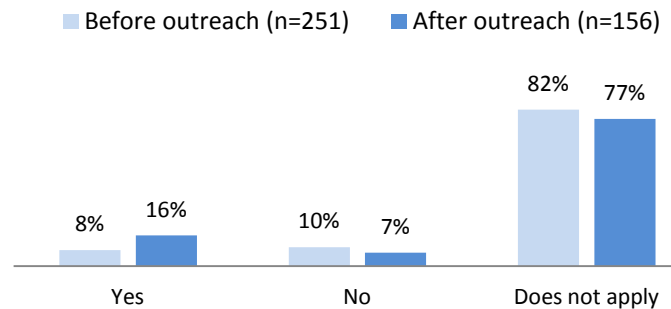
12. Do you have children in school?



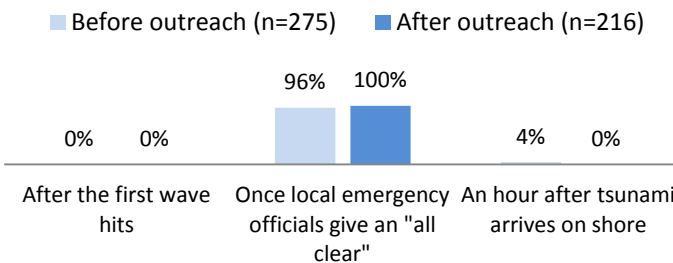
9. For a *local* tsunami, what is the estimated time you will have to reach high ground?



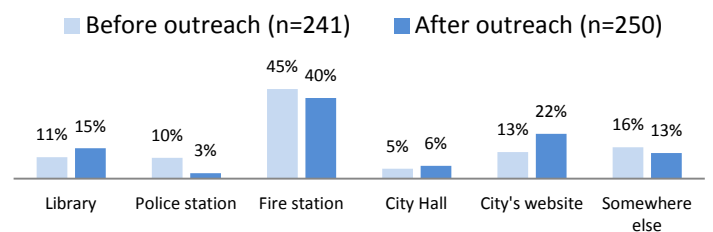
13. If yes, are you familiar with the school's emergency plan and evacuation procedure?



10. Once the tsunami, distant or local, hits shore, when is it safe to return to low-lying areas?

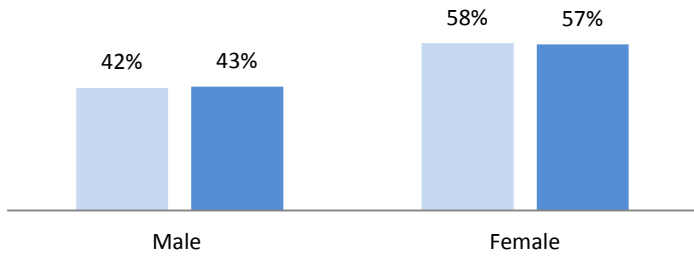


14. If you wanted to get more information on tsunamis, where would it be most convenient to do so? (check all that apply)



15. Are you male or female?

Before outreach (n=291) After outreach (n=206)

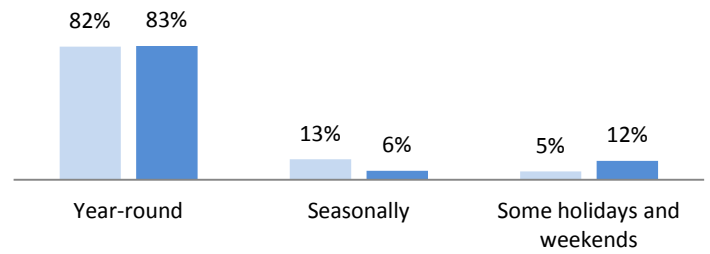


16. What is your age?

Data from pre-surveys was not tallied, but averaged between ages 40 and 65. Data from post-surveys was tallied and averaged age 55. In post-surveys, eight respondents simply answered by saying “60+” and apparently didn’t want to reveal their age. Those respondents were assumed as aged 60 for simplicity. Also in post-surveys, there was a notable difference in average age among the three sub-regions, as follows: North Tillamook Bay age 57, City of Tillamook age 44, and Cape to Cape age 65.

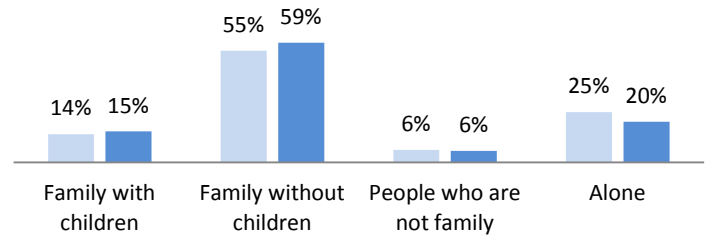
18. How much time do you spend on the Oregon coast?

Before outreach (n=286) After outreach (n=212)



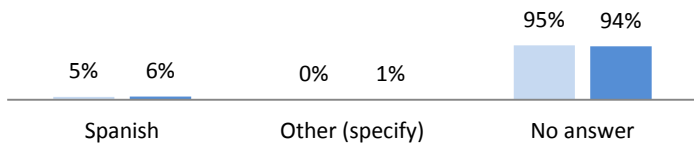
19. What type of household do you live in?

Before outreach (n=294) After outreach (n=210)



17. Would anyone in your household or neighborhood benefit from tsunami preparedness information in a language other than English?

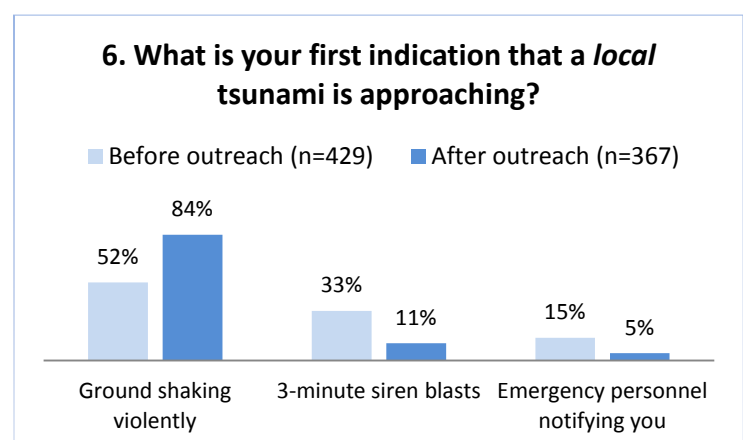
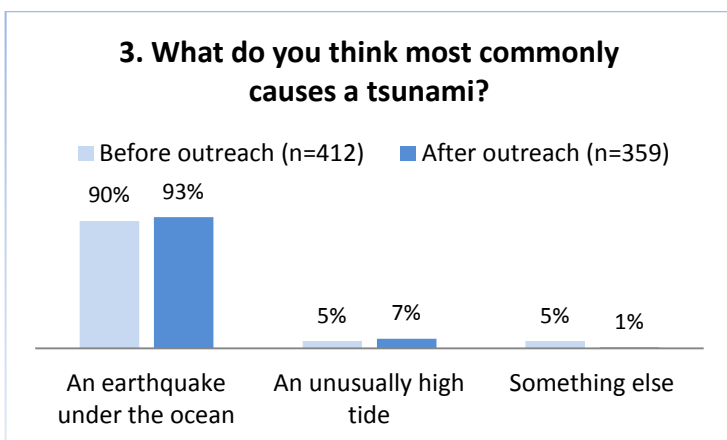
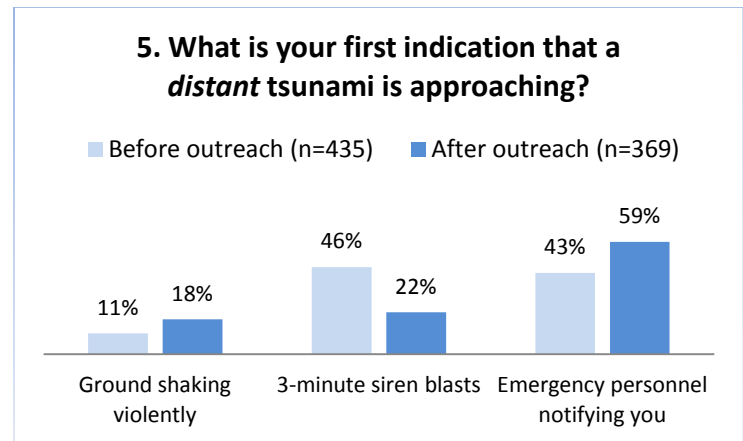
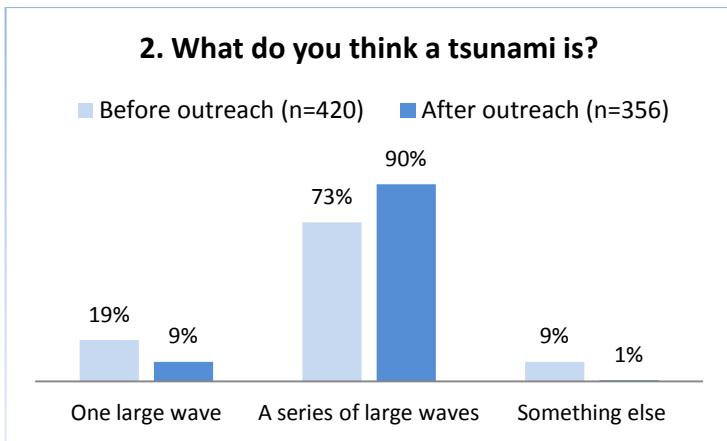
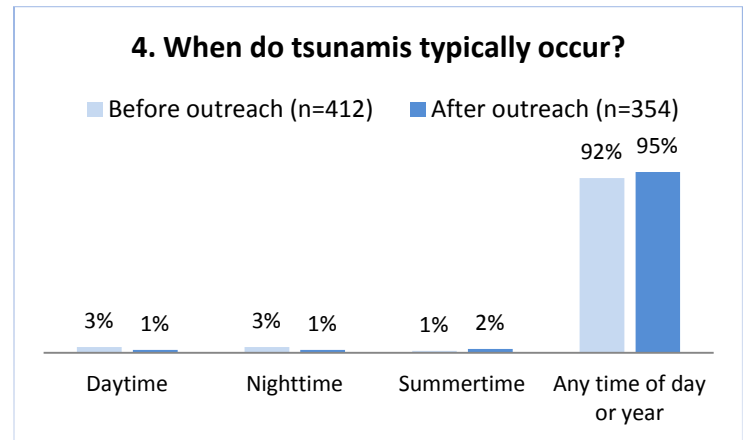
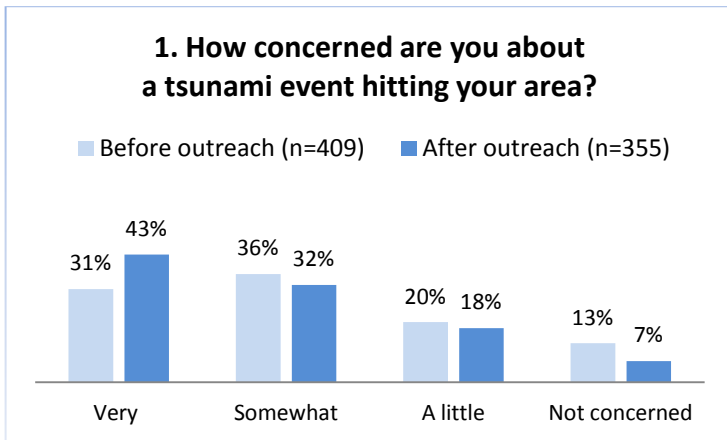
Before outreach (n=306) After outreach (n=232)



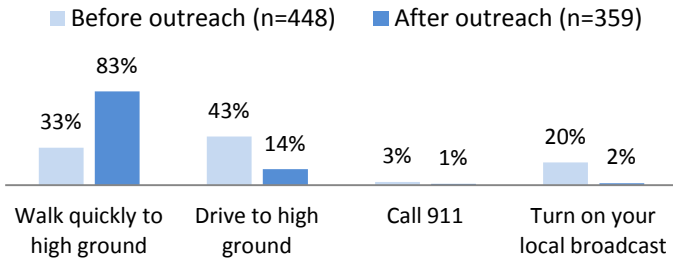
Note: "No answer" is counted here to show how many felt it was not applicable. So the n=306 and n=232, in this case, includes all those who skipped the question. Answer of "Other" had two responses: one for Norwegian, one for Tagalog.

APPENDIX B: COOS BAY REGION
PRE- AND POST-OUTREACH SURVEY COMPARISON

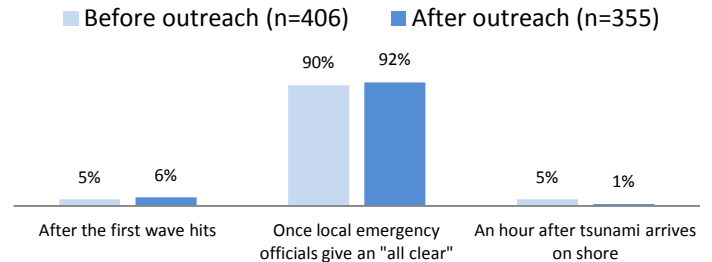
Below is a complete summary of survey responses; *n* is the number of respondents, which does not include a “no answer” category of those who skipped a question, unless otherwise noted. Note that the Coos Bay surveys included a question – as the Tillamook Bay surveys did not – asking “Which of the following locations on high ground are expected to be outside the tsunami hazard zone?” with corresponding community gathering places listed (see question 10).



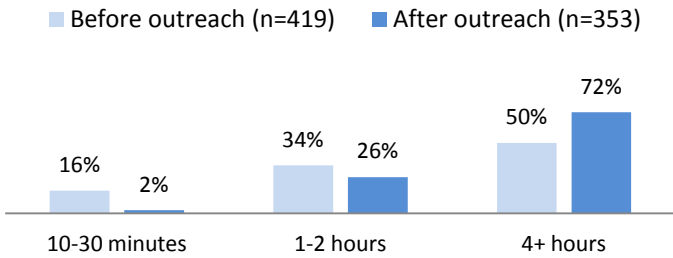
7. Let's say the ground shakes strongly, indicating that a *local* tsunami is on the way. What would be your first response?



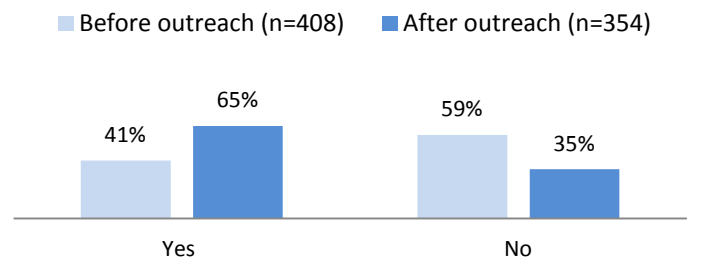
11. Once the tsunami, distant or local, hits shore, when is it safe to return to low-lying areas?



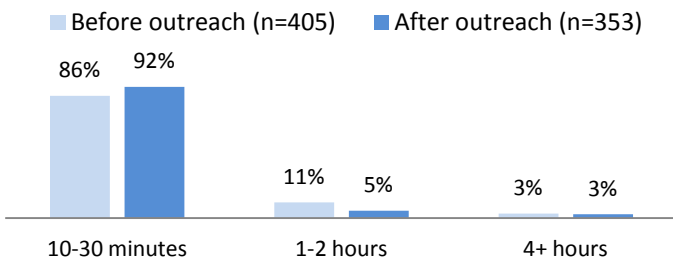
8. For a *distant* tsunami, what is the estimated time you will have to reach high ground?



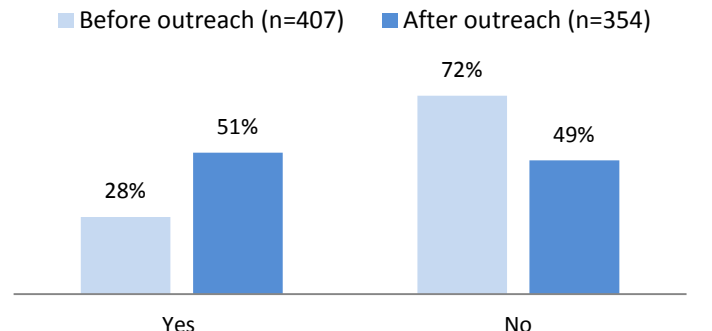
12. Have you and your household developed an emergency plan for a tsunami?



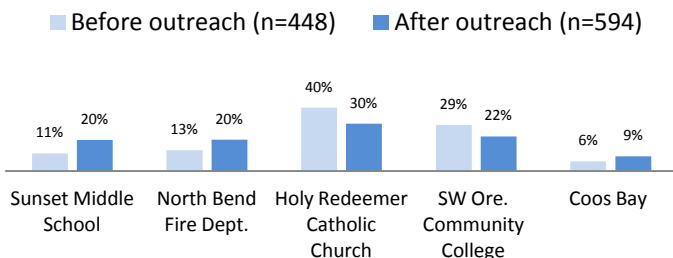
9. For a *local* tsunami, what is the estimated time you will have to reach high ground?



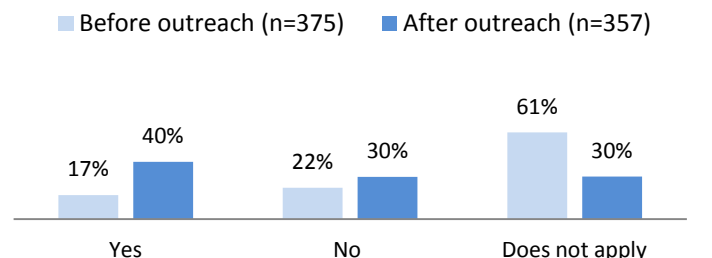
13a. Do you have children in school?



10. Which of the following locations on high ground are expected to be outside the tsunami hazard zone?

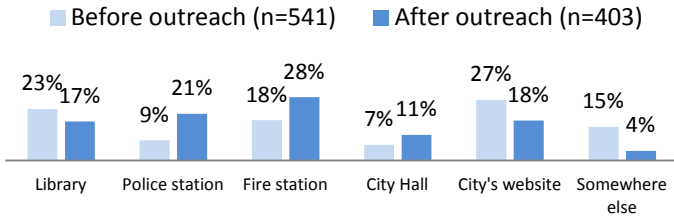


13b. If yes, are you familiar with the school's emergency plan and evacuation procedure?

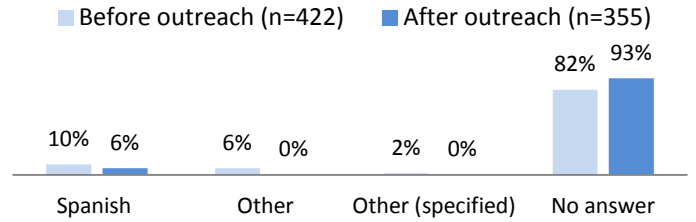


Note: All five locations are outside the hazard area.

14. If you wanted to get more information on tsunamis, where would it be most convenient to do so?

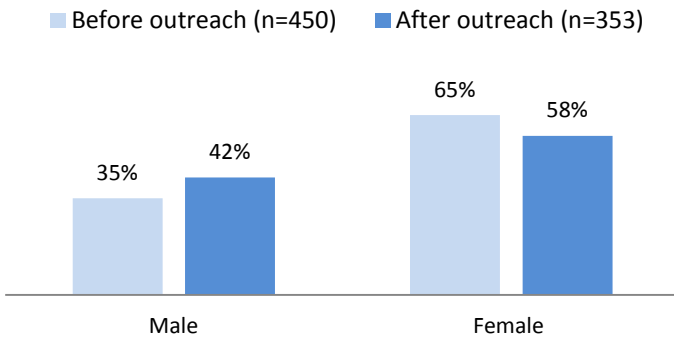


17. Would anyone in your household or neighborhood benefit from tsunami preparedness information in a language other than English?

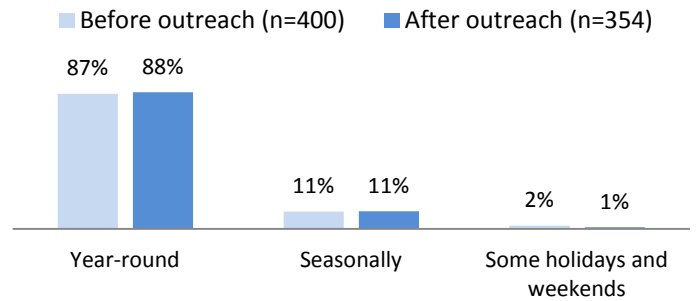


Note: "No answer" is counted here to show how many felt it was not applicable. So the n=422 and n=355, in this case, includes all those who skipped the question.

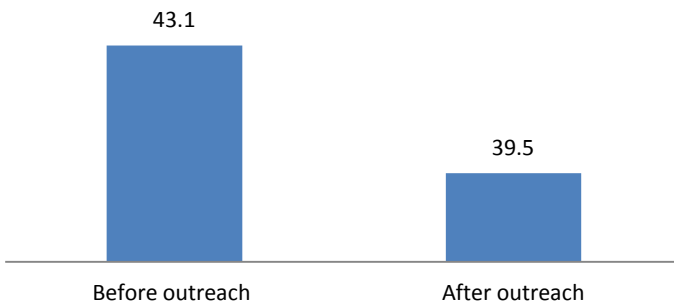
15. Are you male or female?



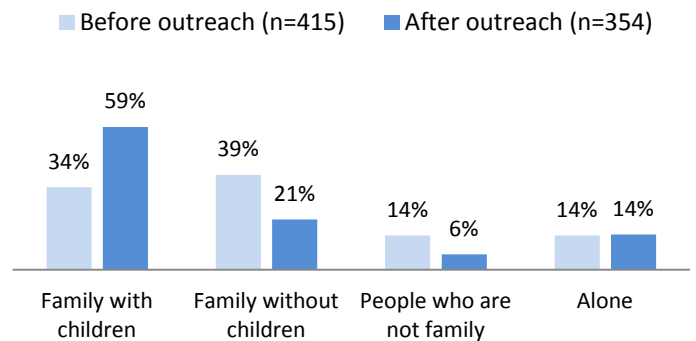
18. How much time do you spend on the Oregon coast?



16. What is your age? (average shown)



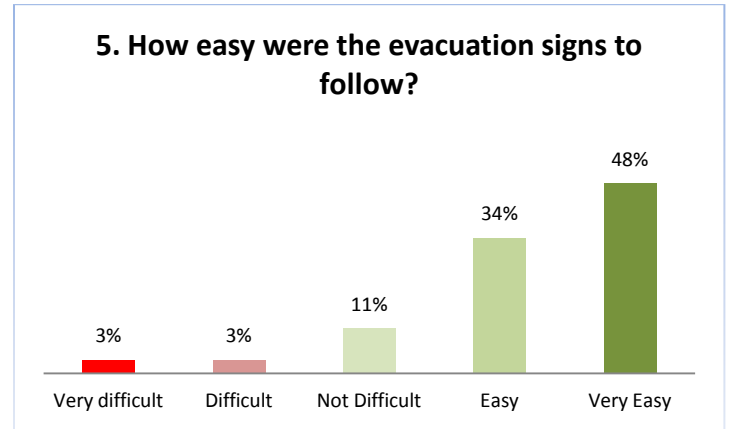
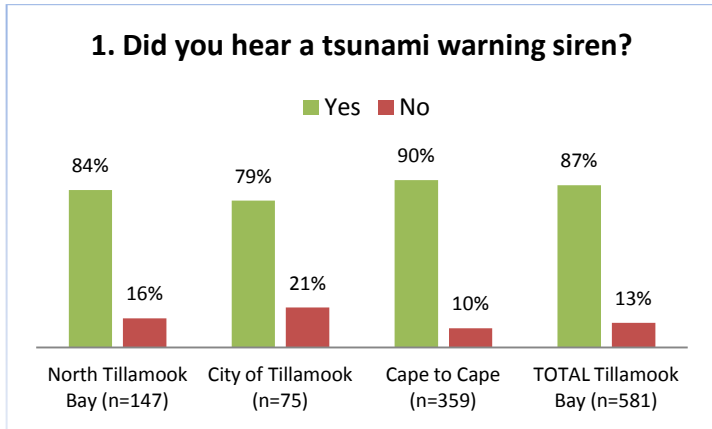
19. What type of household do you live in?



Note: The Coos Bay region has many more families with children than the Tillamook Bay region, which showed only 14-15 percent of respondents were families with children.

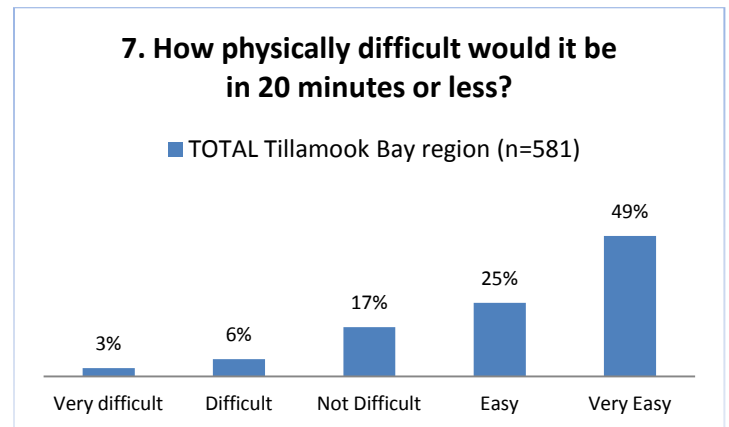
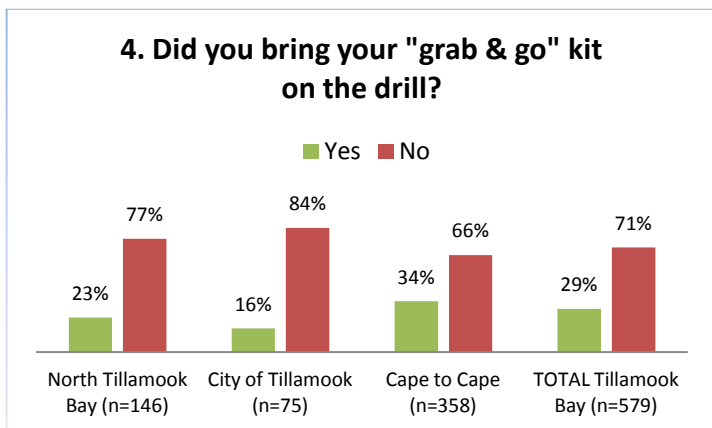
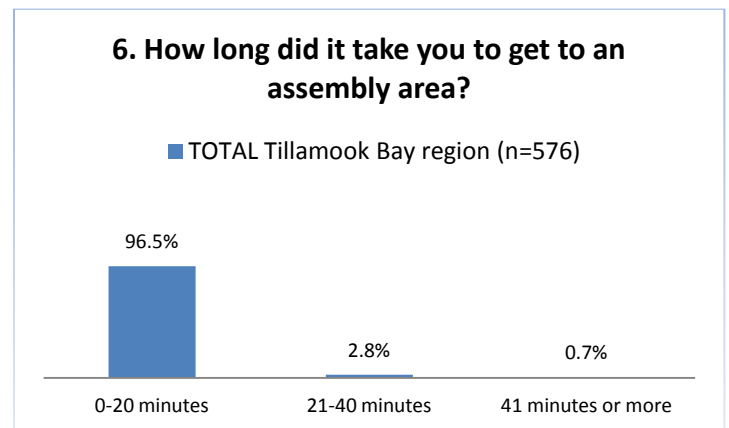
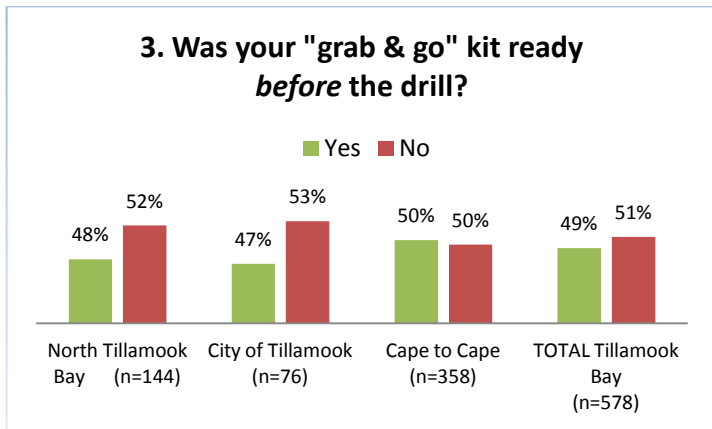
APPENDIX C: TILLAMOOK BAY REGION TSUNAMI EVACUATION DRILL SURVEY

This survey was conducted immediately *after* the evacuation drill, mostly in designated assembly areas. Below is a complete summary of survey responses; *n* is the number of respondents, which does not include the “no answer” category of those who skipped a question, unless otherwise noted.



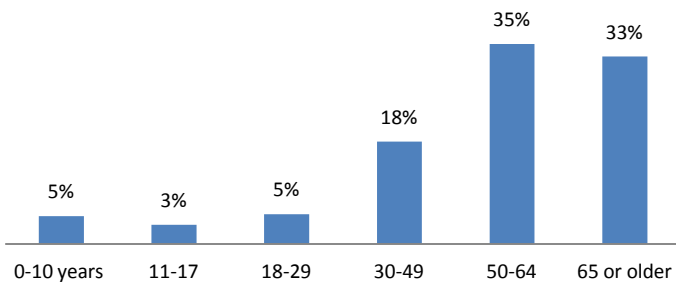
2. What is the closest intersection to where you began today's drill?

These responses corresponded mostly to the pre-designated assembly areas, so the responses were not analyzed.



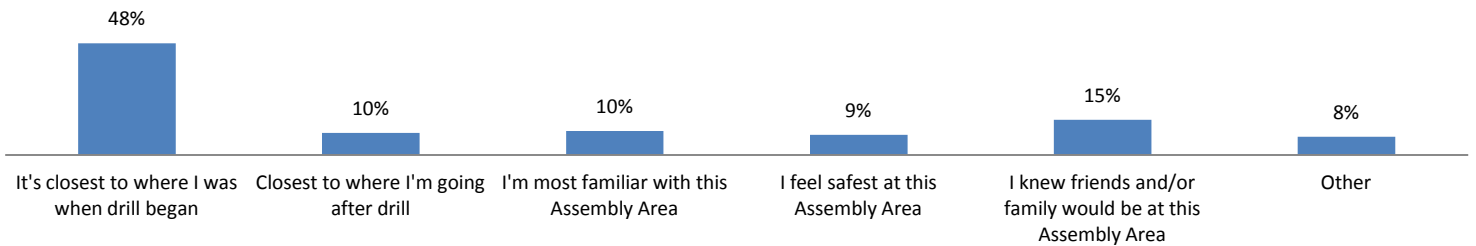
8. What is your age?

■ TOTAL Tillamook Bay region (n=592)



9. Why did you come to this assembly area? (check all that apply)

■ TOTAL Tillamook Bay region (n=713)



10. If you would like more information on disaster preparedness, please share your contact information. *(Optional)*

Of those who responded, 312 mailing addresses and 174 email addresses were provided. (Some addresses may not work since handwriting on forms was not always legible.) This contact information will be kept on hand for potential future updates and outreach.

11. Please use this space to share comments, suggestions or more about your experiences during today's tsunami evacuation drill.

Below is a summary of comments received.

Topic of comments	Number of comments
Siren / alarm / announcement	33
Thank you or "good job"	28
Signage	14
Participation or offers to help	0
Ease or difficulty of walking to assembly area	8
Phone numbers given	0
Grab and go bag	3
Other	17
Why I feel safe at this assembly area	4
Total	107

Below are all of the unabridged comments (*in italics*), sorted by topic. Note that a handful of comments are shown more than once if the commenter covered several topics in his or her comment.

Siren/alarm/ announcement

- *Barely heard siren. Two kids, ages four and five with me.*
- *Did not hear siren in house, barely heard it outside.*
- *I live on the corner of McCoy St. and Warren St. and I did not hear the siren!!*
- *Siren could be louder. Could not hear it inside house, only when outside.*
- *The airplane alert was excellent and loud and clear.*
- *Good warning.*
- *No trouble being aware of the notifications.*
- *Took awhile to hear message in English. Seemed to work well.*
- *We only heard warning siren when we opened our door. Elderly people needed places to sit after arriving. Also, several children from my daycare evacuated with us.*
- *Heard the plane speaker*
- *Make signal louder*
- *Reverse 911 - when pushed the pound key as instructed the connection was lost - hear no info*
- *The siren wasn't very loud*
- *Didn't see evacuation signs. Didn't hear alarm. Knew about drill.*
- *911 drill notice did not begin right away when I answered phone. Almost hung up. Did not see evacuation signs.*
- *A female voice on the fixed wing plane might be easier to hear and understand*
- *Could not hear siren in own house*
- *Could not hear the siren until I opened the door.*
- *Could not hear the siren. Did not get reverse 911 call. Neighbors should knock on doors to make sure siren was heard.*
- *Did not hear the siren inside the hatchery*
- *Elderly folks might have a hard time hearing the monotone alarm as it is. I have difficulty hearing at times and I didn't recognize the alarm until it was pointed out to me.*
- *Hard to hear siren in house over TV/radio*
- *I heard the aerial announcement better than the big siren. Siren sound should alternate tone because the current steady tone could have easily been disregarded or mistaken as some other noise from a vacuum or other machinery.*

- *Louder siren! If I hadn't known it was coming, I doubt I would have heard it.*
- *Manager netarts bay RV park all people in park were notify. Home phone rev. 911 worked and park did not.*
- *Siren should go longer. Heard light noise and turned TV off to hear.*
- *The siren needs to be louder*
- *The siren was not that loud. If I had the TV on I wouldn't hear it.*
- *Wasn't clear to me if I should come since I am not in the inundation zone. The 911 reverse called convinced me.*
- *We could hardly hear the siren outside the cabin. Would not have heard it if we were inside with the heat or TV on.*
- *hard to hear siren, no signs*
- *Morning "Robocall" almost hung up do to the long pause at the start but I was expecting a call so I waited. Multiple decision points in call. Some people might not have acknowledged receipt. Signs - not enough- 1st decision point up from Kirk's - go up Maxwell or not - need a sign there. No sign at churst saying "you are here"*
- *Very hard to hear tsunami warning siren, did not know if we would have heard it if we weren't expecting. I didn't see any signs. Park ranger told us what do to yesterday.*

Thank you, "great job", or enthusiasm

- *Excellent work!*
- *Thank you!*
- *Thank you!*
- *Very well done.*
- *Was well organized!*
- *Good job*
- *Good Job*
- *It was great to have the drill*
- *Let's do it every year!*
- *So glad you did this- We are just visiting cousins, but are reassured that in the event of an emergency, folks would know what to do.*
- *Thank you.*
- *Visiting. Very good drill.*
- *Worked great, good info*
- *Question: What are recommendations for us if we're driving to or from Tillamook? Ie - on the road. Well organized, good direction etc.*
- *Great- do more of these- it helps*
- *I appreciate all the info over the years re earthquake tsunami, and what to do*
- *Should do this yearly*
- *thank you*

- Thank you for all your time and work. Excellent information and warning.
- The tsunami packet was helpful as is this practice evacuation drill. Thank you!
- This shows me how unprepared my family is. Thank you - Chris
- Very organized
- Very well done. Well organized.
- Very well executed, every one was helpful, calm and well prepared. We are here for the first time for the weekend, and had no problems finding assembly area. Thanks for the drill!
- Very well organized
- Very well organized great training exercised for residents & emergency responders.
- Great drill. Thank you park rangers . I think it would be helpful for me if the difference between the Park entrance and the camping area entrance were clarified.
- The local system and volunteers were great. My suggestion is about getting information on line- where we learned a drill was planned we tried go on live to look at evacuation map and information about safe zones. But it was extremely difficult to connect with a website that relevant information - search about 15- 20 websites before I found it. Thanks for drill.

Signage

- Evacuation signs needed from green posts to assembly area.
- Mark at pile-ons? [pylons?]
- Didn't see any evacuation signs at all. Spanish recording was very clear, easy to hear and understand.
- There is a need for evacuation sign at the first gate the Bay Ocean Spit
- At Cape Lookout, all campers need to know upon arrival what the shortest evac route is from their camp site. Very important. Maybe post signs boards throughout the campgrounds, in addition to personalized advice from rangers.
- Did not see evacuation signs.
- Needs better signs in the state park.
- We tried to follow signs last night and we didn't know where to go after sign across from deli. Signs should be at intersections.
- Only partial kit. Walked so did not bring. Better direction for people walking.
- Hard to hear siren, no signs
- Morning "Robocall" almost hung up do to the long pause at the start but I was expecting a call so I waited. Multiple decision points in call. Some people might not have acknowledged receipt. Signs - not enough- 1st

decision point up from Kirk's - go up Maxwell or not - need a sign there. No sign at churst saying "you are here"

- Very hard to hear tsunami warning siren, did not know if we would have heard it if we weren't expecting. I didn't see any signs. Park ranger told us what do to yesterday.
- Great drill. Thank you park rangers. I think it would be helpful for me if the difference between the Park entrance and the camping area entrance were clarified.

Ease or difficulty of walking to assembly area

- We cannot gather at assembly areas on our own, so we attempted to go one street higher (Pacific) via trail (neighbors' yards).
- Better route behind my house, well done
- Only took us 5 minutes to get here
- Elderly disabled - did not come down - volunteer checked on him
- Very easy to get to assembly area, unless had to walk, then very difficult
- Walked first time
- what about evacuating to vista west. Going up that hill- if the hill built on sand survives and earthquake! It's the closest
- Why not higher up. Water tower on Maxwell Mtn Rd

Grab and go bag

- Makes me away of the things we need to do for putting together 72 hr kit
- Only partial kit. Walked so did not bring. Better direction for people walking.

Other

- 13 year old son
- Bud, Michelle, Brandy
- Children Chloe, 8, Auggie, 7, and Abigail, 3.
- Glad that we participated. Now we have some idea of a time frame.
- I came down to take a picture of the assembly area sign.
- I was the only one there.
- Gordon has already given us this info! Gordon McCraw ROCKS! [Tillamook County emergency manager]
- In a real earthquake/tsunami, I would head to schools then head toward Portland.
- We didn't know there would be a drill and it was hard to understand what the cars were saying. My neighbor told me what was going on. This is our first drill. My mom is 80. We would like to know about the drills. We

checked Channel 4 and there was no info on that outlet.

- *Community food /supply available on 5th St.*
- *Headland Ave did not get any information - particularly maps*
- *I would like to suggest having some mental health first aid training for the staff participating in drills in case a civilian has a problem.*
- *Rental owners need to post info AND provide brochure to each renter. 2nd home owners also may be out of the loop.*
- *We are tourist*
- *Would be good to have assembly area maps in rentals. Easier/more clear maps on internet.*
- *The local system and volunteers were great. My suggestion is about getting information on line- where we learned a drill was planned we tried go on live to look at evacuation map and information about safe zones. But it was extremely difficult to connect with a website that relevant information - search about 15- 20 websites before I found it. Thanks for drill.*

Why I feel safe at this assembly area

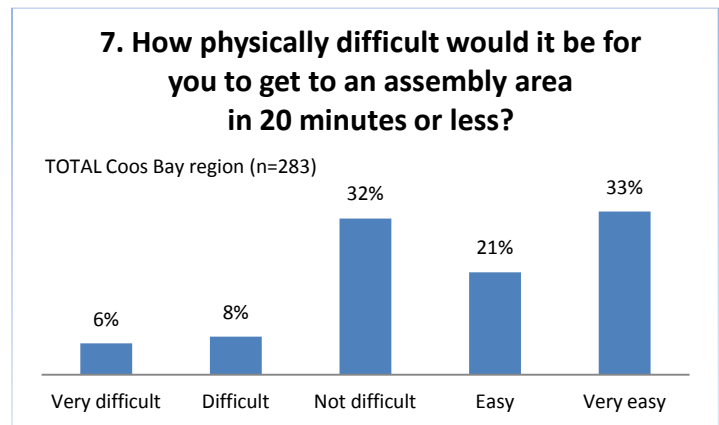
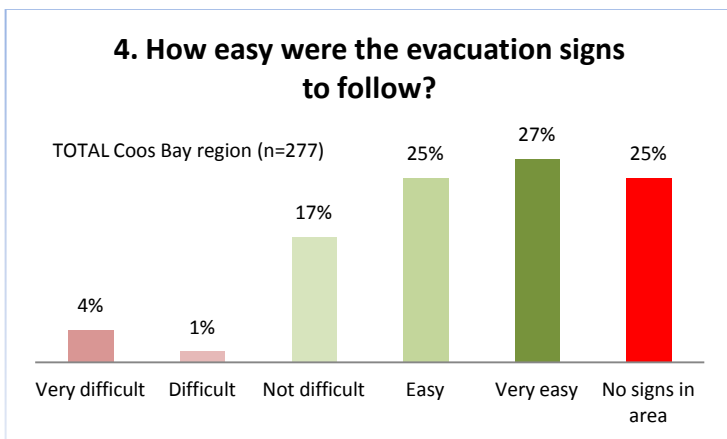
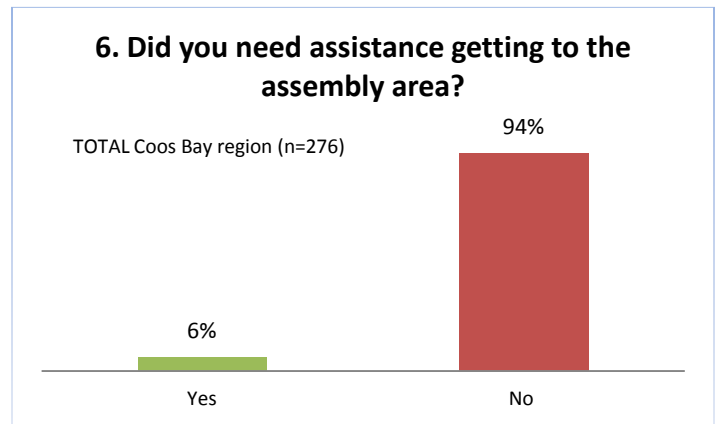
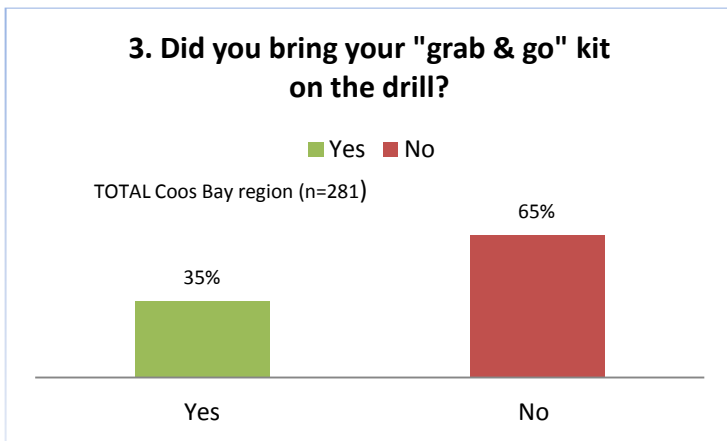
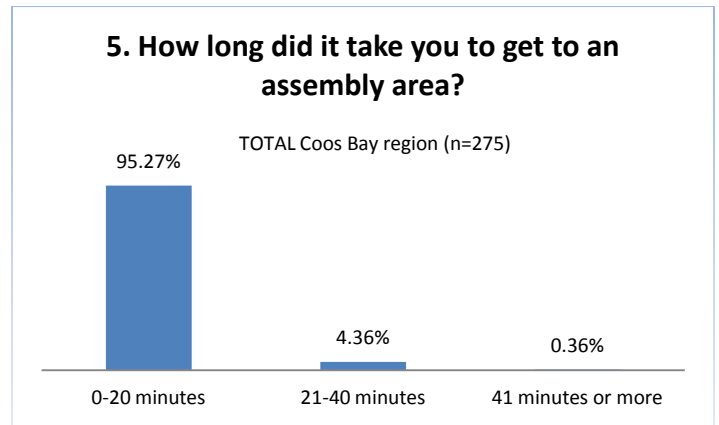
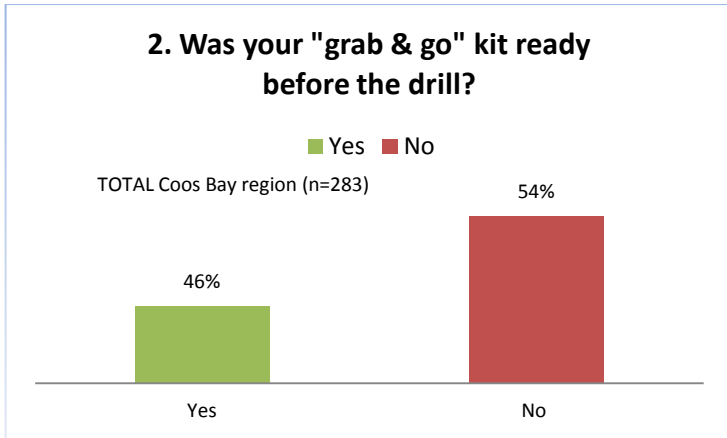
- *I chose this assembly area because it is well marked.*
- *I feel safe at this assembly area b/c it's higher ground.*
- *I feel safest at this Assembly Area because of security.*
- *This assembly area is near my home.*

**APPENDIX D: COOS BAY REGION
TSUNAMI EVACUATION DRILL SURVEY**

Below is a complete summary of survey responses; *n* is the number of respondents, which does not include the “no answer” category of those who skipped a question.

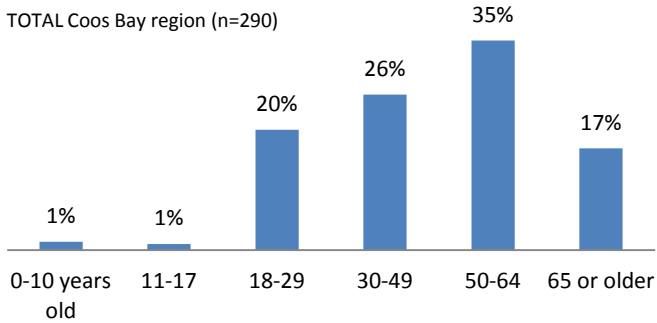
1. What is the closest intersection to where you began today's drill?

These responses corresponded mostly to the pre-designated assembly areas, so the responses were not analyzed.



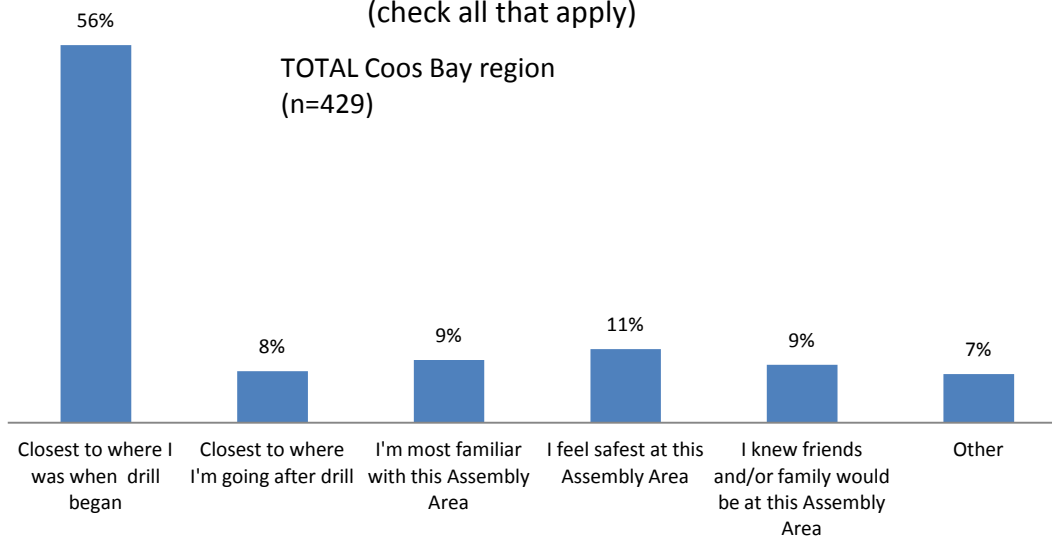
8. What is your age?

TOTAL Coos Bay region (n=290)



9. Why did you come to this assembly area? (check all that apply)

TOTAL Coos Bay region
(n=429)



10. If you would like more information on disaster preparedness, please share your contact information. *(Optional)*

Of those who responded, 107 mailing addresses and 71 email addresses were provided. (Some addresses may not work since handwriting on forms was not always legible.) This contact information will be kept on hand for potential future updates and outreach.

11. Please use this space to share comments, suggestions or more about your experiences during today's tsunami evacuation drill.

Below is a summary of comments received.

Topic of comments	Number of comments
Siren / alarm / announcement	12
Thank you or "good job"	12
Signage	10
Participation or offers to help	5
Ease or difficulty of walking to assembly area	5
Phone numbers given	4
Grab and go bag	3
Other	8
Total	59

Below is a summary of corresponding comment themes and only a sample selection of comments (*in italics*).

Siren/alarm/ announcement: Eleven commenters expected to hear one, except one, who said...

- *I heard the announcement from the tribe over the loudspeaker -- only way I knew it was happening.*

Thank you, "great job", or enthusiasm

- *124 people showed up to our site and it was a wonderful turnout with great participants, volunteers, and emergency teams. Thank you, US Coast Guard!*

Signage: More signage or more visible signage would have been helpful. Some commenters didn't see signage at all. Others suggested more prominent signage pointing to assembly areas.

- *There should be signs around businesses, telling what place that specific business should go to or stay put.*

Participation or offers to help

- *I am CERT trained and Red Cross trained.*
- *I think it was a great idea! I wish more people would have participated. I did not have an emergency plan in place with my family or workplace until today. This drill helped to*

Sample survey, front and back:

remind me the importance of being prepared. Thank you.

Ease or difficulty of walking to assembly area

- *Very easy and close.*
- *We're old with heart conditions, so it won't be easy.*
- *We need night/day visibility paths throughout the zone. Follow the yellow brick road!*
- *Shot in knee. Physically difficult.*

Phone numbers given

- *Might consider adding a field for this? Not everyone uses email.*

Grab and go bag

- *Two commenters brought "simulated" bags with weight in them, but not actual bags with supplies. Another requested "clear ideas on where to have grab and go bag stored for easy access."*

Other

- *Why wasn't the Boys and Girls Club selected?*
- *Will bussing be available at 1700 Hamilton St. for older walker-assisted persons?*
- *Where can we get the tsunami passports?*
- *The church wasn't prepared. It should have been. First United Methodist.*
- *Not very many walked like suggested we did.*

Post Tsunami Drill SURVEY

Thank you for participating in today's tsunami evacuation drill. Your feedback will help us improve the Tsunami Outreach Oregon program. Please take a moment to complete this survey now.

1. We would like to know where you began today's drill. What is the closest intersection to where you began today's drill?
(started today's drill near the intersection of [redacted] and Coast Ave)

4. How easy were the evacuation signs to follow?
 a. Very difficult
 b. Difficult
 c. Not difficult
 d. Easy
 e. Very easy
 f. No signs in area

8. What is your age?
 a. 0 - 10 yrs.
 b. 11 - 17 yrs.
 c. 18 - 29 yrs.
 d. 30 - 49 yrs.
 e. 50 - 64 yrs.
 f. 65 yrs. or older

9. There are multiple Assembly Areas in your community. Why did you come to this Assembly Area? (Check all that apply)
(closest to where I was when the [redacted])

10. If you would like more information on disaster preparedness, please share your contact information. (Optional)
Name: _____
Mailing Address: _____
Email: _____

11. Please use this space to share comments, suggestions or more about your experiences during today's tsunami evacuation drill.
*we followed the kids.
We were not aware we had to go to top of Hill.*

778

APPENDIX E

**MEDIA COVERAGE
of
TILLAMOOK BAY OUTREACH**

National Tsunami Hazard Mitigation Program | Oregon

Tsunami Outreach Oregon

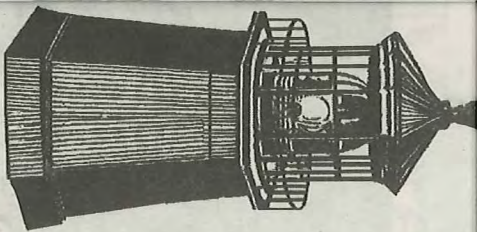
Year Three, 2011-2012



SPRING FORWARD
DAYLIGHT SAVINGS TIME BEGINS MARCH 11.
MOVE YOUR CLOCKS AHEAD ONE HOUR.



ON TO STATE
TILLAMOOK GIRLS BASKETBALL TEAM MAKES IT TO 'ELITE EIGHT' AND HEADS TO CORVALLIS, PAGE A12



Headlight Herald

TILLAMOOKHEADLIGHTHERALD.COM • MARCH 7, 2012

LONGEST RUNNING BUSINESS IN TILLAMOOK COUNTY • SINCE 1898

Daughter guilty of negligent homicide

By ANTHONY RIMEL
arimel@countrymedia.net



A Garibaldi woman was sentenced to a year in jail after pleading guilty to Negligent Homicide and Criminal Misdemeanor I in her mother's death.

Roxanne Joy Wagar was a caretaker to her elderly diabetic mother — who died of a heart condition aggravated by neglect, massive bedsores, stomach ulcers and infections.

Wagar's mother, Joyce L. Steele, was 74 at the time of her death in August 2010. Police were notified of the deplorable conditions that Steele was kept in after her death. Sgt. Troy Jackson testified that the bed and floor in Steele's room were covered in feces and filth.

See **DAUGHTER**, Page A11

INDEX

- Classified Ads B5
- Crossword Puzzle B2
- Dining Guide B3
- Fenceposts B3
- Letters A4
- Obituaries A6
- Sports A8
- Tides A11

WEATHER

STATS		Low	RAINFALL
Dec	High	34	.45
Feb.	29	44	.06
Mar.	1	46	.21
Mar.	2	46	.46
Mar.	3	50	.12
Mar.	4	50	.03
Mar.	5	47	.36
Mar.	6	49	.65
		32	..

MARCH NORMALS

High: 56 Low: 38
TOTAL PRECIPITATION: 9.74

Weather courtesy of Weather Underground

1908 2nd St.
503-842-7535
Vol. 123, No. 10
75 cents



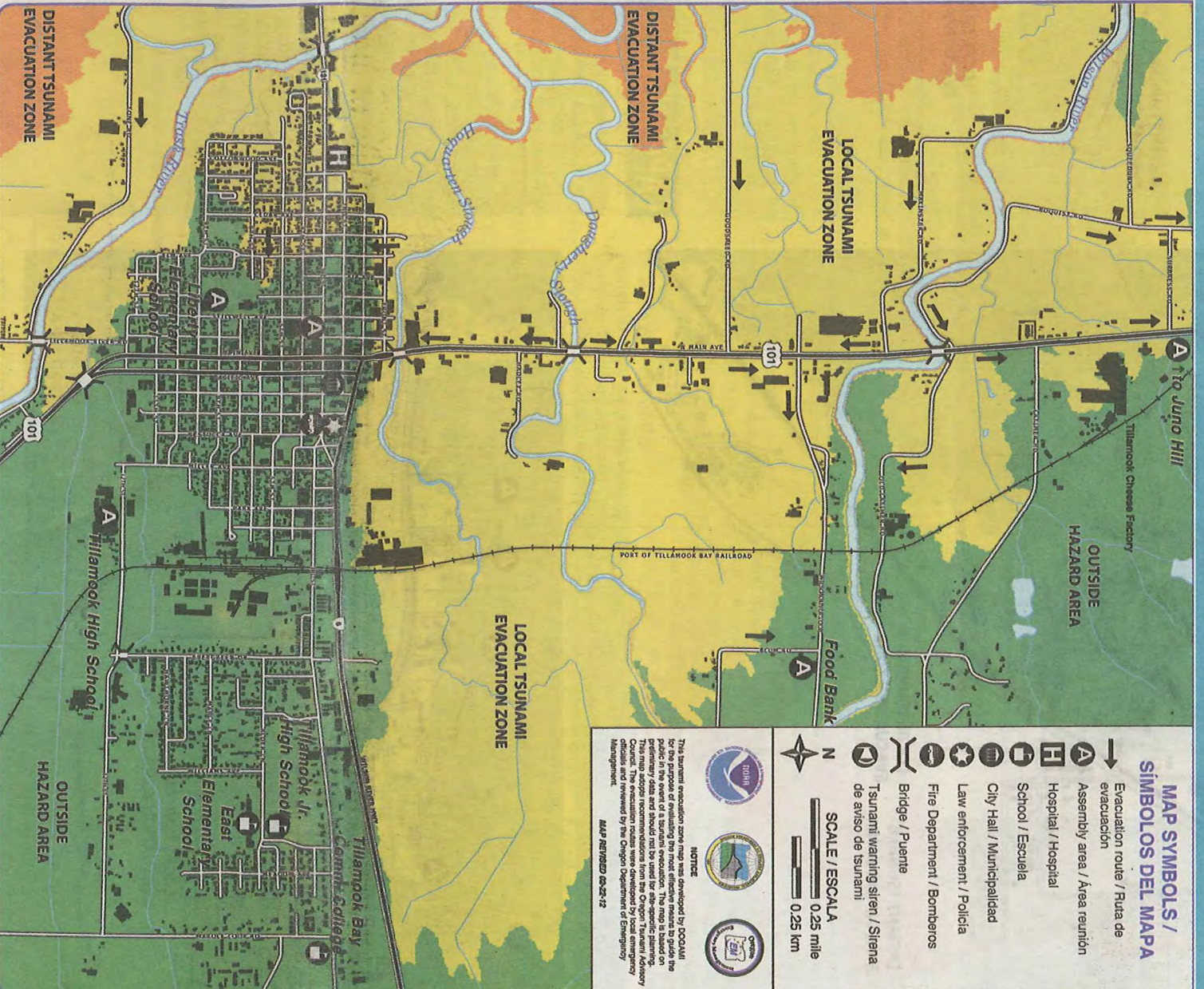
0 08805 93341 9

Feds look to cut tsunami warning system

By ERIN DIETRICH
edietrich@countrymedia.net

The National Oceanic and Atmospheric Administration (NOAA) may be reducing funding to its ocean-based tsunami warning system.

The cuts would occur as the result of the White House's proposed 2013 budget, reducing funding to NOAA by nearly \$4.6 million. The White House



(Above) the tsunami evacuation map for Tillamook. Orange shows the distant event evacuation zone, yellow the local event evacuation zone. See maps for Bay City, Garibaldi, Oceanside, Netarts and Cape Meares on Page A2 and Barview on Page A13. **MORE TSUNAMI NEWS ON PAGE A10.**

expanded NOAA's tsunami programs following the 2004 earthquake and tsunami in the Indian Ocean, which killed more than 230,000 people. The proposed budget cuts \$1 million in funding to NOAA's system of 39 buoys off the Pacific Coast, designed as a warning system in the event of an earthquake-generated tsunami. The reduced funding would

mean cuts to buoy operations and maintenance. Additional cuts are proposed to The Tsunami Warning and Environmental Observatory for Alaska (TWEAK) which maintains Alaska's seismic monitoring network for warnings about tsunami-generating earthquakes. See **WARNING**, Page A11

Hospital, Ward 1 in evacuation zones

By ERIN DIETRICH
edietrich@countrymedia.net

Sunday, March 11 marks the one-year anniversary of the 9.0-magnitude earthquake and subsequent tsunami that killed more than 15,800 people in Japan.

Some 4,000 miles away, the beaches of Tillamook County only saw small ripples that day, but the Tohoku, Japan event was an important reminder that a local earthquake and tsunami from the Cascadia Subduction Zone could bring similar — or worse — damage to our shores.

Local emergency officials are using the anniversary to host a county-wide Tsunami Rally. They will distribute maps of newly revised tsunami inundation zones for Barview, Bay City, Cape Meares, Garibaldi, Netarts, Oceanside and the first-ever evacuation brochure for the city of Tillamook.

See **ZONE**, Page A11

TSUNAMI RALLY

A free Tsunami Rally will be held from 2-4:30 p.m. March 11 at Tillamook Bay Community College.

Presented by the Oregon Department of Geology and Mineral Industries (DOGAMI), the rally will include information about the 2011 Tohoku tsunami, how to prepare for a tsunami now, and discussions with representatives from Oregon Emergency Management, Tillamook County Emergency Management, the American Red Cross, the National Weather Service, Coast Guard, Salvation Army and a local Ham Radio group.

Scientists from DOGAMI will be on hand to answer questions from the public. In addition to discussing new evacuation brochures and emergency preparedness, they will also discuss Oregon's history of giant earthquakes and tsunami science.

"It really can happen and can happen at any time of day, in any season — we just have to be calm and prepared," said DOGAMI Public Affairs Specialist Jeaneil Wyrtegreen. "The goal with the DOGAMI program is that no one has to die in a tsunami."

For more information, contact Wyrtegreen at 503-312-9316 or Jerry Rilette at 503-307-5737.

Tillamook City Council approves electric car charging stations

By ANTHONY RIMEL
arimel@countrymedia.net

currently only has three fast charging stations.

has also approached the city and asked to lease public parking

WARNING! Continued from Page A1

Only six DART (Deep-ocean Assessment and Reporting of Tsunamis) buoys were in place prior to 2004. By 2008, NOAA had placed 39 buoys in the Pacific, Atlantic Coastline and the Caribbean Sea.

The DART system off the Pacific coast runs from Alaska to California, with buoys overlap or near the Cascadia Subduction Zone. If an earthquake occurs, the sensors detect the pressure difference generated by the movement and blast out warnings across the globe.

According to NOAA, "DART buoys can measure a tsunami wave in the open ocean and provide these data in real-time to fore-

cast when a wave may hit the coast and how high it will be."

Tillamook County Emergency Manager Gordon McCraw said the greatest impact from cutting the DART buoys would be felt by people living in other countries – and it could set a dangerous precedent for other countries to reduce funding to their own tsunami warning systems.

Japan, for example, has its own set of earthquake monitoring and tsunami warning systems. According to a report from the U.N.'s Intergovernmental Oceanographic Commission (IOC), the Japanese Meteorological Agency issued a major tsunami warning

just three minutes after the major 2011 earthquake off the coast of Tohoku.

The IOC reported that warnings or watches had been issued for Hawaii and other countries within nine minutes of the earthquake.

"With (a local tsunami), we've just had three to five minutes of a 9.0 earthquake – what other warning do you need?" McCraw said. "But places like Japan, they would need a warning. My concern would be that if the U.S. ceases funding for support of buoys off our coast, what message would that give to other countries about the significance of their buoys?"

ZONE! Continued from Page A1

Developed by DOGAMI, with a grant from the National Oceanic and Atmospheric Administration, the maps show inundation zones, where waters would reach in a worst-case scenario event. A devastating local earthquake/tsunami occurs every several hundred years, and scientists say we have ten percent chance of experiencing one within the next 30 years. But the "worst-case scenario" depicted in the maps occurs roughly once every 10,000 years.

The brochures also show recommended routes to evacuate to safety in the event of an earthquake-triggered tsunami.

While residents of other coastal communities are more "well-versed" in the topics of tsunami inundation zones and evacuation drills, DOGAMI Public Affairs Specialist Jeannell Wyrntegreen emphasized to Tillamook residents that a tsunami event differs greatly from a regular seasonal flood event.

"People need to be aware this is not a flood – this is a wave of water and debris," she said. "A lot of people in Tillamook understand what to do in a flood, but the difference is this is water coming from the bay, being pushed up the rivers. It isn't just water – it is everything that came with this wave, which could include trees, sludge, cattle, debris."

Prior to the release of the new evacuation brochure, the city of Tillamook only had an inundation zone in the north Highway 101 area, and the city's emergency plan was the same as for any 100-year flood.

Additional portions of Tillamook's Ward 1 now lie within the tsunami inundation zone, including the west side of town that surrounds Tillamook County General Hospital. None of the city's schools are mapped within the inundation zone, but the fact that the county's only hospital sits near the edge of the new inundation zone is cause for some concern.

Hospital Development and Marketing Director Melody Ayers said the hospital building is structurally sound.

"During the extensive remodel-construction project completed about 10 years ago, seismic engineering was installed to help improve the building's ability to remain functional in the event of a local Cascadia earthquake," Ayers said.

A part of this engineering is visible in the diagonal cross-bracing seen in the windows of the hospital cafeteria.

Emergency plans for the hospital show that during a local earthquake event, staff would work with county emergency management to move people and hospital opera-

tions to the upper floors of the building.

Tillamook County Emergency Manager Gordon McCraw said that, at three stories, the hospital building could be used as one of the city's vertical evacuation sites. But the earthquake, not the tsunami, will be the bigger danger.

"The problem is, prior to dealing with the flood from a wave, we will have to deal with a 9-10 point earthquake," McCraw said. "Many buildings in the downtown area were built before earthquake standards and won't survive an earthquake of that magnitude."

As far as the depth of the water that may reach the edge of the inundation zone, Wyrntegreen said there is not a simple answer.

"Those are the types of questions to present to the cartographers and scientists on Sunday (during the March 11 rally)," she said. "It's not a simple answer of yes, there will be five feet of water here. What they've shown on the evacuation maps is the worst case scenario of a local event to prepare local citizens."

ONLINE: Links to the new brochures – plus existing brochures for Manzanita/Nehalem, Nestucca and Rockaway Beach – are available online at www.oregongeo.org/org/tsuclearnighouse/pubs-evacbro.htm.

TIDE TABLES

HIGH TIDE

Date	A.M.	P.M.	Date	A.M.	P.M.
Thurs.	March 8	12:00	Fr.	March 9	12:03
Fr.	March 9	12:34	Sat.	March 10	12:52
Sat.	March 10	1:10	Sun.	March 11	1:43
Sun.	March 11	2:48	Mon.	March 12	3:38
Mon.	March 12	3:31	Tues.	March 13	4:39
Tues.	March 13	4:18	Wed.	March 14	5:49
Wed.	March 14	5:14	Thurs.	March 15	7:09
Thurs.	March 15	6:20			8:31

LOW TIDE

Date	A.M.	P.M.	Date	A.M.	P.M.
Thurs.	March 8	6:13	Fr.	March 9	6:33
Fr.	March 9	6:59	Sat.	March 10	7:10
Sat.	March 10	7:47	Sun.	March 11	8:01
Sun.	March 11	8:37	Mon.	March 12	9:32
Mon.	March 12	10:32	Tues.	March 13	10:18
Tues.	March 13	11:33	Wed.	March 14	11:13
Wed.	March 14	12:42	Thurs.	March 15	12:42
Thurs.	March 15	12:22			2:8

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- ◆ Will I be paid for pain & suffering?
- ◆ How soon can I collect my money?

Scott J. Schaub
Attorney at Law



Standing room only at Tsunami Rally

BY ERIN DIETRICH
edietrich@countrymedia.net

TILLAMOOK - It was standing room only at the county's Tsunami Community Rally March 11 at Tillamook Bay Community College, as scientists and emergency management officials were on hand to answer questions, pass out new evacuation maps and discuss disaster preparedness.

Local organizers were pleased with the turnout at the event, which was hosted by the Oregon Department of Geology and Mineral Industries (DOGAMI).

"There were very strong questions that a lot of people were asking, and it was so good to

have the geologists there to answer them," said DOGAMI Tsunami Outreach Community Coordinator Jeannell Wynter-green.

Between 150 and 200 people crowded into the main presentation room, where Tillamook County Emergency Manager Gordon McCraw spoke about local efforts, followed by Don Lewis and Rachel Lyles of DOGAMI and Althea Rizzo of Oregon Emergency Management.

More people yet wandered the booths outside, where the American Red Cross, U.S. Coast Guard, Salvation Army, local Ham Radio group and more were on hand to pass out information and answer

questions on topics ranging from first aid and survival kits to response training and more.

"I believe it was a really good start, with the numbers of people there," said Tillamook Fire Marshal Reuben Descoux. "Obviously there's enough concern from the community and we had a very favorable showing."

The event also marked the one-year anniversary of the of the 9.0-magnitude earthquake and subsequent tsunami that killed more than 15,800 people in Japan.

The March 7 edition of the Headlight Herald contained copies of the new maps and information on tsunami safety.



ERIN DIETRICH/HEADLIGHT HERALD
Fire Marshal Reuben Descoux hands out brochures during the Tsunami Rally.

Take tsunami preparedness to heart

Lisa Phipps Tillamook | Posted: Wednesday, March 14, 2012 7:00 am

As a member of the Governing Board of the Oregon Department of Geology and Mineral Industries (DOGAMI), I would like to extend my appreciation to Jeannell Wyntergreen and Jerry Rilette with DOGAMI for bringing the Tsunami Rally to Tillamook County.

Their outreach efforts resulted in an incredible turnout on a blustery Sunday with over 200 people, standing room only, at the Tillamook Bay Community College to listen to experts talk about earthquakes, local tsunamis, and what we as individuals and as a community can do to prepare for the impacts.

It is clear from the turnout that not only has DOGAMI done a great job of reaching out to the community, but the community has also done a great job of making itself aware of the need to be prepared.

While some may feel that preparing for a tsunami that may or may not happen is a waste of resources, the fact is they do happen and we can be prepared not only for the event but for the aftermath as best as we can be. The experts presenting at the rally were full of sobering facts – until it happens, we won't know for sure the full extent of a tsunami's reach, but we have a pretty good idea. We can only hope it isn't worse.

As the maps are completed, it is important that they don't simply become wall decorations – these maps and the information that comes with them may save your life. Become involved in your local Community Emergency Response Team or think about starting one in your neighborhood. Again, thank you to DOGAMI and to those in our community who are helping make Tillamook County better prepared if the unthinkable happens.

Tsunami evacuation drills at the Oregon coast beginning this weekend

Tweet

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Posted: Wednesday, March 21, 2012 8:38 am

From DOGAMI |

As part of the ongoing Tsunami Outreach Oregon education and awareness program managed by the Oregon Department of Geology and Mineral Industries (DOGAMI), several coastal communities will be holding tsunami evacuation drills in the next few months.

The coastal communities of Cape Meares, Oceanside, and Netarts will be holding a voluntary Tsunami Evacuation Drill Saturday, March 24, beginning at 10 AM. For more information on this drill, please contact Tillamook Bay region Tsunami Outreach Coordinators Jerry Rilette at (503) 307-5734 or Jeannell Wyntergreen at (503) 312-9316.

Elsewhere in Tillamook County, the cities of Garibaldi and Bay City will be holding a voluntary Tsunami Evacuation Drill Saturday, May 5th, and the City of Tillamook will hold a voluntary Tsunami Evacuation Drill for the west side of the City on Wednesday, May 23.

In Coos County, the Cities of Coos Bay, North Bend, and the surrounding communities including Barview, Charleston, and nearby unincorporated areas will hold their voluntary Tsunami Evacuation Drill on Thursday, May 31st. For more information on this drill contact Coos Bay region Tsunami Outreach Coordinators Mikel Chavez at (503) 936-7767 or Lindsey Bishop at (971) 221-2508.

These drills follow the recent release by DOGAMI of several new tsunami inundation maps and tsunami evacuation brochures for these communities at risk from earthquake and tsunami hazards along the Oregon coast.

The tsunami evacuation drills will be an opportunity for residents, visitors, and businesses to participate in a mock tsunami evacuation. This event will familiarize residents and visitors with the local tsunami warning system and provide an organized event so they can practice walking local tsunami evacuation routes that lead to high ground.

This weekend in Cape Meares, Oceanside, and Netarts, the voluntary Tsunami Evacuation Drill will begin when the emergency sirens and fire department sirens are activated at 10 AM. Prior to the drill, there will also be a test of the Tillamook County 9-1-1 emergency notification system for selected portions of these communities. This call will occur at 9 AM and will remind the residents of the 10 AM evacuation drill about to take place in their area.

"One year after the March 11, 2011 Tohoku earthquake and tsunami, Japan is still working through their recovery and we in Oregon are still considering our options for preparing for our local Cascadia Subduction Zone earthquake and tsunami," said Vicki McConnell, State Geologist. "We at DOGAMI will continue to create state-of-the-art tsunami inundation zone maps, work with local community officials to design and produce effective tsunami evacuation brochures, and help build a Culture of Preparedness to make Oregon safer where we work, live and play."

The tsunami evacuation drills are a collaborative effort with many partners, led by local fire and police departments, county and city emergency management, tribes, Community Emergency Response Teams, Red Cross, Search and Rescue, HAM radio operators, Salvation Army, Coast Guard, Oregon Emergency Management, and the many volunteers that have helped make the Tsunami Outreach Oregon program successful in many communities.

The voluntary tsunami evacuation drills are part of the Tsunami Outreach Oregon program that began in 2010 with a goal of enhancing earthquake and tsunami readiness efforts in as many Oregon coastal communities as possible over a four year period, while building sustainable, grass roots volunteer efforts revolving around disaster preparedness. The program has reached dozens of communities and school districts and will continue through 2014.

Barview, Garibaldi and Bay City evacuation drill May 5

Tweet 5

Like 21

Posted: Friday, April 27, 2012 12:54 pm | Updated: 1:45 pm, Fri Apr 27, 2012.

Erin Dietrich |

Residents of Bay City, Garibaldi and Barview will practice getting to higher ground at 10 a.m. Saturday, May 5, during a community-wide tsunami evacuation drill.

Volunteers with the Garibaldi and Bay City fire departments went door-to-door to homes within the tsunami inundation zone on Wednesday evening, April 25, passing out packets of information about the upcoming drill. The packets included information on what to do and where to go when the tsunami sirens go off Saturday morning.

Starting at 9 a.m., residents in the inundation zones in each community will receive a reverse 9-1-1 call to their land line, alerting them of the drill. Then, at 10 a.m., the sirens will sound for three minutes, along with fire truck sirens and a voice alert from a Civil Air Patrol plane fly-over.

While Saturday's evacuation is a test-run, emergency preparedness officials advise that in the event of a real tsunami generated by an earthquake, residents should not wait for sirens to start heading toward higher ground.

"When a tsunami hits, when it quits rocking, you should be walking," said Don Reynolds, a member of the Bay City Hazard Mitigation Planning Committee. "Bring your dogs cats, kids. you name it – evacuate with the people you will evacuate with in a real event."

People evacuating during the drill should note the time when they leave the house, and then note the time when they get out of the inundation zone.

"It's important for them to know how long it takes them," Reynolds said, emphasizing the importance of safety during the drill, especially when crossing Hwy. 101.

Volunteers will be on hand at each of the evacuation sites to pass out water and note evacuation times. Event organizers are also hoping to have WAVE buses at the sites to transport people back to their homes after the drill.

The May 5 drill is being organized by the Department of Geologic and Mineral Industries, Tillamook County Emergency Management, Tillamook County Sheriff's Office, U.S. Coast Guard, fire departments of Bay City and Garibaldi, Ham Radio operators and the American Red Cross.

"When we have a tsunami, it will affect all three communities and we want to get a picture of what it looks like to have all three communities evacuate at same time," Reynolds said. "All those folks have to work together to be able to pull off something like this, as they will in a true emergency."

Newly released tsunami inundation zones and evacuation maps for the communities of Barview, Garibaldi and Bay City, as well as Cape Meares, Netarts, Oceanside and Tillamook are available by visiting www.oregongeology.org/tsuclearinghouse/default.htm. New maps for the Nehalem River Valley and Rockaway Beach are scheduled for release on Friday, April 27.

For more information about the May 5 community-wide evacuation drill in Barview, Garibaldi and Bay City, contact the Bay City Fire Department at 503-377-0233 or Garibaldi City Hall at 503-322-3327.

Safe travels: tsunami evacuation drill held in central county

Tweet

Posted: Tuesday, May 8, 2012 9:26 am | Updated: 12:34 pm, Fri May 11, 2012.

By Erin Dietrich |

GARIBALDI – Some walked, some scooted, some pushed strollers or carried beloved pets. However they got there, residents of Barview, Garibaldi and Bay City gathered at their assigned evacuation assembly sites shortly after the emergency sirens blared at 10 a.m. Saturday, May 5.

Some 375 people, including emergency responders, Coast Guard members, firefighters and residents of the three communities, practiced heading to higher ground. The drill served as a test run in the event a local or distant tsunami.

It took 7 minutes, 18 seconds for Garibaldi resident Steven Haapala to walk from his motorhome near the waterfront to the assembly area in front of Garibaldi Grade School. He carried with him a 72-hour preparedness kit which contained his medication, bandages, scissors and a sleeping bag.

"I've been in disasters before around the globe in the Navy," he said. "All too often there are people who don't have anything. If you have something with you, it's a big help."

In addition to the sirens, a Civil Air Patrol plane flew overhead, broadcasting a message for residents to evacuate. The plane carries loudspeakers, purchased with grant funds acquired with the help of Tillamook County Emergency Manager Gordon McCraw.

"The feedback that I've gotten, again, is that people were amazed because they actually heard it (the loudspeaker) inside their house," McCraw said. "It will in fact be a very useful tool, should it be needed."

A second voice, recorded by Jessica DuMoulin of the Tillamook County Health Department, made the announcement in Spanish as well. The need for a Spanish language warning was brought up during the March 23 community evacuation drill held in Cape Meares, Oceanside and Netarts.

Department of Geologic and Mineral Industries Public Affairs Specialist Jeanelle Wyntergreen heard first-hand positive feedback about the Spanish message during the event.

"I was up at the handle factory and walked across the road where there was a Hispanic family," Wyntergreen said. "They were so thrilled, they could understand it. (DuMoulin) translated the Spanish perfectly."

All together, 65 Bay City residents checked in at various meeting points, although there were many other residents who came to the assembly areas but did not fill out a brief survey.

"We wanted to see if they were keeping times, and to have an idea of how many people we had actually contacted," said Don Reynolds, a member of the Bay City Hazard Mitigation Planning Committee.

In Garibaldi, an estimated 120 residents evacuated, 69 of whom met at the assembly area in front of the grade school at 7th and Cypress streets. There, they were greeted by volunteers who passed out bottled water and information from the American Red Cross.

That site also recorded 11 dogs, two residents in wheelchairs and two children pushed in strollers.

Five people showed up at the site in cars, a troubling situation for emergency coordinators in all three communities, who emphasize that a local tsunami event would be preceded by a major earthquake, likely buckling roads and crumbling bridges.

“Some people are still unable to imagine a situation that would render their vehicles useless,” Reynolds said. “They will be part of the problem rather than part of the solution. Some said they think they’ll just go to Portland.”

In the event of a local earthquake, that will be impossible.

In the event of a local tsunami, emergency officials urge residents not to wait to hear sirens before moving to higher ground.

“If the ground shakes, you won’t hear any sirens,” said Linda Kowzloski, director of the Nehalem Bay Emergency Volunteer Corps (NBEVC). “As soon as the ground stops shaking, head to the hills.”

Emergency coordinators all agree that keeping a 72-hour kit nearby to bring along in the event of a natural disaster, containing items to be self-sufficient for at least three days.

A basic kit should include emergency shelter supplies, water, food, first aid, and medications. Helpful information about putting together a 72-hour kit is available through the American Red Cross, or on websites such as http://72hours.org/build_kit.html.

Newly released tsunami inundation zones and evacuation maps for the communities of Barview, Garibaldi and Bay City, as well as Cape Meares, Netarts, Oceanside and Tillamook are available online by visiting www.oregongeology.org/tsuclearinghouse/default.htm.

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Safe travels: tsunami evacuation drill held in central county



Evacuation drill

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Tillamook to hold tsunami evacuation drill May 23

By Erin Dietrich | Posted: Monday, May 21, 2012 4:35 pm

TILLAMOOK – For the first time ever, the west end of Tillamook will practice evacuating to higher ground in the event that a local tsunami brings water and debris rushing in from Tillamook Bay.

The west Tillamook tsunami evacuation drill begins at 1 p.m. sharp Wednesday, May 23. The Tillamook fire and police departments will sound their sirens for three straight minutes to announce the drill, and Tillamook County Emergency Manager Gordon McCraw will drive a truck containing loudspeakers to broadcast the drill in both Spanish and English.

At that point, residents of Ward 1 (the section west of Main Ave.) are asked to move to one of two designated assembly areas, at the Liberty School parking lot on the south side of Grove St. or at the library parking lot (on 3rd St. across from the library).

Schools within the Tillamook district will respond to the drill, though students will not leave campus.

Once participants reach their designated evacuation sites, they will be debriefed and information about 72-hour emergency preparedness kits and other emergency preparedness advice will be available.

Following the all-clear notice, residence can be assisted back to their homes with Tillamook WAVE vans.

Prior to the event, the Tillamook Fire District will undergo a door-to-door campaign, leaving packets of information at households within the evacuation zones.

New tsunami evacuation maps for communities along the Oregon coast were released starting in January of this year. For the first time ever, portions of the City of Tillamook were mapped, revealing several neighborhoods within the designated tsunami, inundation zone.

Prior to the release of the new evacuation brochure, the city of Tillamook only had an inundation zone in the north Highway 101 area, and the city's emergency plan was the same as for any 100-year flood.

Additional portions of Tillamook's Ward 1 now lie within the tsunami inundation zone, including the west side of town that surrounds Tillamook County General Hospital. None of the city's schools are mapped within the inundation zone, but the fact that the county's only hospital sits near the edge of the new inundation zone is cause for some concern.

Developed by DOGAMI, with a grant from the National Oceanic and Atmospheric Administration, the maps show inundation zones, where waters would reach in a worst-case scenario event. A devastating local earthquake/tsunami occurs every several hundred years, and scientists say we have ten percent chance of experiencing one within the next 30 years. But the "worst-case scenario" depicted in the maps occurs roughly once every 10,000 years.

Links to the new maps are available online at www.oregongeology.org/tsuclearinghouse/pubs-evacbro.htm.



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Headlight Herald



TSUNAMI DRILL

Sirens will signal the start of the west Tillamook evacuation drill at 1 p.m. Wednesday, May 23
(For more info, scan the barcode at left with your smart phone.)

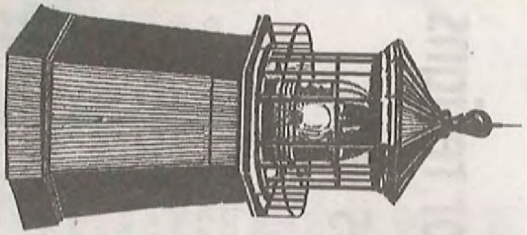


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LONGEST RUNNING BUSINESS IN TILLAMOOK COUNTY • SINCE 1888

Capes residents move to higher ground

BY ERIN DIETRICH
edietrich@countrymedia.net

NETARTS - About 555 residents and visitors, more than 100 volunteers, 51 dogs and three cats took part in the community-wide tsunami evacuation drill for the "Cape to Cape" communities of Cape Meares, Oceanside, Netarts and Cape Lookout on March 24.

The drill followed the recent release by the Department of Geologic and Mineral Industries (DOGAMI) of new tsunami inundation maps and tsunami evacuation brochures for communities at risk from earthquake and tsunami hazards along the Oregon coast.

The drill provided an opportunity to familiarize residents, visitors and businesses with the local tsunami warning system and practice walking

local evacuation routes that lead to higher ground. Deb Dyson of Netarts, along with her husband, Jim Carlson and their dog, a Newfoundland named Buoy, were ready to evacuate when the sirens went off at 10 a.m. Saturday.

They had been visited by the local fire department ahead of time, and a large sign on Hwy. 131 heading toward the beach alerted passers-by of the drill for a week prior to the event.

"We were well aware of the drill and were waiting for the siren to evacuate," she said.

"When the alarm went off, Jim and I grabbed our rain gear, put our boots and vests on, grabbed the pack and the dog and went walking up Crab Avenue to our evacuation point on Phelps Street," Dyson said.

See **CAPE**, Page A2



Oceanside residents, carrying their pets, walk toward higher ground during the March 24 evacuation drill.

Those packs were Dyson's birthday present this year. The couple purchased backpacks, filling them with emergency food, a tarp, extra layers of clothes and other essentials. They found old fishing vests at a local thrift store and filled the pockets with smaller essentials such as emergency blankets, waterproof matches, bottles of water and tablets to purify water.

"There's also a knife, a can of sardines in there, a flashlight," she said. "The vest is really just essentials."

Even Buoy donned his own special vest, filled with dog food.

It took Deb and Jim about five minutes to walk from their home, just 60 feet up from Netarts Bay, to their evacuation site.

The drill ran fairly smoothly, according to Tsunami Outreach Coordinator for DOGAMI Jeanell Wyttergreen. Issues that

CAPES: Continued from Page A1

did come up during the debriefing after the event were fairly easy to fix, she said.

Some of the areas to be improved upon included bugs in the 9-1-1 alert system, which Wyttergreen said caused some confusion because of a long pause in the call. Another issue that arose was the importance of having a message sent out in Spanish as well as English from the Civil Air Patrol plane fly-over, warning residents to evacuate to higher ground.

"I was really glad for the practice, I hope they do more of it," Dyson said. "If the actual tsunami alarm goes off, I want it to be routine and not panic, so we do take the time to get our stuff. The more we don't have to think, we just do it, the better off we'll be."

The next community-wide tsunami evacuation drill will be held May 5 in Garibaldi and Bay City, and May 23 in Tillamook.

RICH

media.net

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See CAPES, Page A2

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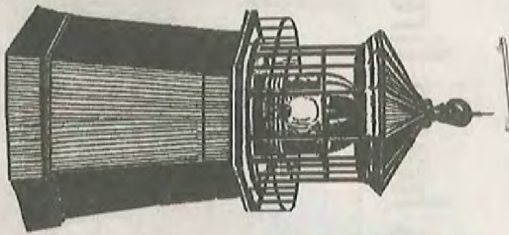


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TILLAMOOK'S STATE TRACK RESULTS, PAGE A10

Listen to the kids

**Cadets educate
county commissioners
on tsunami safety**

By **MARY FAITH BELL**
mfbell@countrymedia.net

On May 23, the Tillamook County Commissioners heard a lesson on tsunami preparedness from Tillamook Police Cadets, Morgan and Jessica Dally.

FIRST-TIME DRILL

Parts of Tillamook could see 5-10 feet of water during a local tsunami

Rebecca Corbus evacuated with her parents, Bob and Roxanne Stuart, and her two young sons, Luke and Jonah Corbus, during the first tsunami drill for Tillamook Ward 1. The family was surprised to learn their home is in the inundation zone.

MARY FAITH BELL/
HEADLIGHT HERALD



By **MARY FAITH BELL**
mfbell@countrymedia.net

The first-ever tsunami evacuation drill was held May 23 for Tillamook's Ward 1, the west side of the city that was newly added to the predicted local tsunami inundation zone earlier this year.

The area, from the Tillamook River to approximately Douglas Street, could be underwater and flooded with debris in the event of a Cascadia Subduction Zone earthquake and subsequent tsunami. Part of Ward 2, the business district on Hwy. 101 north of Front Street, is also in the inundation zone. Organizers Jeannell Wyrntergreen

and Jerry Rillette, local tsunami outreach coordinators for DOGAMI, said approximately 100 citizen evacuees and 50 volunteers from several agencies participated in the drill. That was a good turnout considering Ward 1 has only about 500 residents.

"Tillamook residents have experienced flooding on a regular basis, so they are inclined to think a tsunami would be more of the same. It would not be more of the riverine flooding we're used to," said Wyrntergreen.

It would, in fact, be more like the images of the Lower Ninth Ward after Hurricane Katrina.

See **DRILL**, Page A5

of another Indian passport issued to Singh in India.

inevitable conclusion that Mr. Singh has secreted a

COUPON SAFEWAY : 2/US 6/5/12 Valid 5/30/12 thru 6/5/12

COUPON SAFEWAY : 2/US 6/5/12 Valid 5/30/12 thru 6/5/12

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DRILL: *Continued from Page A1*

By the time a tsunami arrives in Tillamook, it may be 5 to 10 feet high, a steady wall of water full of deadly debris: "trees, sewage, the new treatment plant will be underwater, cows, vehicles, buildings," described Wyrtergreen. Contrary to the idea of a tsunami being a single towering wave, the 2011 Japanese tsunami lasted for three hours before waters began to subside.

The Cascadia Subduction Zone is an 800-mile-long seismic fault line about 60 miles off our coast. It's where the Juan de Fuca Plate, beneath the Pacific Ocean, meets and slips under, or "subducts" the North American Plate.

The oceanic plate is sinking beneath the continental plate at the rate of approximately 40 mm per year. Over hundreds of years the pressure builds, and the subduction zone "breaks" when the

pressure is released. The result is a massive earthquake, potentially a magnitude 9.0 or higher, and a subsequent tsunami.

Major subduction zone earthquakes (similar in strength and severity to the 2004 earthquake in Sumatra, and the 2011 earthquake in Japan) happen along the Cascadia Subduction Zone every 250 to 500 years.

The last one occurred here 312 years ago, in the year 1700, meaning that we are due for the next one anytime between now and the next 200 years.

A subduction zone quake would result in extreme shaking for several minutes. After the shaking stops, people in inundation zones should evacuate immediately to higher ground. Scientists estimate the tsunami will arrive in Tillamook, via Tillamook Bay, 15 to 20 minutes after the earthquake.

"Do not wait for a tsunami siren," said Tillamook Emergency Management Director, Gordon McCraw. "In a local tsunami event, the ground shaking is your siren. If you can feel the earth shake, evacuate."

Assembly sites for Ward 1 are the library parking lot, and the parking lot adjacent to Liberty School. Ward 1 residents should study the new inundation maps, plan their evacuation routes, and practice.

Practice more than once, practice in the dark, practice in the rain, officials advise. Practice regular family drills, plan in advance where you will meet family members,

and practice various routes out of the tsunami inundation zone, because some routes may be blocked or inaccessible due earthquake damage.

Tillamook County General Hospital is in Ward 1, and the hospital is developing its tsunami preparedness plan. At this point, the hospital evacuation plan is to move patients and staff up to the second and third floors.

Ward 2 tsunami preparedness meetings for the Hwy. 101 businesses in the inundation zone will begin in June, dates to be announced.

The new tsunami evacuation route maps are available at City Hall, the library, and online at oregongeology.org.



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Listen to the kids

Parents educate young commissioners on tsunami safety

By MARY FAITH BELL
mfbell@countrymedia.net

On May 23, the Tillamook County Commissioners heard a lesson on tsunami preparedness from Tillamook Police Cadets, Morgan and Jessica Dally.

The twin sisters, 13, are working with Tillamook Police Chief Terry Wright on tsunami preparedness training with a focus on the westernmost portion of the county of Tillamook, which is recently identified as a zone in the event of a major local earthquake and subsequent tsunami.

The cadets took time off from school last week to mark the first Tillamook Ward 1 tsunami evacuation drill.

See **KIDS**, Page A9

FIRST-TIME DRILL

Parts of Tillamook could see 5-10 feet of water during a local tsunami



MARY FAITH BELL/
HEADLIGHT HERALD

Rebecca Corbus evacuated with her parents, Bob and Roxanne Stuebel, and her two young sons, Luke and Jonah Corbus, during the first tsunami drill for Tillamook Ward 1. The family was surprised to learn their home is in the inundation zone.

By MARY FAITH BELL
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"Tillamook residents have experienced flooding on a regular basis, so they are inclined to think a tsunami would be more of the same. It would not be more of the riverine flooding we're used to," said Wyntergreen.

It would, in fact, be more like the images of the Lower Ninth Ward after Hurricane Katrina.

See **DRILL**, Page A9

UNDER WATER

Artifacts reveal history about major tsunami in Tillamook

By ERIN DIETRICH
edietrich@countrymedia.net

TILLAMOOK — If you're wondering why Tillamook's Ward 1 held a tsunami evacuation drill last week, consider this: Archaeologists believe that Native Americans living along the Trask River, where Tillamook's wastewater treatment plant stands today, likely abandoned the site after a major earthquake and tsunami struck the area in 1700.

A report released in February by Applied Archaeological Research, Inc. of Portland contains details about the location of the archaeological site, descriptions of the items found and information about the Native Americans living in the region dating back thousands of years.

The find serves as a wake-up call to residents of neighborhoods in the city's west end, which was only recently mapped for tsunami inundation zones in the event of a major local earthquake event.

"There's value in acknowledging and honoring our past, and unfortunately we had to do it through finding out it was deposited there before the tsunami," said Tillamook Mayor Suzanne Weber. "That's kind of mixed feelings, but still, it gives validity to all that recent [tsunami mapping] research."

More than 20,000 objects were recovered between 2007 and 2009 at the site near the mouth of the Trask River, in what is today Tillamook's Ward 1 neighborhood. Among the relics, dating as far back as 1,300 years ago, are stone artifacts, bone tools, pieces of animal bone, fire-cracked rocks and the remnants of stone tools.

The report indicates the site was used as a base camp for fishing and hunting activities and for the manufacture of tools and equipment. It was, however, abandoned completely some-

time around A.D. 1700, the year a magnitude 9.0 earthquake centered about 75 miles offshore, generated a massive tsunami that hit the Pacific Coast of the U.S.

"Once abandoned, the site does not seem to have been reused by the Tillamook," according to the report. "The site's historical component dates to the late 19th century or early 20th century and is not associated with the site."

Above: A zoomorphic stone-decorated object found at the Trask River archaeological site dates between 250 and 1,300 ago. Left: A projectile point found at the site.



SAMANTHA SWINDLER/HEADLIGHT HERALD

A PRAYER FOR THE FLEET

GARIBALDI — During the Blessing of the Fleet ceremony on Saturday, May 26, pastor Jerry Jefferies (above) blessed the ceremonial wreath to be laid at the Tillamook Bar. He offered the following prayer:

"Most gracious Lord, who numbered among your apostles the fishermen Peter, Andrew, James and John, we pray you consecrate this wreath in memory of United States Coast guardsmen, Charles Macholl and Ernest Broder, World War II veterans who served on these waters. May this wreath be a symbol of your creative power, which from the beginning of time, brought forth life, both great and small.

"May the waters upon which it will rest continue to grant us food and labor, and in return, grant us courage to protect this resource. May the blessing of God Almighty, the Father, the Son and the Holy Spirit, preserve our fleet in safety this day and forever."

Singh remains in jail after second passport found

By MARY FAITH BELL
mfbell@countrymedia.net

Hamraj Singh, 46, the Tillamook Center Market manager who has been indicted on numerous sexual abuse charges, remains in jail after his bail hearing May 23. Judge Mari Garric Trevino considered Singh a flight risk after the prosecution showed he has a valid passport, despite the defense's claim that he did not. The court had concerns that Singh, an Indian citizen, would flee the U.S. rather than stand trial.

Singh's bail is set at \$1.327 million. He faces 24 counts of first-degree rape and five counts of sodomy — all Measure 11 offenses — as well as 51 counts of Sex Abuse II and III and two counts of Harassment.

The courtroom was packed with Singh's family and friends; approximately 40 people attended the hearing to show that Singh has strong community support.

"It has not escaped my attention that half of my court is full of Mr. Singh's supporters," said Judge Trevino. "I will not forget how many of you are here." But, she went on to say, "It is not my responsibility to decide here today whether or not Mr. Singh is guilty. Having a bunch of people say that they think Mr. Singh is a nice man and not guilty won't help."

Trevino said that in order to craft a release agreement, she has to answer two questions: whether Singh is a danger to others; and whether Singh is a flight risk.

See **SINGH**, Page A9

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WEATHER

STATS	LOW	RAINFALL
MAY	55	98
2	48	.34
3	54	47
4	57	48
5	63	42
6	59	.00
7	58	.06
8	57	.04
9	61	--

PRECIPITATION 1.52
LAST WEEK: 4.90
MONTH TO DATE:

MAY NORMALS
HIGH: 62
LOW: 44

TOTAL PRECIPITATION: 4.72

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APPENDIX F

**MEDIA COVERAGE
of
COOS BAY OUTREACH**

National Tsunami Hazard Mitigation Program | Oregon
Tsunami Outreach Oregon

Year Three, 2011-2012



OregonLive.com

Everything Oregon

Coastal Coos County to practice tsunami escape

Published: Tuesday, May 15, 2012, 3:15 PM Updated: Tuesday, May 15, 2012, 3:21 PM



By **Lori Tobias, The Oregonian**



[View full size](#)

Tyler Tjomsland / The Oregonian/file

Tsunami coordinators lead a 2011 tsunami drill in Pacific City.

Communities in coastal Coos County will host a voluntary Tsunami Evacuation Drill Thursday, May 31 at 2 p.m. The drills, to be held in Coos Bay, North Bend, Barview, Charleston and Empire, will follow new evacuation routes recently released by the **Oregon Department of Geology and Mineral Industries (DOGAMI)**.

Coordinators with **Tsunami Outreach Oregon** encourage residents, visitors and businesses to participate in the mock evacuations and invite

More

The Oregonian's continuing coverage of tsunami damage along the Oregon Coast.

friends and neighbors to join them. "The tsunami evacuation drill will provide an organized way to practice walking local tsunami evacuation routes that lead to high ground," said Ian Madin, DOGAMI Chief Scientist. "Take along your **emergency "grab and go"** kit. Time how long it takes to walk to the Assembly Areas."

For more information on the drill, go to <http://www.OregonTsunami.org>.

-- **Lori Tobias**

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July 25, 2012

HUFF
POST GREEN

[The Internet Newspaper: News, Blogs, Video, Community](#)

Oregon Tsunami Drill Sees Thousands Brace For Disaster

AP | By JEFF BARNARD
Posted: 05/31/2012 6:51 pm

COOS BAY, Oregon (AP) — Tom Paris called encouragement over his picket fence to about 400 small school children walking past his house in line in this Oregon coastal community's first tsunami evacuation drill.

"You're doing good time!" he said Thursday.

Since his home was at 50 feet elevation, high above expected floodwaters, he was not taking part in the drill, but applauded the effort.

"It needs to be done after what has gone on around the world," said Paris, 79. "Hopefully, I'm too old to see one. I've got my boat tied up out back if it comes to that."

Still holding memories of the horrific TV images from last year's tsunami in Japan, several thousand people took part in Thursday's drill, stopping what they were doing and walking uphill to assembly points where volunteers handed out bottles of water and grab-bags of essentials.

Unlike a real tsunami, there were no sirens and no tremors from a massive offshore earthquake in the towns of Coos Bay, North Bend and Charleston.

But after weeks of door-to-door canvassing, flashing roadside signs, and community meetings sponsored by the Oregon Department of Geology and Mineral Industries with help from a federal grant, people knew what was coming.

At 2 p.m. the announcement came over a local radio station. They also knew that in the event of an actual massive earthquake generating a surge from the Pacific Ocean they would have had about 20 minutes to get to higher ground before tsunami waves arrived.

At Blossom Gulch Elementary School, kids in Carli Ainsworth's kindergarten class watched the clock, calling out the minutes until principal Jodi O'Mara announced over the PA that the drill was on. They got up from the rug where they were holding show and tell with Gameboys and monster trucks, and crawled under the brightly colored tables, peering out between the chrome chair legs.

"It's not a real one," one boy assured a friend. "It's just tiny."

When the announcement came it was time to evacuate, one little boy said solemnly, "Phew, that was close."

Then the 400 kids, teachers and staff walked uphill on sidewalks past bungalows, rhododendrons in bloom and a fire department SUV with flashing lights to a high school football field.

When the tsunami from the Japan earthquake reached the U.S. last year, coastal residents had hours to prepare, and severe damage was limited to harbors such as Crescent City, Calif. One person was swept away from a beach and died.

The much bigger threat here would be a potential megaquake from the Cascadia Subduction Zone, where two plates of the Earth's crust come together miles off the coast. When they slip, they could send a 40-foot (12-meter) surge of water moving at the speed of a jetliner into the Oregon coast, Northern California and Washington.

After feeling the quake, people have about 20 minutes to reach higher ground. Authorities advise them to walk, because roads could be impassable and power lines down. Geologic evidence shows the zone jolts on average every 300 to 600 years, and the last one was 312 years ago.

By the time a surge works its way through the bay and into downtown, it would only be about 3 feet deep, but enough to do a lot of damage in the low-lying downtown area, said Coos Bay Fire Chief Stan Gibson.

Erin Pearce, who works at a car dealership in the inundation zone on the bayfront, said she wouldn't have taken part, but for the memories of last year's tsunami in Japan.

"Out of sight out of mind," she said.

Headcounts at the eight assembly points in Coos Bay showed 2,775 people taking part. Numbers from North Bend, Charleston and Southwest Oregon Community College were not immediately available.

The 2004 tsunami in Sumatra triggered federal legislation that is helping the West Coast get ready for a big one, paying for a new set of tsunami maps in Oregon, and evacuation drills in coastal communities up and down the coast, said Rick Wilson, a senior engineering geologist with the California Geological Survey.

In the Coos Bay area, the program has been paying for the Oregon Department of Geology and Mineral Industries to send community outreach teams door-to-door and hold meetings to hand out evacuation maps, teach people the threats from local and distant tsunamis, and what preparations they should make, said local spokesman Mikel Chavez.

The department tells people that there is about a 10 percent chance over the next 30 years that the subduction zone could unleash a major quake and tsunami.

Amy Larson, the comptroller at the car dealership where Pearce works, said the threat was not enough to make her leave the coast.

"You can't live your life worrying," she said. "I still want to live here."

ALSO ON HUFFPOST:

KCBY 11 - Coos Bay / North Bend, Oregon

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Surviving a tsunami: Oregon Coast prepares for disaster

Originally printed at <http://www.kcby.com/news/local/Surviving-a-tsunami-Oregon-Coast-drill-prepares-for-disaster-156044645.html>

By KVAL News May 31, 2012

COOS BAY, Ore. - Sara Miller is prepared if a tsunami hits Oregon's South Coast.

"We have water for all the kids, for the baby, staple food and a battery operated radio and flashlights," she said.

Miller is one of the thousands of South Coast residents took part in a large-scale tsunami evacuation drill on Thursday.

"Last year when that big scare in Japan happened, I've been thinking about it pretty much ever since," she said.

"When we [had the scare last year](#) I remember grabbing the kids out of bed early in the morning and bringing them all down here" to the evacuation site, Miller said. "It's better to be overprepared than underprepared."

Lindsey Bishop, tsunami outreach coordinator for the Coos Bay region, said you have 15 minutes to get to higher ground.

"Without testing your route and where your route is, people will die," Bishop said. "So this drill will save lives.

"People need to consider three gallons of water per person per day," Bishop said, "and you need to obviously consider food and you also need to make it personal, do you have any medications that you can't survive without?"

[Learn more about surviving earthquakes and tsunamis](#)

[Where the water would go in Oregon Coast communities](#)

[Oregon Tsunami Info Clearinghouse](#)

The World

Future disaster could leave the South Coast stranded

Thousands evacuate for mock tsunami

By Jessie Higgins and Thomas Moriarty, The World | Posted: Saturday, June 2, 2012 7:00 am

At 2 p.m. Thursday, the ground didn't actually shake. But thousands of people who live and work in the tsunami inundation zone evacuated to higher ground as if it had.

The first community-wide tsunami evacuation drill Thursday afternoon -- put on by Tsunami Outreach Oregon -- involved two U.S. Coast Guard stations, two elementary schools, and a handful of individuals eager to test their evacuation plans.

Caprice Gregory and Pat Herold, long time friends and travel buddies from Montana, saw evacuation drill signs posted at the Charleston Marina RV Park where they are staying.

"We've been coming out to Oregon for 20 years," Herold said.

The friends had followed news of the 2004 tsunami in Indonesia and the 2011 tsunami in Japan.

"It made us realize we should be prepared," Gregory said.

Thursday they packed backpacks with items they thought would be necessary: water, first aid kits, medicine, toilet paper, and a tube of Kahlua chocolates. They made it up the hill to the Charleston School, one of the 17 official evacuation points in Coos County, in about 20 minutes.

More than 9,000 people participated in the drill, most of them from schools and businesses that are not in the inundation zone. These groups practiced 'evacuating in place' -- assembling people in a safe location. Roughly 2,000 people from within the inundation zone went to evacuation sites, said Mikel Chavez, Tsunami Outreach's community coordinator. He estimates that is about half of the people who would need to be evacuated in a real tsunami.

Blossom Gulch Elementary School sits in the inundation zone. At 1:55 p.m., its 400 students crawled under their desks to shelter from the pretend earthquake. When the mock quake ended, the teachers cleared the school and headed for Marshfield High School. The students made it to safety in about 15 minutes, just quickly enough to escape the imaginary rush of water, officials say.

The 70 students at Kingsview Christian School in North Bend hiked to the Holy Redeemer Catholic Church, another evacuation point, escorted by the North Bend Police Department. Administrators hoped the children would make it to the site within 20 minutes. They made it in 15.

Thursday's drill assumed a local tsunami, which would give no warning except for a sudden and fierce earthquake. Chavez said in a real event, people within the inundation zone will have roughly 15 minutes to escape to higher ground once the shaking stops.

When such an event takes place, officials say everyone will be a victim.

Both Coast Guard stations will evacuate personnel, and they probably will lose their boats and aircraft, including Air Station North Bend's five HH-65 Dolphin helicopters, which serve as the region's primary aerial search and rescue response.

Referring to the evacuation of personnel, "This one here is a complete bug-out," said Chief Boatswain Charles Morgan as he stood with his crew Thursday at the Charleston School, the nearest evacuation point to the Coast Guard's Charleston lifeboat station. "You can't help others if you can't help yourself."

Still, a handful of local volunteer groups are preparing for what they can. Such ham radio operators as Allen Solomon say they will try to reach evacuation points after a tsunami. Since all other modes of communication except the amateur radios will be down, the ham radio operators say they will communicate with county authorities. American Red Cross disaster volunteers will be at every evacuation site they can reach, said volunteer Dian Jonesburg. She hopes everyone will arrive with a 72 hour kit that includes water, food and medicine, because the evacuation sites will not be equipped with supplies.

The sheriff's department, as the emergency management coordinator for the county, will rally all available deputies to help with public safety and the evacuation. Local police and fire departments will do the same.

Still, with only 15 minutes to reach safety, most people will be on their own.

The World | June 2, 2012

Coos Bay, Oregon

Thousands evacuate for mock tsunami drill

http://theworldlink.com/news/local/thousands-evacuate-for-mock-tsunami/article_dbb30726-0e1f-5261-86e7-f4f460a12cb2.html?mode=image#ixzz227zgPDnK



Tsunami Fears

By Benjamin Brayfield, The World

Tsunami evacuation drill volunteer Mara Smith high-fives Blossom Gulf Elementary School students as they leave the assembly area at Marshfield High School. More than 400 students evacuated the school in 15 minutes.



Charleston-Drill-A017.jpg

By Lou Sennick, The World

U.S. Coast Guardsmen from the motor lifeboat station in Charleston, use each other's backs to fill out a tsunami drill survey Thursday afternoon. For the drills in the Bay Area, one of the evacuation centers set up was the old Charleston School on Seven Devils Road where members of the Coast Guard, Oregon Institute of Marine Biology and others gathered.



Tsunami Fears

By Benjamin Brayfield, The World

Blossom Gulch Elementary School students duck and cover under a table in Laura Means' first grade class during a tsunami evacuation drill. From left, Isabella Jeffs, Kate Miles, Toby Young, Macinzie Mac before leaving the school to assemble at Marshfield High School.



Tsunami Fears

By Benjamin Brayfield, The World

More than 400 Blossom Gulch Elementary School students evacuate to Marshfield High School during the Tsunami drill. The elementary school evacuated in 15 minutes, Principal Jodi O'Mara said.



Charleston-Drill-B017.jpg

By Lou Sennick, The World

Pat Herold, left, and Caprice Gregory walk up Seven Devils Road on their way to the old Charleston School Thursday afternoon during the tsunami evacuation drill. The two are camping with others at the Charleston Marina RV Park and saw the signs about the drill and decided to participate. Herold said it was also a chance for “forced exercise.” Both are from Forsyth, Mont.

The World

Where is our tsunami drill?

Amy Moss Strong | Posted: Thursday, June 7, 2012 11:00 am

The city of Bandon, hospital and school district have made strides when it comes to disaster preparedness. The city has installed five emergency sirens and worked on a disaster plan as well as placing tsunami evacuation signs around town. The hospital has an emergency plan and the school district practices bus evacuations regularly.

But one key component that was supposed to happen two years ago has never taken place: A tsunami evacuation drill. It's true Bandon had two "practice" drills when there were actual tsunami warnings in the past couple of years, but those weren't organized events that involved as many residents as possible.

The Coos Bay area held such a drill last week with great success. The event was organized, the information was disseminated weeks in advance and some 9,000 people observed the set time and did a practice evacuation on their own or gathered at assembly sites. Even schools participated.

Organizers say they learned a lot but also realized there is still a lot to be done to go from disaster preparedness to disaster readiness.

That's the beauty of drills and that's why Bandon needs to have one on a similar scale. With so many concerned citizens already working behind the scenes on preparedness, surely volunteers, myself included, could organize an evacuation drill.

Such a drill would be the impetus for increased readiness for the predicted major event. The potential for saving lives is beyond measure.

The World | Coos Bay, Oregon

Online reader poll conducted after May 31, 2012 tsunami evacuation drill

Screen shot of poll results taken on July 30, 2012

theworldlink.com/news/local/what-did-you-think-of-last-week-s-tsunami-drill/poll_afbc6dba-ae57-11e1-8249-0019bb2963f4.html

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What did you think of last week's tsunami drill?

It was great. It really spread a lot of awareness.	24%
I skipped it, but it was a good idea. Maybe next time.	22%
I was too busy. Besides, I already know what to do.	13%
A waste of time. I'm not worried about a tsunami.	15%
What drill?	27%

Total Votes: 1020