The City of Seaside’s Tsunami Awareness Program

Outreach assessment: How to implement an effective tsunami preparedness outreach program

by Darci Connor

2005
Cover — The beach at Seaside. Photo by Jonathan C. Allan. The superimposed wave is modified from tsunami evacuation route signage adopted by the State of Oregon.
THE CITY OF SEASIDE’S TSUNAMI AWARENESS PROGRAM:
OUTREACH ASSESSMENT—
HOW TO IMPLEMENT AN EFFECTIVE
TSUNAMI PREPAREDNESS OUTREACH PROGRAM

By
Darci Connor¹

2005

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The City of Seaside’s Tsunami Awareness Program: Outreach Assessment

CONTENTS

Special Thanks and Acknowledgement .......................................................................................iv

OVERVIEW .................................................................................................................................... 1

INTRODUCTION .............................................................................................................................. 1

OUTREACH METHODOLOGY ......................................................................................................... 2
   Neighborhood Educator Project .................................................................................................. 2
   Business Workshop .................................................................................................................... 4
   School Outreach Program .......................................................................................................... 5
   Public Outreach Program ......................................................................................................... 8
   Tsunami Evacuation Drill ............................................................................................................ 10

ASSESSMENT ................................................................................................................................ 12
   Surveys ........................................................................................................................................ 12

PROGRAM OUTCOMES ................................................................................................................ 12
   Community Involvement .......................................................................................................... 12
   Community Exposure .............................................................................................................. 13
   Event Feedback ....................................................................................................................... 14
   School Outreach Program ...................................................................................................... 15
   Public Awareness ...................................................................................................................... 16
   Public Preparedness .................................................................................................................. 18
   Outreach Strategies .................................................................................................................. 19

CONCLUSIONS .............................................................................................................................. 20
   Public Need and Demand for Ongoing Tsunami Education ...................................................... 21
   Tsunami Awareness Program Findings ...................................................................................... 21
   The Model Tsunami Outreach Program .................................................................................... 24

TSUNAMI OUTREACH COORDINATOR EDITORIAL COMMENTS AND RECOMMENDATIONS .... 25

OUTREACH STRATEGIES GUIDE ................................................................................................ 27
   Neighborhood Educator Program ............................................................................................. 27
   Tsunami Evacuation Drill .......................................................................................................... 31

APPENDIX A: PRE-TSUBAMI, PRE-OUTREACH PHONE SURVEY RESULTS ................................. 33

APPENDIX B: POST-TSUNAMI, PRE-OUTREACH MAIL SURVEY RESULTS ............................... 36

APPENDIX C: POST-OUTREACH PROGRAM MAIL SURVEY RESULTS .................................. 40

APPENDIX D: SURVEY COMPARISON ANALYSIS ..................................................................... 47

APPENDIX E: BUSINESS WORKSHOP RESOURCES ................................................................ 54

APPENDIX F: SCHOOL OUTREACH RESOURCES ..................................................................... 57

APPENDIX G: PUBLIC WORKSHOP RESOURCES ..................................................................... 60

APPENDIX H: TSUNAMI EVACUATION DRILL RESOURCES ...................................................... 64

APPENDIX I: PROGRAM VOLUNTEER ASSESSMENT ................................................................ 66

APPENDIX J: BUSINESS WORKSHOP ASSESSMENT ................................................................ 70

APPENDIX K: SCHOOL PROGRAM ASSESSMENT ..................................................................... 73

APPENDIX L: PUBLIC WORKSHOP ASSESSMENT ..................................................................... 75

APPENDIX M: TSUNAMI EVACUATION DRILL ASSESSMENT ...................................................... 78
The City of Seaside wishes to thank all the individuals and organizations involved with the Tsunami Awareness Program. Specifically, the City would like to thank the National Tsunami Hazard Mitigation Program for funding this pilot outreach project. Also, Seaside would like to acknowledge the Oregon Department of Geology and Mineral Industries (DOGAMI) and Oregon Emergency Management (OEM) for their partnerships and support throughout the program. It is important to give special thanks to Kevin Cupples, Seaside’s Planning Director, for his ingenuity to volunteer Seaside for the pilot program. Also, he deserves much credit for the program’s success due to his tireless support and guidance. The program had a Working Group that helped to create and oversee its work. These individuals were largely responsible for the design and success of the program. The members of the Working Group included:

- Darci Connor, City of Seaside, Tsunami Outreach Coordinator
- Kevin Cupples, City of Seaside, Planning Director
- Tom Horning, Seaside private consultant, Geologist
- George Priest, DOGAMI, Geologist
- James Roddey, DOGAMI, Community Education Coordinator
- Lynn Smith, Seaside Police Department, Communications Manager
- Jay Wilson, Oregon Emergency Management, Earthquake and Tsunami Coordinator

Without the participation and services of many organizations, businesses, and governmental agencies, many of the outreach strategies would not have been possible. Participating groups included Clatsop County Red Cross, Oregon Department of Transportation, National Weather Service, School District #10, Seaside Downtown Development Association, Sunset Empire Transportation District, and Seaside’s City Council, Planning Commission, Volunteer Fire Department, Police Department, Convention Center, City Hall, Chamber of Commerce, local Amateur Radio Club, and Lodging Association.

Key individuals emerged to provide necessary assistance and expertise. Their dedicated efforts gave depth to the program’s strategies and enriched the quality of the outcomes. Al Aya provided a wealth of local knowledge, sage advice, and historic record, and he assisted with the assessment methodology. Bob Choquette, of Oregon’s Survey Research Laboratory, worked extensively with the Tsunami Outreach Coordinator to create effective surveys to evaluate the program and provided high-quality data. Pat Corcoran, of Oregon State University’s Clatsop County Extension Office, was an advocate for the program and served as a facilitator at the workshops. Bob Ewing, a manager of a local hotel, acted as a liaison between the program and the business community, offered keen insight on how to reach that community, and was a presenter at the Business Workshop. Doug Dougherty, School District #10 Superintendent, provided his support and involvement in the program. Media representatives who did an outstanding job reporting the program and representing the program’s mission include Stephanie Scordia of the Seaside Signal, Zetty McKay of KAST FM, and the 91.9 KMUN staff.

Finally, the City extends its appreciation to the program’s dedicated volunteers. Without their commitment and enthusiasm, the community would not have responded so positively to the program’s efforts. Because of the volunteers’ efforts, the Seaside community is truly better prepared to reach high ground should a tsunami occur. Most notably, the City would like to commend the three student volunteers, Diego Colin, Daniel Terranova, and Lauren Darnell, for their leadership roles in the Tsunami Awareness Program. They not only shaped the program but also carried the program across the finish line. These three young citizens exemplify what a community can accomplish when dedicated people work together.
OVERVIEW

The City of Seaside partnered with the Oregon Department of Geology and Mineral Industries (DOGAMI) and Oregon Emergency Management (OEM) on a pilot Tsunami Awareness Program. The program was funded by the National Tsunami Hazard Mitigation Program (NTHMP) to determine the feasibility of educating the public on tsunami hazards and preparedness practices.

The City fostered the Tsunami Awareness Program, which began in September of 2004. A Tsunami Outreach Coordinator (TOC) was hired to manage the program and was chiefly responsible for developing and implementing the outreach strategies and evaluating the program’s feasibility and success. The Awareness Program ran for nine months and, during that period, provided outreach to the community at different levels. Volunteer-driven outreach efforts were used to create an educational program that did not rely specifically on funding. Program volunteers were recruited throughout the community; significant support was provided by high school students, retired residents, and City representatives. Specifically, three main volunteers from the local high school had leadership roles in each outreach strategy and assisted the TOC for the duration of the program.

Outreach efforts targeted local residents, businesses, visitors, and children. Because a portion of the residential community is Hispanic, outreach efforts also provided information in Spanish to troubleshoot the language barrier and to ensure all local residents were informed about tsunami hazards. Five outreach strategies were implemented to reach target audiences. They included:

- Neighborhood Educator Project
- Business Workshop
- School Outreach Program
- Public Workshop
- Tsunami Evacuation Drill

An assessment tool was needed to evaluate the Tsunami Awareness Program. Surveys were used to gauge how outreach strategies influenced the public’s comprehension of tsunami preparedness (APpendices A, B, C, and D). Additionally, at each outreach event, participants filled out evaluation forms to encapsulate reactions.

This short-term (nine month) outreach program reached a significant portion of Seaside’s population. Post-outreach surveys indicated that approximately 68% of the local households received information from a Neighborhood Educator and 2,200 people participated in the outreach events. The program advocated for ongoing learning, education on basic tsunami facts, and multi-scenario planning. From the program’s findings, it is clear that outreach efforts should continue and should include a variety of outreach strategies that target businesses, students, and the general public. Each strategy serves a different role in education and is necessary for a comprehensive outreach program.

Collectively, the information from this pilot program provides a comprehensive overview of effective outreach strategies. These strategies will assist coastal communities in establishing a framework for their own outreach programs. This report describes Seaside’s Tsunami Awareness Program, the program’s findings, and the best approach to implement future outreach efforts.

INTRODUCTION

Seaside is considered Oregon’s most vulnerable community to a tsunami disaster due to its summer crowds and low-lying geography. It has a residential population of 6,000; however, during the summer months, the population can increase to 40,000 from the influx of tourists. Most of Seaside is located in the tsunami inundation zone. Two river systems run through the city parallel to the ocean, forming barriers to high ground (See Figure 1). The majority of Seaside’s population is located on the west side of the Necanicum River. This presents a critical evacuation problem, because in a local tsunami event people would have to cross one or more bridges and travel up to a mile within 30 minutes to get beyond the inundation zone.

The Seaside community must be educated and trained on tsunami emergency procedures. People will need to respond quickly in order to reach high ground before the tsunami hits the coast. Public education will minimize the loss of life.
The Tsunami Awareness Program targeted many different sectors of the community and tried to reach people in more than one setting. The program appealed to neighborhoods, schools, businesses, community organizations, municipal staff, churches, and governmental agencies. The program reached people at home, work, and school. It demonstrated that tsunami preparedness is a community concern—not just something to be considered at home. Through the multifaceted outreach approach, the program advocated for “any-scenario” preparedness.

Prior to the start of the Tsunami Awareness Program, information was disseminated throughout town. To gain wide public exposure, tsunami brochures were available at city hall, local grocery stores, the post office, the library, and other public locations. Large tsunami evacuation maps were posted in every community building including City Hall, Community Development, Library, Park and Recreation Pool, Community Center, Visitors Bureau, Police Station, and Fire Station. Important tsunami information was also printed in the local newspapers through a series of articles and a full-page educational piece. The city also created a tsunami website to allow people to remotely access information (http://www.cityofseaside.us/html/tsunami_info.html). This site provides information on tsunamis and general guidelines for tsunami preparedness.

After information on tsunami preparedness was readily available to the public, the Tsunami Awareness Program began. The program offered a diverse series of educational opportunities that included the Neighborhood Educator Project, a Business Workshop, a School Outreach Program, a Public Workshop, and the Tsunami Evacuation Drill.

**Neighborhood Educator Project**

The Neighborhood Educator Project was the main outreach strategy for this public program. It was designed to reach every household in the Seaside community through the efforts of volunteers. The community was broken down into neighborhood blocks. The goal was to identify a Neighborhood Educator for each block. Seaside was sectioned into 88 neighborhood blocks, and each block included approximately 40 households. A map of these blocks was posted at City Hall (Figure 2). Interested
volunteers identified blocks they wanted to cover by signing up with City Hall staff.

Neighborhood Educators attended a training class to strengthen their understanding of tsunamis and to review different approaches for sharing information with their neighbors. Each volunteer received a volunteer packet and the necessary resources for each household. The resources included Seaside’s tsunami evacuation brochure, a calendar of outreach events, information in Spanish, and a resource guide for families. To give volunteers the opportunity to be creative and take ownership of their Neighborhood Educator roles, the specific approach to educate households was left up to individual volunteers. The Neighborhood Educator Project’s key components were:

- Recruit volunteers by using local newspaper ads, radio announcements, and fliers
- Train prospective volunteers at a 1-hour class provided by the TOC and the Police Department’s Communication Manager (through a partnership)
- Give volunteers a training packet with information from the International Tsunami Information Center, NOAA, DOGAMI, Red Cross, and the City
- Cover (via volunteers) 88 neighborhood blocks
- Educate all households in Seaside

A significant amount of work went into the Neighborhood Educator Project. The TOC spent a week developing the volunteer packets and outreach materials for households. A city volunteer contributed a weekend of his time to create the neighborhood block map posted at City Hall. The map was created in AutoCAD and was designed to print the entire map or individual blocks showing tax lots. City Hall staff fielded questions from prospective volunteers and signed up Neighborhood Educators.

Figure 2. Map dividing Seaside into Neighborhood Educator blocks.
Educators for a three-week period. During that time, ongoing promotion for volunteers was done by the TOC at public meetings. The TOC and the Police Department’s Communication Manager organized, arranged, and provided the training classes. Once the volunteers were trained, the TOC continued to provide support and address questions throughout the project.

The program expected a local service group to take on the Neighborhood Educator Project. Although a primary service group never materialized, volunteers emerged from various places in the community. Many of the City’s Planning Commissioners and City Councilors volunteered. Several City staff also became Neighborhood Educators. Most of the volunteers were not concurrently involved with other civic service programs. Perhaps because of this, volunteers were able to commit a substantial amount of time and energy to the project. Volunteers tended to select neighborhood blocks in which they lived; however, people did choose different blocks if their own block already had coverage. About one out of six volunteers signed up for additional blocks after they had reached all the households in their original block.

**Business Workshop**

The Business Workshop (Appendix E) provided tsunami and safety information targeted to the business community. The goal was to educate businesses and hone the business community’s skills to create emergency plans and implement preparedness practices (Figure 3). The business workshop’s key components were:

- All businesses were invited to attend.
- The event was advertised in local newspapers and via radio stations, and announcements were made at business group meetings.
- The event was held at Seaside’s Convention Center.
- The room was set up for 80 people, with 8 round tables set for 10.
- Presentations were given on tsunami basics, how to prepare businesses, and ways to safeguard resources to recover from a natural disaster.
- A small-group exercise followed the presentations. Businesses mapped their evacuation routes and identified potential steps businesses should take to be tsunami prepared. A facilitator was assigned to each group and recorded the group’s findings.
- Groups came back together, and each small group presented its ideas.
- Educational materials (brochures, a business guide to preparedness, and stickers) were available to participants as they left.
- Information was given out about the Tsunami Awareness Program’s other upcoming events.
- The event was videotaped and covered by the local press.
- The presentations were posted on the City’s website.

A student volunteer from Seaside High School was the lead planner for the business outreach. She had worked in the visitor industry for several years and already had a good relationship with many of Seaside’s businesses. This proved to be an important factor and helped her gain local buy-in for the event. She created the event fliers, and another student distributed them. She also promoted the workshop by visiting local businesses and encouraging their participation. In addition, she was one of the presenters at the workshop.

Preparing and putting on the Business Workshop was a collaborative effort. The TOC was largely responsible for orchestrating the workshop presenters and establishing the workshop agenda. The TOC also worked with various constituents to ensure that the necessary resources were available for the event. Space was donated by the City, and refreshments were donated by the Planning Director. The Convention Center’s staff was responsible for the floor layout. DOGAMI provided educational displays exhibited in the Convention Center’s main entrance. The DOGAMI representative was also a key presenter at the workshop. He provided an overview of tsunamis and how a tsunami would impact the Oregon coast. The student volunteer’s presentation covered why businesses should plan and prepare for natural disasters, and she provided strategies
business owners could use to be better prepared. The event also required assistance from the business community. Seaside Downtown Development Association (SDDA) promoted the event among downtown merchants. A local manager of an oceanfront hotel in Seaside was a principal planner of the event. He was an advocate for the workshop with his business constituents, and he was a presenter at the workshop. During his presentation, he described why his hotel was involved and what his business was doing to prepare for such an event. This was a critical aspect for the workshop participants because he, as a member of the business community, provided advice and insight that participants could readily understand.

Many volunteers were needed for the Business Workshop. The three student volunteers were responsible for event setup and participant sign-in. A City staff member volunteered to videotape the event and then transfer it to a DVD. Another City employee brought refreshments. Eight facilitators were needed to lead the small-group discussion. These facilitators were knowledgeable on tsunami preparedness. They included the TOC, the DOGAMI representative, the City’s Planning Director, the Police Department’s Communication Manager, the three student volunteers, the hotel manager, and a local community planner. Through these volunteer partnerships, the event was not only possible but also successful.

**School Outreach Program**

The School Outreach Program (Appendix F) was designed to educate students on how to be prepared for a tsunami event. The material was framed for children, keeping the information focused on the differences between local and distant events, evacuation routes, and family emergency plans. The School Program worked with the middle school and two elementary schools. In the elementary schools, an auditorium-style lecture was used for
presentation, whereas in the middle school the small-group setting was used. Having two different strategies helped identify the most effective way to deliver the message to students. The key points of the school programs were:

- All elementary and middle school students in Seaside participated.
- Before the program, information was sent home to children’s families.
- The programs were held at each school during the week prior to spring break.
- After the programs, students were sent home with tsunami information, a calendar of upcoming events, a family emergency plan guide, and information about the Tsunami Awareness Poster Contest.
- Extra credit was offered to all students who participated in the poster contest or in other outreach events.

The TOC worked with each school to identify dates for the outreach events. The TOC also spent several days preparing handouts and information to be sent home with the students. One student volunteer translated a pre-existing tsunami brochure into Spanish so it could be sent home with students whose parents were not fluent in English. Pens, stickers, and rulers, provided by the International Tsunami Information Center, were given as prizes during quizzing exercises.

The Poster Contest was a component of the school outreach (Appendix F). The contest challenged students to take the knowledge they gained about tsunamis and apply it in a visual representation. It was hoped the students would talk about the information with their families as the students worked on their posters. Major community support was provided for this effort. A student volunteer created the Tsunami Poster Contest flier (Appendix F). The TOC, the hotel manager, and the three student volunteers worked with local businesses to secure prizes for the contest. Eight local businesses donated a total of 12 prizes including surf shop sweatshirts, passes to the movie theatre, and passes to the local swimming pool.

**Elementary School Programs**

Features of the elementary school program included:

- The entire school attended a 1-hour presentation held in the gym.
- A PowerPoint presentation on tsunamis was given by the DOGAMI outreach staff.
- Question-and-answer review was given by the TOC to recap main points.
- Stickers, pens, and rulers were given out for correct answers.

The elementary school programs involved a partnership with DOGAMI. The DOGAMI representative organized the presentation and created material. The TOC worked with the two schools to set up the event. The TOC met with one elementary school principal to verify that the program’s content was appropriate for students. A student volunteer helped run one of the elementary school programs.

**Middle School Program**

Features of the middle school program included:

- 22 sessions
- Each session lasted 30 minutes and involved about 30 middle school students
- Sessions were held in classrooms
- Three high school student volunteers and the TOC lead class discussion (Figures 4 and 5)
- Discussion centered on local versus distant tsunamis and how students would respond to each
- Using Seaside’s Tsunami Evacuation Map, students mapped the school and their family’s evacuation routes
- Students were encouraged to participate in the City’s Tsunami Poster Contest

Extensive research went into how best to approach the middle school program. The three student volunteers worked with teachers and the middle school principal to modify the general tsunami information so it would be appropriate for middle school students. They also researched other outreach
Figure 4. High school student volunteers discuss tsunami preparedness with middle school students.

Figure 5. Darci Connor, Tsunami Outreach Coordinator, explains the tsunami evacuation map to a group of middle school students.
programs that had successful school components. Several weeks of planning and practicing went into the program before it was implemented. Prior to the program, the student volunteers met with middle school teachers to describe what they would cover during the outreach strategy and to encourage teachers to promote the program with their students. Teachers were also encouraged to involve their classes in the poster contest. Three science classes submitted posters.

The middle school program took four days to complete. Each session involved the TOC and the three student volunteers. The focused attention that the middle school outreach program provided would not have been possible without the assistance of the three students.

Public Workshop

The Public Workshop (Appendix G) was geared toward the general public and families. The content was basic and was reviewed in several different settings (Appendix G). The intent was to provide an overview on the nature of tsunamis, an opportunity for the audience to pose questions to a panel of experts, and a forum for discussion in small groups (Figures 6 and 7). This outreach strategy reiterated the information provided in previous outreach events, highlighted key tsunami preparedness messages, and introduced the topics to individuals who had not yet been exposed to the subject matter. Revisiting the information provided the opportunity for better comprehension of tsunami preparedness key messages. The following is an overview of the Public Workshop’s components:
The workshop was open to the general public; anyone could attend.

Public relations materials including fliers, newspaper articles, public service announcements (PSAs), and reader board postings were available.

The event was held at Seaside’s Convention Center.

The room was set up with a panelist table at the front and with auditorium style seating for 100 facing the table; in the back of the room, 15 round tables were set up to seat 10 people at each table.

The information delivered assumed the audience had no previous exposure to tsunami preparedness.

The K–8th grade poster contest winners were recognized.

A 30-minute PowerPoint presentation on tsunamis was provided by Oregon Emergency Management.

A 30-minute question-and-answer period with a panel composed of various experts on tsunami preparedness was available.

A small-group exercise followed the presentations. A facilitator led each group in the exercise. In total, 10 facilitators were used for this venue. Some City officials and program volunteers served as facilitators and thereby gained additional expertise on the issues as well as a greater sense of personal involvement. Facilitators mapped participants’ evacuation routes from home and from the Convention Center. Each group was given a different
The City of Seaside’s Tsunami Awareness Program: Outreach Assessment

scenario for a local tsunami and had to decide how they would respond. The groups finished by developing a list of what individuals can do now to prepare. The groups came back together and reported their findings.

- Educational materials (brochures, a family resource packet, and Red Cross information) were available to participants as they left.
- The event was videotaped and covered by the local press.
- Five volunteers helped run the event.

Although the Public Workshop was the third outreach event, it involved a number of original ideas and strategies. Thus, a great deal of brainstorming, collaboration, and preparation went into the event. It was the culmination of developed partnerships and merged outreach efforts. The public workshop required assistance and support from NOAA, DOGAMI, OEM, Red Cross, the School District, City Hall, Convention Center, and the Seaside Fire and Police Departments. Networking between these groups was an indirect benefit of the exercise.

The workshop acknowledged the poster contest winners. These winners were selected by City councilors and City department heads who volunteered to be judges during their lunch hour. The Mayor of Seaside and the Fire Chief presented the awards at the public workshop. The local press were there to take pictures and to cover the story.

Oregon Emergency Management (OEM) provided an overview presentation on tsunamis. The OEM presenter compared the recent Sumatra event to the risks for the Oregon Coast.

The question-and-answer panel included various preparedness experts: NOAA’s National Weather Service (NWS) Warning Coordination Meteorologist, OEM’s Tsunami Coordinator, DOGAMI’s Geologist, the local Red Cross Manager, the School District’s Superintendent, City of Seaside’s City Manager, and the Police Department’s Communication Manager. The question-and-answer session was allotted 30 minutes, but the audience still had many questions when the workshop moved to the next portion of the program.

The small-group exercise was similar to that of the Business Workshop. Each group had at least one facilitator to assist it in tackling questions and identifying the group’s main ideas. This exercise required 10 facilitators. The facilitators included two student volunteers, a representative from Oregon State University’s Clatsop County’s Extension Office, the Police Department’s Communication Manager, the OEM representative, Red Cross Manager, the School District Superintendent, the City’s Planning Director, the NWS Meteorologist, and a local community planner.

In addition, volunteers helped run the event from setup to breakdown. The three student volunteers displayed the poster contest entries and welcomed attendees. The City provided the meeting space, and Safeway donated the refreshments. City staff helped set up and break down the chairs and tables. A city employee volunteered to videotape the event and converted the file to DVD. Several community volunteers helped orchestrate the transition between workshop sessions and set up the microphones used in the question-and-answer panel session.

Tsunami Evacuation Drill

The Tsunami Evacuation Drill (Appendix H) provided the public with an opportunity to apply their new knowledge and practice their plans. The drill was held on a Saturday in April after all outreach events occurred. Residents, businesses, and visitors practiced their local tsunami evacuation routes when the tsunami sirens sounded.

Features of the drill included:

- Residents, businesses, and visitors were encouraged to participate and practice their plan.
- Partnerships were formed with amateur radio operators (communication), Sunset Empire Transportation District (transportation of people from safety zones back to starting points), Oregon Department of Transportation (ODOT) (signage), Red Cross (staffing and mock shelter), and Police and Fire Departments (traffic control)
- Six major evacuation routes out of town and seven safety zones were established.
The City of Seaside’s Tsunami Awareness Program: Outreach Assessment

- Each safety zone was manned with a greeter at the finish line with a amateur radio operator.

- Extensive public relations work was done: ODOT signs, reader boards, PSAs, newspaper ads, fliers, and announcements at all public and community meetings.

- Tsunami sirens were sounded at noon.

- The public practiced their response to a local tsunami.

- City and other governmental agencies used the event to practice their response to a distant event.

- The event was covered by National Public Radio (Olympia, Washington), KATU (Channel 2) News, and local newspapers.

- The event was videotaped and posted on the City's website.

The Evacuation Drill required volunteers and many interagency partnerships. The City worked with the Police Department, volunteer firefighters, ODOT, DOGAMI, OEM, Red Cross, Sunset Empire Transportation District, HAM radio operators, and program volunteers. In total, 52 volunteers worked at the event to promote the public’s awareness, to guide participants to safety, to provide communication tools, and to ensure the public’s safety.

It was important that the public was aware of the drill to avoid confusion. ODOT signs notified motorists about the drill. Vehicle message signs indicating a tsunami drill would take place on Saturday at noon were located at the north and south ends of town. The signs were set up Friday afternoon and continued to provide information during the drill. Additionally, a highway advisory message (HAR) was aired 3 hours prior to the event. Five ODOT signs referring motorists to that radio frequency were posted along Highway 101 and Highway 26. Several local reader boards advertised the drill information. Further, all local businesses posted bright yellow signs in their establishments notifying people of the drill.

Registration was set up an hour before the drill began for participants to sign in and obtain information. The three student volunteers and the DOGAMI representative ran the registration out of surreys borrowed from a local bicycle rental shop. A number of media representatives were at the registration stand to cover the event.

The event setup required the efforts of a number of organizations. Six main evacuation routes were identified for this drill; these were the main routes the City expected people to use to reach high ground. Volunteers were positioned along these routes to guide evacuators. City police officers and volunteer firefighters were located along Highway 101 at seven crossing points to assist with traffic control. In all, 21 people staffed the traffic crossing points to ensure people crossed the highway safely without major disruption in traffic. Seven main “safety zones” were identified, and each zone had a community volunteer who clocked people in and passed out event surveys. At least one amateur radio operator was present at each safety zone to provide communication between event staff. This proved to be a critical component of the drill and helped emergency planners understand potential communication capabilities for a real event. The Red Cross also set up a mock shelter during the drill. Participants were able to visit the shelter and learn how the Red Cross functions during emergency events such as a tsunami.

The Evacuation Drill involved significant participation from community groups. The Park and Recreation District closed down their entire facility and evacuated all members. The Factory Outlet Mall had at least one staff member from each store practice the evacuation route. Several different Girl Scout troops evacuated as a team. All City councilors and planning commissioners practiced their evacuation routes from their homes. The Mayor departed from the registration area and walked to high ground with many of the visitors and businesses in the downtown core area. Most hotels along the beach had at least one staff member act out the hotel’s emergency plan. Several coffee shops closed their stores and offered free coffee to their customers if they practiced the business evacuation route. Many middle school classes were given extra credit for walking their evacuation routes with their families. Finally, the City activated its Emergency Operations Center and used the drill as an opportunity to run a tabletop exercise on how the City would respond to a distant tsunami.
Drill participants who reached high ground were transported back to their starting areas using the local Transportation District’s trolleys. This helped reduce traffic issues with returning people. A debriefing followed the drill. The volunteers, City staff, organizations, and news media gathered at City Hall to provide feedback on the event. Specific attention was given to travel times and the number of participants at the official assembly areas. Drill staff also described any problems or issues in their areas. This information helped determine the effectiveness of evacuation routes, potential crowd levels, and ways to improve future drills.

ASSESSMENT

The Awareness Program was assessed through a series of surveys and event feedback sheets. The surveys were designed to evaluate how effective the outreach strategies were at improving the public’s comprehension of and preparedness for a tsunami disaster. Event feedback forms were distributed at each public event to gain feedback on the program from participants (see appendices I–M). Program volunteers completed an evaluation that reviewed their experiences with the program and ways outreach efforts could be improved (Appendix I).

Surveys

The University of Oregon’s Survey Research Laboratory helped create the surveys for the program. To gauge the public’s baseline awareness of tsunamis, an initial survey, referred to as the “Phone Survey,” was done prior to outreach efforts (Appendix A). This survey was conducted via phone to randomly selected households in the Seaside area. These calls were conducted with the assistance of 30 volunteers. The goal was to have a sample population of 300 survey participants. In the midst of the survey period, the Sumatra tsunami disaster occurred. Due to the high public interest in the disaster, the program could not continue to conduct the initial survey with unbiased confidence. Therefore, a separate survey was implemented to account for influences from the Sumatra tsunami. This survey, the “Mail Survey,” was conducted after the Sumatra disaster but before the outreach program began (Appendix B). To prevent further delay of the outreach efforts, this survey was done by mail. It was sent to 1,200 randomly selected households in Seaside. Three-hundred thirty-five (335) people responded to the survey. A final survey, the “Post-Outreach Survey,” was implemented after outreach efforts ended (Appendix C). This survey was also conducted by mail to be consistent with the previous survey. The Post-Outreach Survey served as a marker for how various outreach methods influenced people’s comprehension of tsunami disasters. The combination of the three surveys helped capture how the Sumatra tsunami and the Tsunami Awareness Program impacted the public’s tsunami knowledge and preparedness.

PROGRAM OUTCOMES

Community Involvement

The Tsunami Awareness Program’s outreach approach was volunteer driven. The intent was to build a public program that relied on volunteerism more than funding. The Sumatra tsunami will likely bring funding in the short term, but a sustainable educational program must be supported by endemic resources. A community will safeguard itself if its tsunami outreach program is resilient through budget swings and erratic political interest. Aside from the nine-month service contract for the TOC, the Awareness Program had a budget of about $50 per month for supplies and outreach events. Therefore, available local resources were used to support the program whenever possible. Volunteers were without a doubt the most critical resource needed to implement the program.

In total, 51 volunteers were actively involved in the outreach strategies. Their involvement included conducting phone surveys, assisting with public events, advocating for preparedness efforts at local meetings, and serving as Neighborhood Educators. Approximately 1,300 volunteer hours were contributed to this program by volunteers; this represents about 163 working days. The program’s volunteers were a diverse group from our community; ages ranged from 17 to 89. Despite their many differences, the volunteers shared a common value for being part of their community and helping create a more prepared community (Appendix I). The program had significant support from local high
school students, City staff, City councilors, planning commissioners, and businesses that volunteered their time consistently throughout the various events.

Three student volunteers from the local high school were instrumental in the outreach program’s implementation. They were the first community members to sign up as volunteers, and they quickly developed leadership roles. With each outreach event, they helped brainstorm, develop, and execute the program. They were the principal educators in the School Outreach Program and led the middle school’s small-group exercise. Additionally, these students served as Neighborhood Educators, were facilitators at both workshops, promoted the program, and assisted with the Evacuation Drill. One student was the lead volunteer with the business community and was responsible for presentations geared toward businesses. Another student was the lead Spanish outreach volunteer. He held training classes in Spanish and translated a State brochure into Spanish. That brochure is now available to the public on DOGAMI’s website. Without the students’ contributions, Awareness Program outreach events would have had a much narrower scope. Not only did the students provide additional outreach staff, they also brought fresh ideas, vibrant energy, and boundless enthusiasm to the program that was infectious to all involved.

Numerous volunteers contributed to the program well beyond serving as a Neighborhood Educators. This public support provided much more depth to the outreach events. City councilors and planning commissioners were involved throughout the program. They not only donated their time to educate the community, they also took time to support the program. Their support sent a powerful message to the community that tsunami preparedness involves everyone. Several City staff members participated in the behind-the-scenes development of program events. Their assistance helped make each public event run smoothly and allowed the TOC to focus on the public rather than the overall operation of the event. This was an important contribution; the TOC had a higher public visibility at the events and was able to interact with community members and answer questions. The volunteer Fire Department played a key role in the Evacuation Drill. Thirty-one of the forty-five volunteers gave up their Saturday to provide traffic control. Their efforts allowed for a safe evacuation and prepared them to respond in an actual event. Amateur radio operators also volunteered their time during the drill. This diverse community group was extremely important to the drill’s success.

The volunteers provided critical feedback on the Tsunami Awareness Program and their volunteer experience. Their input helped capture and evaluate the program’s efforts. The volunteer assessment covered how to gain volunteer support, why volunteers became involved and how to improve outreach efforts. On average, 56% of the volunteers were involved with more than one aspect of the program. The majority served as Neighborhood Educators. Many felt it was a good way to build better connections within their smaller communities. No particular advertising method caused volunteers to become involved. People heard about the volunteer opportunity by word of mouth, in the newspaper, on the radio, or in meetings. Flyers appeared to be the least effective recruitment strategy. The volunteers were very happy with their experiences. Sixty-eight percent had an “excellent” experience; no volunteer rated the experience less than “good.” In addition, 89% of the current volunteers intend to carry on tsunami preparedness efforts. This is an important point to note because a program is stronger and runs most efficiently when committed volunteers stay involved. Although volunteers made suggestions to continue with outreach efforts and improve the tsunami warning system, they did not make recommendations to change actual outreach strategies. This feedback indicates those most closely involved believe the current outreach approach works best.

Community Exposure

The goal of the Tsunami Awareness Program was to provide educational opportunities that would reach the largest portion of the population. In addition, the outreach strategies were created to educate a broad cross section of the community. Specifically, local residents, businesses, children, and visitors

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1 Of our 52 volunteers, 42% heard from the radio or newspaper, 11% from a posted flyer, 42% in public meetings, 17% from a friend, and 22% from either the TOC or from someone in the city.
were targeted. The Awareness Program succeeded in securing a variety of target group participation. The following summarizes program exposure and participation through the different outreach strategies:

- 108 community and organizational meetings were attended by the TOC.
- 34 presentations were given at local meetings.
- 11 Neighborhood Education training classes were held.
- 60 of 88 community blocks were covered by Neighborhood Educators, reaching approximately 2,400 households in Seaside.
- 65 businesses participated in the Business Workshop; lodging establishments, downtown merchants, services, Chamber of Commerce, Seaside Downtown Development Association (SDDA), RV parks, and private businesses were represented.
- 145 people attended the Public Workshop.
- 63 young artists participated in the Tsunami Awareness Poster Contest.
- 3 schools were visited, 1500 students were reached, and 22 small-group sessions with middle school students were held.
- 436 people participated in the Tsunami Evacuation Drill.
- A Spanish brochure was created.
- 2 training sessions were offered in Spanish.

Event Feedback

Neighborhood Educator Project
The Neighborhood Educator Project was the most unique strategy used in the Tsunami Awareness Program. It required the most staff time to establish the project, volunteers, volunteer time, and educational resources. There was only a short period of time to execute the Neighborhood Educator Project. Due to time constraints, the Awareness Program could train volunteers only until April 1. Therefore, time did not allow the program to identify a volunteer for each block. As of April 1, 60 neighborhood blocks had coverage from a neighborhood educator.

Volunteers provided feedback on the Neighborhood Educator Project. They indicated it was difficult to reach every household in their block. Many found their neighbors were not home at common times, and volunteers had to revisit homes to reach someone. Some volunteers frequented homes several times before realizing they were vacation rental dwellings (VRDs) rather than primary or secondary residential properties. Providing volunteers with a list of local VRDs would save time. On average, volunteers covered their blocks in one weekend. Most households that the volunteers visited welcomed the information and wanted all the materials offered.

Business Workshop
The Business Workshop was well attended with participation from 65 businesses. Table 1 highlights the broad range of businesses represented. Feedback from participants indicated businesses attended the workshop for many different reasons (Appendix J). More than 70% attended because they wanted to learn how to safeguard their businesses against a tsunami disaster. This indicated there is a demand for outreach to provide information specific to business preparedness. Businesses agreed with the format and content of the workshop with 94% indicating the event was “good” or “excellent.” In addition, 62% of participants felt the Business Workshop exceeded their expectations.

The program offered several different learning settings. There was an informational presentation on tsunamis. It was followed by a presentation on why and how businesses can prepare for tsunami risk. Ninety-two percent of businesses indicated the business preparedness presentation was “very” or “extremely” valuable. The small-group section was considered the most useful section (see Figure 8). In this section, businesses got to engage with their peers to create a list of what businesses can do to be prepared. Forty-six percent of participants ranked it the most important part of the night and 68% preferred the small-group setting over the presentations. Not only did businesses enjoy and benefit from the Business Workshop, 92% of participants would like to attend additional
workshops. This indicates there is an ongoing need for education. Many felt additional efforts would attract even more businesses as word spread around town about the event’s benefits.

**School Outreach Program**

The School Outreach Program was well received by faculty and students. Each school submitted an assessment for the program. Overall, schools were pleased with the Tsunami Awareness Program (Appendix K), and they reported that the program met or exceeded the school’s expectations. The format of the school program was very important. Feedback indicates the small-group setting used in the middle school was preferred. The elementary schools indicated auditorium-style presentations do not work well for younger students. It was very difficult to keep the students’ attention during presentations. The middle school considered the small-group mapping exercise to be extremely beneficial. The two schools with programs involving the high school student volunteers considered their participation extremely valuable. Younger students respond well to their older peers. In addition, all schools felt quizzing students and giving tsunami stickers and rulers for correct answers was an effective teaching style.

**Tsunami Preparedness Public Workshop**

The Tsunami Preparedness Public Workshop was well attended by the community with approximately 145 people. The event even attracted people from outside the Seaside area—participants came from other coastal communities and from the Portland area (Appendix L). Ninety-two percent of attendees rated the Public Workshop as “good” or “excellent.” Only 5% indicated their expectations were not met. They were dissatisfied due to time constraints with the question-and-answer panel. Workshops in the future may want to provide more time for questions to improve the quality of participants’ experience. In concurrence with the Business Workshop’s respondents, Public Workshop respondents felt the small-group exercise was the most useful. Some of the following reasons were provided: “allowed people to interact and discuss,” “it was more personal,” “helped me identify my evacuation route,” and “individual questions answered.” Although people tended to desire information on tsunamis, many felt the informational presentation was “too complicated.” Some participants who had previously attended presentations by the TOC preferred the content in those presentations over that of the public workshop. They indicated the information covered in the public workshop was too complicated and confusing. This suggests tsunami information presented to the

**Table 1. Businesses attending the Business Workshop.**

<table>
<thead>
<tr>
<th>Business Type</th>
<th>Number Attending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community facility/organization</td>
<td>8</td>
</tr>
<tr>
<td>Lodging</td>
<td>15</td>
</tr>
<tr>
<td>Real Estate/ Rental Property</td>
<td>6</td>
</tr>
<tr>
<td>Restaurant</td>
<td>8</td>
</tr>
<tr>
<td>Retail store</td>
<td>5</td>
</tr>
<tr>
<td>Downtown business</td>
<td>13</td>
</tr>
<tr>
<td>Grocery store</td>
<td>2</td>
</tr>
<tr>
<td>Entrepreneur</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
</tr>
<tr>
<td>Hair Salon (1)</td>
<td></td>
</tr>
<tr>
<td>Gas Station (1)</td>
<td></td>
</tr>
<tr>
<td>Movie Theater (1)</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 8. The most useful parts of the Business Workshop according to participants.**
The City of Seaside's Tsunami Awareness Program: Outreach Assessment

public needs key points that are clearly conveyed. Coordinators for future public programs should make sure presentation content is suitable for the general public.

**Tsunami Evacuation Drill**

The Tsunami Evacuation Drill was the final Tsunami Awareness Program event. More people participated in the drill than any other outreach event (Appendix M). This may be attributed to the public relations work done at events leading up to the drill. Local residents, businesses, and visitors participated in the evacuation drill. Twenty-four businesses were represented with various participation levels. Some businesses closed entirely, others identified a staff member to evacuate, and others did a table-top exercise reviewing their business emergency plan.

Twenty-nine participants identified themselves as visitors. Many came because they have rental houses in the area, while others were simply interested in how the event would run. Visitor participation indicates the need and demand for educating people beyond the coast.

Although the average age of participants practicing their evacuation routes was 47, the participants ranged from infants in strollers to 89-year-old residents. Despite the mobility challenges typically faced by older people, only 2 people out of the 436 did not make it to high ground in the designated 30 minutes. This is an important finding for Seaside officials because it indicates that most low-lying areas in town are within safe walking range to high ground. Further, the average evacuation time was 15 minutes. Detailed information gathered about people’s starting points, end points, and evacuation time will help emergency officials assess evacuation conditions in the City.

The program also gained feedback from evacuation drill participants through a brief survey distributed at the safety zones. The survey data helped assess the public’s reaction to the drill. Knowing how the public reacted will enable the City to improve future evacuation events. Almost all participants (99%) had an identified evacuation route prior to the drill (Appendix M). This suggests that over 430 people in the Seaside community now have an identified evacuation route for a local tsunami. If each participant lives in a household with three other people, approximately 20% of Seaside’s population has an evacuation plan.

To assist the public’s ability to respond during a tsunami event, the City has posted tsunami evacuation signs along major evacuation routes to direct people to high ground. As part of the drill assessment, the City evaluated if these signs aided evacuation. On the basis of survey results, evacuation signs were used by only half of the evacuating population. This could be because people already knew their routes or they had not been trained to look for those signs. It is important to train the public to use evacuation signs. Knowing to look for those signs will better equip people to evacuate in any situation even if they are not familiar with the area.

This was the first time Seaside held an evacuation drill, and officials were concerned about how the public would respond to the new experience. Almost everyone was comfortable with the event (91%) and did not find the drill to be “confusing.” Only two calls were made to the police station to inquire about the sirens. Eighty-five percent of people who participated would like to practice their routes again. Positive feedback typically means participants will promote peer involvement in other events by sharing their positive experiences with others. Future evacuation drills will likely benefit from and gain more participation from this type of word-of-mouth communication.

**Public Awareness**

It is important to learn where people typically look for tsunami information. Understanding where they expect to find that information helps communities decide where to locate educational materials. Initial public feedback (Figure 9) indicates people seek out information in many different places. This suggests communities will successfully promote tsunami awareness when information is provided in several locations.

The public was not very concerned about a tsunami hitting Seaside prior to the Sumatra tsunami. Figure 10 shows how the public’s concern changed after the Sumatra tsunami event and the outreach program. The tsunami caused the Seaside community’s concern to rise. At the conclusion of the outreach program, people remained concerned, but the overall level
of concern dropped. The heightened concern after the Sumatra tsunami likely influenced the public’s willingness to get involved and increased their desire for more information. Future tsunami outreach programs will have to work harder to engage communities as media attention to the Sumatra event fades.

The public’s fundamental understanding of tsunamis was influenced by both the Sumatra event and the Tsunami Awareness Program. The publicity from the tsunami event initially increased the public’s understanding, but outreach efforts further improved their knowledge. For some kinds of information, the percent increase in understanding from the Sumatra event was higher than from outreach efforts. For other kinds of information, the reverse was true. Table 2 highlights the change in knowledge from these two events. For all survey questions, the tsunami event caused an average increase in knowledge of 9.8%, whereas the outreach program caused an increase of 9.1%.

The public did have some basic understanding of tsunamis prior to any outreach and media attention (Appendix A). They knew what caused a tsunami, when to expect a tsunami, and how long to stay at high ground. Therefore, the outreach reminded people of this information but did not emphasize it. Instead, the program tried to apply that knowledge to practice. For example, the concept that tsunamis can occur any time of day or in any season was applied to planning for any scenario. People were challenged in small-group sessions to consider how they would respond if an event occurred in the middle of the night, when everyone was away from home, or during the rainy season. This helped people develop more holistic emergency plans.

The Tsunami Awareness Program focused its message on key points. Specifically, it intended to educate the public on the main differences between local and distant tsunamis. Knowing these differences is essential to responding quickly in either event. The program was successful in assisting the public to differentiate response to a local or distant event. Seaside has a number of bridges not built to seismic standards. After a local earthquake, it is likely people will be unable to drive. Therefore, another main message was to inform people to walk, not drive, to high ground in a local event. Outreach efforts succeed in informing people to evacuate on foot after a violent earthquake (Figure 11). Sirens are also a local concern because the public is unclear about what sirens indicate. Prior to outreach, many people did not understand that sirens are not the warning for a local tsunami. This major misconception was addressed in outreach strategies. The Awareness Program also provided a focused effort to inform the public that the ground shaking is the only indication needed for a local event. The Post Outreach Survey indicated that 80% of respondents knew an earthquake was the warning for a local event.
Prior to the Awareness Program, the public had some local knowledge about “safe zones” and knew at least one location that was outside the hazard zone. As one of the main objectives of this outreach program was to prepare the community to respond in any situation, the school program and workshops used mapping exercises to familiarize people with all “safe” areas in Seaside. In addition, Neighborhood Educators used Seaside’s tsunami evacuation map to facilitate discussion with the people about areas of Seaside that are expected to be within the tsunami hazard zone. This created conversation among neighbors about evacuation routes from their homes, creating supply caches at their safe zone,

Table 2. Change in the public’s knowledge after the Sumatra event and after the Tsunami Awareness Program.

<table>
<thead>
<tr>
<th>Survey Question</th>
<th>Pre-Sumatra, Pre-Outreach Survey (% Correct)</th>
<th>Post-Sumatra, Pre-Outreach Survey (% Correct)</th>
<th>Post-Outreach Survey (% Correct)</th>
<th>Change from Sumatra Tsunami</th>
<th>Change from Outreach Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>If a local tsunami is approaching, what would be your first response?</td>
<td>36%</td>
<td>51%</td>
<td>74%</td>
<td>+15%</td>
<td>+23%</td>
</tr>
<tr>
<td>What is the first indication that a local tsunami is approaching?</td>
<td>41%</td>
<td>61%</td>
<td>80%</td>
<td>+20%</td>
<td>+19%</td>
</tr>
<tr>
<td>What is a tsunami?</td>
<td>58%</td>
<td>75%</td>
<td>88%</td>
<td>+17%</td>
<td>+13%</td>
</tr>
<tr>
<td>What is the first indication that a distant tsunami is approaching?</td>
<td>58%</td>
<td>72%</td>
<td>85%</td>
<td>+14%</td>
<td>+13%</td>
</tr>
<tr>
<td>What locations are outside the hazard zone?</td>
<td>16%</td>
<td>29%</td>
<td>41%</td>
<td>+13%</td>
<td>+12%</td>
</tr>
<tr>
<td>Hospital</td>
<td>40%</td>
<td>56%</td>
<td>56%</td>
<td>16%</td>
<td>0%</td>
</tr>
<tr>
<td>Heights Elementary</td>
<td>51%</td>
<td>72%</td>
<td>80%</td>
<td>21%</td>
<td>8%</td>
</tr>
<tr>
<td>Sunset Hills</td>
<td>73%</td>
<td>83%</td>
<td>90%</td>
<td>10%</td>
<td>7%</td>
</tr>
<tr>
<td>Tillamook Head</td>
<td>53%</td>
<td>63%</td>
<td>79%</td>
<td>12%</td>
<td>16%</td>
</tr>
<tr>
<td>How much time do you have to reach high ground for a distant tsunami?</td>
<td>27%</td>
<td>23%</td>
<td>32%</td>
<td>–4%</td>
<td>+9%</td>
</tr>
<tr>
<td>What most commonly causes a tsunami?</td>
<td>89%</td>
<td>99%</td>
<td>100%</td>
<td>+10%</td>
<td>+1%</td>
</tr>
<tr>
<td>How much time do you have to reach high ground for a local tsunami?</td>
<td>89%</td>
<td>99%</td>
<td>100%</td>
<td>+10%</td>
<td>+1%</td>
</tr>
<tr>
<td>When is it safe to return to low-lying areas?</td>
<td>97%</td>
<td>99%</td>
<td>99%</td>
<td>+2%</td>
<td>0%</td>
</tr>
<tr>
<td>When do tsunamis occur?</td>
<td>98%</td>
<td>99%</td>
<td>99%</td>
<td>+1%</td>
<td>0%</td>
</tr>
</tbody>
</table>

\( a \) Change from Sumatra Tsunami = [Pre-Outreach Survey (post-Sumatra event) Percent Correct] – [Pre-Outreach Survey (pre-Sumatra) percent correct].

\( b \) Change from Outreach Program = [Post-Outreach Survey percent correct] – [Pre-Outreach Survey (post-Sumatra) percent correct].
and knowing all the safe zones in Seaside. Educators also helped people learn how to read and use the evacuation map. Using the tsunami evacuation map as a tool proved to be effective. Figure 13 exhibits the Post Outreach Survey respondents’ increased awareness of safety zones.

**Outreach Strategies**

According to survey results, the Tsunami Awareness Program reached a wide portion of the population (Appendix C). The Neighborhood Educator strategy worked well; volunteer educators were able to contact a majority of the residential population; 60% of survey respondents indicated they received information from a Neighborhood Educator (Figure 14). Of the four outreach events, the Evacuation Drill had the most involvement from the community. The more specialized outreach efforts had slightly lower participation, which is expected when events are targeted for specific community groups.

The assessment also included feedback on which outreach strategies in the Tsunami Awareness Program were most beneficial to the community. Knowing how the public valued these strategies can help other communities prioritize what events to include in their outreach programs. According to survey results, the public’s preference varied (see Table 3). This indicates an outreach program should include as much variety as possible. Eighteen percent of respondents selected more than one strategy. This suggests the public gains more information from a series of strategies. The Neighborhood Educator project and the Evacuation Drill were identified as the two most important strategies. Despite the high visibility of Tsunami Awareness Program, some survey respondents indicated they were “not aware” of the program. Although a public program can never reach every person in a community, future outreach efforts should consider additional public relations strategies.
CONCLUSIONS

The Tsunami Awareness Program was made possible because of the National Tsunami Hazard Mitigation Program's financial assistance, DOGAMI's partnership, OEM's support, and the City of Seaside's ambitious undertaking. In nine months, the program was created, developed, implemented and analyzed. It exemplifies what can be accomplished in less than a year. This program was charged with the responsibility of determining how to coordinate an effective outreach program. The concept was to build a public educational process that involved local resources to secure resiliency through fluctuating federal assistance.

Several outreach strategies were incorporated into the program to promote universal tsunami preparedness. Each strategy served a different role in the educational process and proved to be essential to the success of the overall outreach program. A single outreach strategy cannot achieve community preparedness. The collective strategies provide the necessary education to improve the public's tsunami comprehension and preparedness. However, the intimate contact involved with people-to-people, face-to-face discussions proved to be an effective way of establishing cognitive understanding and a lasting impression. Ultimately, coastal communities will need to undertake a multifaceted outreach approach to instill a “culture of awareness.”

Many lessons were learned about what it takes to manage a successful outreach program. These findings include measurable outcomes, successful action items, and philosophical concepts. One of the major realizations that evolved from the program was the importance of taking risks. The Neighborhood Educator outreach strategy was an enormous undertaking; yet, it was a lucid process with productive outcomes. The program was successful because of the number of volunteers and their personal commitment to the program's objectives. It takes community buy-in and ownership for people to embrace the concept of being informed on tsunami information. The responsibility to educate and be educated should be shared among the community—education is not only a government concern; it is a public concern. It is important to involve a diverse group in the community. Having support and representation from an array of community members only furthers the effort to reach a wide audience. Furthermore, partnerships are essential for this type of outreach program. Without collaborative efforts, rural communities will not have the resources or manpower to conduct such an extensive outreach effort. Education only better secures people's safety and ability to reach high ground. It is important to take a positive approach and make the experience a rewarding one.

The assessment evaluated the whole program and each of its parts. This information helped determine what components are important and what is needed.
to make the outreach more successful. Three baseline questions guided the evaluation process:

1. Is there a demonstrated public need for tsunami education?
2. What was learned from the Tsunami Awareness Program?
3. How can these lessons be translated into a feasible, sustainable, and effective model for other communities?

Public Need and Demand for Ongoing Tsunami Education

The program revealed that:

- Highly covered media events, such as the Sumatra tsunami, cause the public’s attention to focus for a time on potential tsunami risks; however, awareness diminishes without local tsunami outreach advocacy.
- A culture of awareness cannot be created with a one-time, limited outreach effort.
- The public is not confident about a tsunami being a “series of large waves.”
- The public does not understand the differences between a local and distant tsunami.
- Seaside residents were not aware which areas are outside of the tsunami inundation zone.
- Most people prior to outreach did not know to walk to high ground after an earthquake.
- Most people prior to outreach did not have an emergency plan.

Tsunami Awareness Program Findings

The assessment considered the Seaside Tsunami Awareness Program itself, outreach strategies, and the role of volunteers.

Tsunami Awareness Program

- The Tsunami Awareness Program improved the community’s knowledge on tsunami information.
- Outreach efforts are most effective with key, clear messages that are content-specific for the general public.
- Multiple strategies should be used to deliver the message on tsunami preparedness.
- Re-education is required for the public to grasp fully some concepts associated with tsunami preparedness.
- The door-to-door, person-to-person interaction gained through the Neighborhood Education project is an excellent strategy to introduce the Awareness Program to the community, gain public interest, and motivate people to become more involved.
- During the Awareness Program, information about evacuation routes, safety zones, and local warning systems was the primary community interest.
- The public is very receptive to information that is specific to their livelihoods or interests. It is important to have specialized events for certain community groups to provide information relevant to their interests and concerns. For example, by hosting a Business Workshop, the business community gains useful information about how to prepare their business. This community group gains more useful knowledge from a target audience presentation than from a generalized workshop.
- Multiple outreach events offer the public a variety of venues to access information and provide multiple opportunities to assimilate tsunami information.
- The public appreciates passive educational resources (e.g., tsunami signs, newspaper articles, and website information); these are cost-effective ways to provide information to a mass of people.
- Outreach efforts improved local knowledge on the differences between local and distant tsunamis.
- The public was more concerned and prepared for a tsunami because of the educational efforts.
Outreach Strategies

- Information should be provided in multiple forms, such as public workshops, newspaper articles, staff meetings, brochures, educational displays, public service announcements, and community newsletters.
- It is important to reach people in more than one setting to enforce the importance of this topic. Outreach events should target households, schools, businesses, and community and fraternal organizations. Establishing community partnerships with each event sends a message that the program is supported not just by the City but by other affiliated agencies. It gives more legitimacy to outreach efforts.
- Outreach content, for each event, should be tailored for the type of event and target audience.
- The Neighborhood Educator program reaches a large portion of the community, and it is a good introduction to preparedness information. It provides a broad level of education not achieved by other outreach strategies and reaches the most apathetic residents who would otherwise not obtain information. Although a critical component, it should not be considered a only approach to public education. This strategy requires a significant commitment of time to recruit, train, and manage volunteers. It is also difficult to ensure that volunteers are accurately and effectively relaying information to the public.
- The person-to-person approach has the added benefit of building a sense of community awareness and promoting public participation in ongoing educational efforts. For example, the approach could dovetail with pre-existing public service programs such as a volunteer fire department or lead to the creation of a FEMA Community Emergency Response Team (CERT).
- Workshops provide a productive learning environment. They offer an intimate setting in which to learn and engage with experts in a structured environment. They also allow the public to interact with other community members and discuss civic responsibilities. Although the information provided in workshops is highly qualitative, workshops attract only those individuals who are willing to attend an event. This said, the benefits that stem from the exchange of information following a workshop are difficult to measure.
- Small-group presentations and workshops are particularly effective for outreach to special interest groups such as service clubs, businesses, governmental agencies, volunteers, and emergency personnel.
- Workshops are most productive when they are consist of different parts (lecture, small-group session, etc). Ample time should be allotted to each part to prevent rushing through information.
- Presentations should avoid information that is too technical. Due to the varying levels of knowledge within an audience, certain individuals are not comfortable with more complex and specific information related to tsunamis.
- The involvement of local experts, community leaders, and government officials enhances community buy-in. Their participation as small-group facilitators, presenters, and neighborhood educators should be encouraged.
- The small-group setting proved to be one of the most effective educational techniques used in the program. Interactive small-group sessions allowed individual questions and concerns to be addressed, linked individuals with other community members interested in pursuing the public safety topic, and allowed people to gain a more comprehensive understanding of tsunami preparedness.
- Part of school outreach should be to incorporate schools’ participation in other outreach events. This may be accomplished by involving various school officials or representatives in the planning and implementation process.
- Older students should be included in the outreach program if at all possible. They are
effective teachers, particularly with younger students.

- The Tsunami Evacuation Drill should be the final event of the outreach season. It is the culmination of all outreach work and partnerships leading up to the event. According to polls, the drill is ranked nearly equal to the Neighborhood Educator project as an effective outreach tool.

Volunteers
- Committed volunteers and partnerships made this program manageable on a low budget.

- The public is widely interested in tsunami preparedness. An outreach program attracts volunteers of all ages (Figure 15).

- Volunteers are compelled to get involved through personal contact and repeated solicitation.

- Volunteers are great contacts for identifying other volunteers.

- Volunteers should provide support in the educational process and take on leadership roles in the outreach events.

- Each volunteer has a unique set of skills and experiences. Identify volunteers’ assets and incorporate them into the outreach program.

- Volunteers not only spread knowledge through education but serve as leaders in the event of a tsunami. They will be local experts that guide the public to high ground. This was clearly demonstrated in a recent tsunami warning, where the program volunteers served a vital role responding to confused community members as they evacuated. They also were able to answer questions and organize the public once they reached high ground. This allowed the designated emergency officials to implement the

Figure 15. Student volunteers are an integral part of the Seaside Tsunami Awareness Program.
The City of Seaside’s Tsunami Awareness Program: Outreach Assessment

City’s Emergency Plan. In this regard, program volunteers can provide fertile ground for implementation of FEMA’s CERT program.

- Volunteers provide insight and perspective on the outreach program. It is important to gather their input and suggestions.

The Model Tsunami Outreach Program

Our assessment indicates that the most feasible, sustainable, and effective tsunami outreach program is a volunteer-driven program that:

- Uses local resources to compensate for a lack of funds and capitalizes on public meeting space, local news media, and local expertise and experience
- Involves committed volunteers who take on leadership roles
- Has community buy-in
- Provides consistent outreach events to maintain the community’s trust
- Establishes partnerships with community groups and governmental agencies to legitimize the program and share responsibilities
- Partners with program constituents to administer various outreach events; for example, a Downtown Development Association, Chamber of Commerce, or Lodging Association co-hosts the Business Workshop, and the Red Cross, the County Emergency Management Office, the U.S. Coast Guard, or a local service group helps conduct the Tsunami Evacuation Drill
- Allows program volunteers and participants room to make decisions about how the program will run and what their roles will be (allowing such public contributions increases the sense of ownership in the program, creates better public support for outreach efforts, and changes the public’s perception of who is responsible for overseeing the outreach program; in Seaside, the conversation about tsunami preparedness continued beyond program events—people have really begun to delve into the topics with community members, co-workers, and neighbors)
- Uses program organizers who have an established community relationship to strengthen community support and partnerships; in Seaside, the TOC had previously worked on community-based projects and that pre-established relationship allowed the TOC to secure community buy-in almost immediately
- Provides education to households, in schools, and within employment establishments, thereby demonstrating that tsunami preparedness is not just a city government concern but a community-wide concern
- Encourages any-scenario preparedness
- Involves several outreach events, some of which should be specialized for particular community partners; each event serves a different function and provides a different kind of education
- Identifies key locally specific messages that are reiterated throughout the program and that focus the public on the most important tsunami information
I have gained invaluable insight and experience from my work as the TOC in Seaside’s pilot program. My previous experiences well equipped me to serve in this role. I have worked extensively in my career helping communicate information to people in useful and understandable terms. In addition, I spent the prior year working in Seaside on community-based projects. Combined, these experiences provided me with the first-hand knowledge on what it takes for a coastal municipality to initiate and sustain a tsunami outreach program. The following are my recommendations for future outreach programs and the steps to achieve each outreach strategy. These recommendations do not reflect the opinion of any funding agency; instead, they are the culmination of ideas that emerged from my personal experiences and observations over the course of this project.

Every coastal community located along an oceanic subduction zone should have an outreach program to educate the public on potential tsunami hazards and appropriate emergency response. The outreach should be an ongoing effort that accurately portrays the risks and advocates reasonable preparedness. In my opinion, the first step to “reaching high ground” is education. It not only trains communities to be self-reliant but it also reduces the anxiety that is inherently associated with potential catastrophic events, such as a local tsunami.

Education and preparation will save lives if a tsunami event does threaten a community. It is the responsibility of local agencies, schools, businesses, municipalities, and individuals to promote grassroots efforts that safeguard coastal residents and visitors. Municipalities should create partnerships to carry out an outreach program. They should engage with the community and identify available resources that can be used free of charge. Programs need a lead coordinator for the outreach effort. This person should have strong communication skills, be able to work with a diverse group of community members, and have a pre-existing relationship with the community. The coordinator should work with program partners and implement each individual strategy. The coordinator needs to keep track of all ongoing activities and provide volunteer support. Volunteers should help plan outreach strategies, run events, and serve as educators, particularly at the neighborhood level. All local efforts, however, should be supported by the State.

Oregon should mentor, facilitate, and support local outreach programs based in coastal communities. These intensive public programs are a massive undertaking. Realistically, local groups do not have the resources or the knowledge to implement a tsunami outreach program. Guidance and support from the State would allow local entities to develop, plan, and manage outreach efforts as well as identify educational messages and determine the best strategies for conveying information. This would ensure continuity in the tsunami preparedness message, eliminate the piece-meal effect, and create a cohesive outreach program with cumulative success.

The outreach program should:

- Provide ongoing, yearly educational opportunities
- Operate out of the local municipality with support from all partners; certain constituents should head up tasks appropriate to their background and interests
- Involve volunteers to plan, prepare, and conduct outreach
- Identify key local messages to advocate
- Emphasize the key local messages throughout the Awareness Program and at outreach events
- Encourage any-scenario preparedness by providing education at home, work, and school
- Post resources (e.g., brochures, maps) year around at various public spots such as
  - City Hall
  - Library
  - Local stores (e.g., Safeway or Fred Meyer)
  - Chamber of Commerce
  - Community Center/Pool/Senior Center
- Create a “Tsunami Awareness Month,” in which several of the program’s main events will
take place; this month should be recognized, honored, and supported by all major entities in the community to rally public support

- Establish annual reintroduction to the Awareness Program (the rationale behind this approach is to prevent the public program from “blending in” with the community’s surrounding environment—the ideas need to be fresh and the evacuation maps need to stand out)
  - Create a few “down” months where the program is not actively providing outreach
  - During these months, take down the maps and reduce the overall visibility of the program—but not tsunami preparedness
  - Reintroduce program material prior to the first outreach event each year

- Provide information in other languages for community members who are not literate in English

- Specialize events and information for residents, businesses, schools, the elderly, and city and county staff

- Coordinate with surrounding communities to try to combine efforts

- Create outreach events that allow for small-group settings, keep the information presented simple, and allow the public opportunities to have their questions answered

- Involve:
  - **Emergency response personnel** (e.g., County Emergency Services, Fire Department, Police Department, Red Cross, EMS)
  - **Commerce representatives** (e.g., Chamber of Commerce, local lodging association, downtown groups)
  - **Community organizations** (e.g., City Council, Planning Commission, schools, community colleges, local safety committee, amateur radio club, and local service groups)
  - **Local media** (e.g., newspapers, radio stations, television stations, community websites)

Start the outreach program using a combination of any of the following:

- City newsletter containing important public safety information and local statements about tsunami preparedness
- Local newspaper with full-page article on steps to tsunami preparedness, a calendar of events, and a color insert of the local tsunami evacuation map
- Educational display at the local library or community center
- Public broadcast announcements regarding safety tips on tsunami preparedness
- Evacuation map in the phonebook
- Safety information placed in local visitor’s guide and in State Park information distributed at coastal parks

Outreach efforts should incorporate the following strategies:

- **Neighborhood Educator program**
- **Informational workshops for**
  - the general public
  - businesses
- **School outreach**
- **Evacuation drills held semiannually (one during the week and one on the weekend)**


OUTREACH STRATEGIES GUIDE

Neighborhood Educator Program

1. Divide the community into blocks on a large map (could use GIS or CAD)

2. Display the block map in a community building where the public can easily access it and also ask for help.

3. Kick off a major public relations campaign about the program and the need for volunteers. Do this through PSAs, advertisements, and/or stories in the paper, and announcements at community meetings. It is a great idea to get City Council, City staff, and other public officials involved as volunteers. Promote volunteerism for this outreach strategy by attending meetings and advocating for volunteers. Use the community map as a visual. Highlight blocks as they gain coverage to visually represent the community’s growing involvement.

4. When volunteers sign up for a block, highlight the block and put their name in it. This shows community support. Also give volunteers an informational sheet about the Neighborhood Educator project. Encourage them to get their neighbors, family, and friends involved.

5. Hold training classes for Neighborhood Educators. The class should last about an hour. Limit the class size to about 8–10 people. The class should cover what tsunamis are, how they occur, what types the community is at risk for, how to respond, and ways to prepare. Each volunteer should receive a volunteer packet that provides useful tsunami information for them to reference as well as a map of the neighborhood block(s) he or she is assigned.

6. Volunteers will need resources to distribute in their neighborhoods. These resources could include a tsunami brochure, the community’s evacuation map, a sample emergency list, and a locally developed information packet.

7. After the volunteers have been trained, send them into the community. Have the press run a story about the program so community members are aware and expect to hear from the volunteers.

8. Check with Neighborhood Educators periodically (at least once) to see how their efforts are going and to make sure they are doing okay.

9. Keep track of what blocks have coverage and how many households each volunteer was able to reach.

Workshops

1. Identify a date and time. Consider what will best accommodate the community. Depending on your audience, the best time will vary. Also, confer with presenters, facilitators and other key players to ensure their participation.

2. Identify a location. It should be a community space that can handle the expected capacity. Think about how the workshop will run and the space necessary to accommodate the workshop’s layout. Identify a location where the workshop space will be donated. The outreach program should avoid spending limited funds on space.

3. Decide what kind of refreshments should be offered. At a minimum, provide water and have some kind of snack available. For tabletop exercises, it’s a good idea to have some candy on each table. The sugar will keep the participants’ energy up. Approach local restaurants or stores to find a business that will donate refreshments for the event.

4. Create the workshop’s agenda. Collaborate with lead volunteers and program partners when developing the agenda content. Consider the key contributors for the event. Who should present information or serve as a facilitator? Should volunteers and other contributors, such as poster contest winners, be recognized (Figure 16)? The workshop should last only a few hours because people’s attention and retention starts to diminish over time. Break
the workshop into multiple parts. Determine how much time is needed for each part. Do not try to fit too much into one evening. The public does not respond well to being rushed or cut short.

5. Develop a workshop flyer. Distribute it throughout town, posting it in visible public locations. Talk to businesses where you plan to post the flyer. Tell them about the workshop and encourage them to inform patrons about the event.

6. Provide a press release about the event to local media and submit PSAs to radio stations.

7. Use local reader boards to post workshop information. Have the board space donated to the program, if possible. The week of the event, have the workshop announced several times.

8. The workshop will require assistance from volunteers and emergency experts. There will likely be at least one speaker and perhaps a panel of experts for a question-and-answer panel. The panel could include state experts, Red Cross, a school representative, the police or fire chief, the City mayor or manager, and a local emergency services representative. For small-group exercises, a facilitator is needed for each group to help participants navigate through the questions or exercise. Each group should be no larger than 10–12 people. Volunteers will be needed to set up and break down the event, sign people in at the door, videotape or record the workshop, and respond to developing issues. For Seaside’s Public Workshop, 15 volunteers were needed; 10 of these were facilitators.

Figure 16. Seaside’s Tsunami Awareness Program poster contest winners are honored at the Public Workshop.
9. Allow at least 2 hours to set up the event. Have a sign-in table where people write their name and other desired information (e.g., physical address, e-mail address). At the sign-in table, have name tags, markers, the workshop agenda, and other information people will need for the event. Wait to provide tsunami information and other educational resources until participants are leaving. This will reduce people's distraction level. Display any tsunami posters, large maps, or educational displays that are available. Red Cross may have resources to use for the event.

10. A half hour prior to the event, double-check that everything is in place and working. Have volunteers and workshop staff there. Verify that the sound system (microphones, speakers, etc.) and audiovisual equipment (overhead projector, LCD projector and laptop, video camera) are in place and functioning. Have refreshments ready. Expect people to arrive early.

11. Allow at least 15 minutes for people to sign in and take a seat. A good way to start the meeting would be to have the Mayor or City Councilor say a few things endorsing the event. Next, the workshop host should address the audience thanking them for attending and providing an overview for how the event will run. The host will likely be the one who transitions the Workshop from one session to the next. The host will need to keep track of time to make sure the event stays on schedule.

12. At the workshop’s conclusion, distribute surveys to participants to gain feedback on how the event went and ways to improve similar events in the future.

13. Prior to concluding the event, announce other upcoming program events such as drills, meetings, or workshops. Encourage participation and volunteerism. Have a list of program events for people to take with them. Tell participants to where they can go to receive more information or have questions answered.

14. Educational resources, such as tsunami brochures and Red Cross materials, should be available to participants as they are leaving the event. If the community intends to initiate an information e-mail newsletter, this is a good opportunity to have people sign up to be on that list. An additional sign-up sheet could be available at the door, a question could be included in the survey, or that information could be part of the original sign-in sheet as people enter the workshop.

15. Once the public has left, take a few minutes to thank all the volunteers and distribute an event assessment to them. Their feedback is important.

School Program

1. Determine an appropriate way to begin the conversation about the possibility of providing a school outreach program. The best approach will vary by community. In Seaside, the TOC first met with the School District Superintendent to talk about the overall program and ways to incorporate schools in outreach efforts. Next, the TOC met with each individual principal to discuss the Awareness Program and possibilities for their school’s special program. Work with school representatives to determine what kind of program should be offered; if possible, use the small-group model.

2. Determine whether a poster contest would work well in the community. If a Poster Contest is held, integrate it into the school program (Figure 17). Create a flyer to include in the information packet described below. Talk to teachers, particularly art and science teachers, about participating in the poster contest. Promote the contest when meeting with students. Seek prize donations from local merchants, identify poster contest judges, and identify an award venue to further promote the program. It could be done as part of a City Council meeting or with another outreach event.
3. Identify who will be involved with the school program. An outreach team should be identified to help determine what educational style can be provided. For the small-group model, at least three volunteers will be needed for each class. It is not necessary that every person be involved with all the school sessions; however, it can lead to confusion among the outreach team when roles change.

4. Meet with the outreach team to decide how the school program will run. Tailor the program for elementary, middle, and high school students, but be sure to use the program’s identified common themes. Create an agenda for each school program. In that agenda, identify roles and responsibilities. All outreach team members should clearly understand of their roles.

5. Create an informational packet that will be sent home with the students. Information should include a list of program events, tsunami brochures, information for children, poster contest flyer, and a family emergency plan guide.

6. Meet with the principal and teachers from each school to discuss how the school program will run. The the meeting, provide the information packet that will be sent home with students. (The packet may be sent home prior to or after the school program.) If applicable, also discuss the poster contest and encourage support from teachers.

7. When the outreach team goes to the schools, they should be enthusiastic about the school program and about all the “cool” information they are going to share. It is important to promote the program and poster contest (if applicable) with the students to gain their buy-in. Ensure that the school sessions are fun. Keep the information appropriate and avoid creating a sense of fear.
8. Provide prizes at the school sessions for student participation or correct answers. These prizes can include tsunami rulers, pens or stickers. If these resources aren't available, check with Red Cross and other emergency responder groups to see if they have any little prizes, such as stickers. Otherwise, consider candy.

9. Encourage student participation in other outreach events. Work with schools to identify incentives for student participation. Extra credit, free school lunches, or other benefits specific to each school may be good incentives.

Tsunami Evacuation Drill

Pre Drill
1. Work with emergency officials, City staff, and the Visitor’s Bureau to identify a date for the event. Avoid scheduling conflicts with major community events, such as annual downtown events.

2. Identify how to incorporate all the program’s partners into this event.

3. Create a draft layout of how the drill will run from pre- to post-drill. Identify strategies to inform the public about the event, key evacuation routes, where to place finish lines at safety points, where to hold a sign-in, how to mitigate traffic problems, etc. Decide how the event will begin. Will sirens be sounded or will some other notification process be used? Remember, this is a learning experience for the public. The public will expect a real evacuation to occur in a way similar to the drill. Be clear about the message and inform the public what to expect.

4. Hold a planning meeting with program partners and lead volunteers. Work on the drill layout to identify better ways to manage the event or include additional ideas.

5. Amend the drill layout with the suggestions and ideas that emerged from the planning meeting.

6. Meet with event volunteers and groups to discuss their roles.

7. Create flyers and other event public relations material. Distribute the information in the same manner as described previously for promoting an event.

8. Establish endorsements from community groups and leaders.

9. Involve the City Council and Planning Commission.

10. Announce the drill on all community reader boards, and work with the Department of Transportation to use their reader boards and signs to notify the public and motorists.

11. Be sure all local businesses (hotels, restaurants, vacation rental agencies, etc.) are aware of the drill. Have them post flyers in their establishment and notify guests the day before and the day of the drill.

12. Work with businesses to secure their participation in the drill. Create a sign-up sheet to distribute to them. This can act as a record of who participated and the level of participation. If a Business Workshop is hosted, provide information about the drill and a sign-up sheet.

Drill
1. Set up a centralized sign-in table at least one hour prior to the drill. This provides people with an opportunity to find out more about the drill and to acknowledge individuals’ participation in the drill. At least three volunteers should staff the table. Educational resources, particularly maps that people might use, should be available.

2. Provide each identified evacuation route with at least three volunteers: a guide somewhere along the route to steer people in the right direction; a finish line greeter to count evacuators and their times and distribute an event assessment; and an amateur radio operator to provide communication among event staff. These volunteers should be at their posts 20 minutes prior to the drill’s start.
Provide traffic control along major road arteries where pedestrians must cross. This support can come from police, firemen, or other qualified personnel. This support should be available 20 minutes prior to the drill and continue until participants return to their starting points.

Have City staff in place to respond to calls about the drill.

Notify local radio stations about the drill so they can make announcements over the airwaves at the start of the drill notifying the public that the event is “just a drill.”

Encourage City Council and Planning Commissioners to practice their evacuation routes along with the public.

At each safety line have a volunteer with a count sheet record how many people evacuated to that point, the time frames in which people arrived (e.g., 0—15 minutes, 16–30 minutes, or 30+ minutes), and how people evacuated (e.g., on foot, by bike, or by car).

Distribute surveys to drill participants once they reach safety lines. The surveys should ask where people started from, where they finished, how long it took to evacuate their age, if they have any disabilities. The survey should also ask participants to evaluate their experiences.

Be sure to document the event in some way. Have someone videotape or photograph the event.

**Post Drill**

1. After participants have returned to their starting points, all event staff should gather for a debriefing. This event should also be open to the public. At the debriefing, document the detailed information about how the event ran along the evacuation routes. Try to identify what worked, what caused public confusion, and what additional resources or support would have helped the drill run smoothly. Record the numbers for each safety line. How many people evacuated to that point? How many were on foot, on a bike, or in a car? How many people did not make it to high ground in the designated time before the hypothetical waves hit?

2. Summarize all the information in an event report.
APPENDIX A: PRE-Tsunami, PRE-OUTREACH PHONE SURVEY RESULTS

[Below is the script surveyors used and the percent of respondents who selected each choice; n is the number of respondents.]

Hello, my name is_____________________ and I am a volunteer with the City of Seaside. The City is conducting a tsunami awareness survey. Would you be willing to participate? I am not selling anything, and that this survey will only take about 5 minutes. Your answers will help determine what additional information the community needs about tsunamis. Do you have any questions about the survey before we begin?

First, I’d like to ask your opinion of tsunamis.

Q-1 How concerned are you about a tsunami event hitting Seaside? Would you say you are very concerned, somewhat concerned, a little concerned, or not concerned? (n = 142)
26% Very concerned
30% Somewhat concerned
25% A little concerned
19% Not concerned

Q-2 You may have heard talk in the news lately about tsunamis. What do you think a tsunami is? Do you think a tsunami is one large wave, a series of large waves, or something else? (n = 142)
35% One large wave
58% A series of large waves
8% Something else

Q-3 What do you think most commonly causes a tsunami? Would you say an earthquake under the ocean, an unusually high tide, or something else? (n = 141)
89% An earthquake under the ocean
4% An unusually high tide
7% Something else

Q-4 When do tsunamis typically occur? Would you say in the daytime, in the nighttime, in the summertime, or anytime of day or year? (n = 142)
1% Daytime
0% Nighttime
1% Summertime
98% Anytime of day or year

Q-5 A distant tsunami is most commonly triggered by an undersea earthquake far away from Oregon. What is your first indication that a distant tsunami is approaching? Would you say the ground shaking violently, a 3-minute siren blast, or local emergency personnel notifying you? (n = 141)
13% Ground shaking violently
58% 3-minute siren blasts
33% Emergency personnel notifying you

Q-6 A local tsunami is most commonly triggered by an undersea earthquake near the Oregon coast. What is your first indication that a local tsunami is approaching? Would you say the ground shaking violently, a 3-minute siren blast, or local emergency personnel notifying you? (n = 140)
41% Ground shaking violently
51% 3-minute siren blasts
12% Emergency personnel notifying you
Next, I’d like to ask you about how you would respond in a tsunami event.

Q-7 Let’s say the ground shakes strongly, indicating that a local tsunami is on the way. What would be your first response? Would you walk quickly to high ground, drive to high ground, call 911, or turn on your local broadcast? (n = 139)

- 36% Walk quickly to high ground
- 43% Drive to high ground
- 3% Call 911
- 22% Turn on your local broadcast

Q-8 For a distant tsunami, what is the estimated time you will have to reach high ground? Will you have 10–30 minutes, 1–2 hours, or 4+ hours? (n = 139)

- 25% 10-30 minutes
- 49% 1–2 hours
- 27% 4+ hours

Q-9 For a local tsunami, will you have 10–30 minutes, 1–2 hours, 4+ hours? (n = 140)

- 89% 10-30 minutes
- 7% 1–2 hours
- 4% 4+ hours

Q-10 Which of the following locations on high ground are expected to be outside the tsunami hazard zone? Do you think City Hall, the Community Center, the Hospital, Seaside Heights Elementary School, Broadway Middle School, Sunset Hills neighborhood, Seaside Aquarium, or Tillamook Head? (n = 137)

- 1% City Hall
- 2% The Community Center
- 40% The Hospital
- 51% Seaside Heights Elementary School
- 2% Broadway Middle School
- 73% Sunset Hills neighborhood
- 0% Seaside aquarium
- 51% Tillamook Head

Q-11 Once the tsunami, distant or local, hits shore, when is it safe to return to low-lying areas? Do you think it is safe after the first wave hits, once local emergency officials give an “all clear,” or an hour after the tsunami arrives on shore? (n = 139)

- 2% After the first wave hits
- 97% Once local emergency officials give an “all clear”
- 1% An hour after the tsunami arrives on shore

Now, I’d like to ask how you plan and prepare for a tsunami.

Q-12 Have you and your household developed an emergency plan for a tsunami? Yes or No? (n = 140)

- 35% Yes
- 65% No

Q-13 Do you have children in school? Yes or No? (n = 142)

- 23% Yes
- 77% No
13a If yes, are you familiar with the school’s emergency plan and evacuation procedure? Yes, No, or Does not apply? \((n = 36)\)

- 20% Yes
- 16% No
- Does not apply

Q-14 If you wanted to get more information on tsunamis, would it be most convenient to access information at the Library, the Police Station, the Fire Station, City Hall, on the City’s website, or somewhere else? \((n = 205)\)

- 28% Library
- 30% Police Station
- 30% Fire Station
- 49% City Hall
- 56% City’s Website
- 12% Somewhere else (please specify): ______________

Finally, I’d like to ask about your household. These questions are voluntary and the information is for statistical purposes only.

15. Are you male or female? \((n = 140)\)

- 35% Male
- 65% Female

16. What is your age? \((n = 140)\)

- 51 years (average)

17. What is your race or ethnic background? Would you say Caucasian, Hispanic or Latino, Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian or Pacific Islander, or Other? \((n = 140)\)

- 91% Caucasian
- 5% Hispanic or Latino
- 1% Black or African American
- 2% American Indian and Alaska Native
- 1% Asian
- 0% Native Hawaiian or Pacific Islander
- 0% Other (specify): ___________________

18. How much time do you spend in Seaside? Are you here year round, seasonal, or some holidays and weekends? \((n = 139)\)

- 94% Year round
- 2% Seasonal
- 6% Some holidays and weekends

19. What type of household do you live in? Do you live with family with children, with family without children, with people who are not family, or alone? \((n = 141)\)

- 28% Family with children
- 48% Family without children
- 9% People who are not family
- 16% Alone

Again, thank you for taking the time to answer the questions! Please get involved with the tsunami educational programs in Seaside. Have a good evening.
APPENDIX B: POST-TSUNAMI, PRE-OUTREACH MAIL SURVEY RESULTS

[Below is the survey and the percent of respondents who selected each choice; n is the number of respondents.]

Instructions: The City of Seaside randomly selected your household to participate in this survey about tsunami planning and preparedness. This questionnaire must be filled out by an adult in the household, 18 years of age or older. This person should answer questions for all members of the household. All responses are confidential. Please drop off or mail this survey to the City of Seaside, Tsunami Awareness Program, 989 Broadway, Seaside, OR 97138. Completed surveys must be received by Monday, January 24, 2005.

Your participation is voluntary. If you have any questions regarding the survey, please contact Darci Connor, Tsunami Outreach Coordinator, at the City of Seaside (738-7100).

First, I’d like to ask your opinion of tsunamis.

Q-15 How concerned are you about a tsunami event hitting Seaside? Please check (✓). ((n = 333)

- 39% Very concerned
- 36% Somewhat concerned
- 21% A little concerned
- 4% Not concerned

Q-16 You may have heard talk in the news lately about tsunamis. What do you think a tsunami is? Please check (✓). ((n = 331)

- 24% One large wave
- 75% A series of large waves
- 1% Something else

Q-17 What do you think most commonly causes a tsunami? Please check (✓). ((n = 330)

- 99% An earthquake under the ocean
- 0% An unusually high tide
- 1% Something else

Q-18 When do tsunamis typically occur? Please check (✓). ((n = 332)

- 0% Daytime
- 0% Nighttime
- 1% Summertime
- 99% Anytime of day or year

Q-19 A distant tsunami is most commonly triggered by an undersea earthquake far away from Oregon. What is your first indication that a distant tsunami is approaching? Please check (✓). ((n = 325)

- 8% Ground shaking violently
- 72% 3-minute siren blasts
- 29% Emergency personnel notifying you
Q-20 A local tsunami is most commonly triggered by an undersea earthquake near the Oregon coast. What is your first indication that a local tsunami is approaching? Please check (√). \( n = 326 \)
- 61% Ground shaking violently
- 46% 3-minute siren blasts
- 7% Emergency personnel notifying you

Next, I’d like to ask you about how you would respond in a tsunami event.

Q-21 Let’s say a local tsunami is on the way. What would be your first response? Please check (√). \( n = 324 \)
- 51% Walk quickly to high ground
- 51% Drive to high ground
- 1% Call 911
- 8% Turn on your local broadcast

Q-22 For a distant tsunami, what is the estimated time you will have to reach high ground? Please check (√). \( n = 315 \)
- 24% 10–30 minutes
- 55% 1–2 hours
- 23% 4+ hours

Q-23 For a local tsunami, what is the estimated time you will have to reach high ground? Please check (√). \( n = 328 \)
- 99% 10–30 minutes
- 2% 1–2 hours
- 0% 4+ hours

Q-24 Please indicate (√) which of the following locations are expected to be outside the tsunami hazard zone? \( n = 329 \)
- 1% City Hall
- 1% The Community Center
- 56% The Hospital
- 72% Seaside Heights Elementary School
- 1% Broadway Middle School
- 83% Sunset Hills neighborhood
- 0% Seaside aquarium
- 63% Tillamook Head

Q-25 Once the tsunami, distant or local, hits, when is it safe to return to low-lying areas? Please check (√). \( n = 330 \)
- 0.3% After the first wave hits
- 94.6% Once local emergency officials give an “all clear”
- 0.3% An hour after the tsunami arrives on shore

Now, I’d like to ask how you plan and prepare for a tsunami.

Q-26 Have you and your household developed an emergency plan for a tsunami? Please check (√). \( n = 329 \)
- 53.5% Yes
- 46.5% No
Q-27  Do you have children in school? Please check (✓).  \((n = 333)\)

- 13% Yes
- 87% No

Q-13a  If you indicated “yes” on Q-13, are you familiar with the school’s emergency plan and evacuation procedure? Please check (✓).  \((n = 223)\)

- 59% Yes
- 41% No
- Does not apply

Q-28  Please indicate (✓) where you would go to get more information on tsunamis.  \((n = 307)\)

- 39% Library
- 21% Police Station
- 28% Fire Station
- 56% City Hall
- 30% City’s Website
- 14% Somewhere else (please specify):
  - Internet (16)
  - my work
  - newspaper/ radio (5)
  - Public Works
  - son
  - TV/ INTERNET (3)
  - Astoria Budge Newspaper
  - You
  - YOU TELL ME
  - Call Darci Connor
  - work
  - mail (2)
  - tsunami brochure
  - do not know
  - NOAA Website
  - red cross (2)
  - chamber
  - Tsunami outreach coordinator
  - DOGAMI, CREW
  - State website
  - visitor center
Finally, I’d like to ask about your household. These questions are voluntary and the information is for statistical purposes only.

Q-29 Are you male or female? Please check (✓). (n = 322)
   40% Male
   60% Female

Q-30 What is your age? (n = 333)
   61 years (average)

Q-31 What is your race or ethnic background? Please check (✓). (n = 314)
   95% Caucasian
   2% Hispanic or Latino
   0% Black or African American
   1% American Indian and Alaska Native
   1% Asian
   0% Native Hawaiian or Pacific Islander
   1% Other

Q-32 How much time do you spend in Seaside? Please check (✓). (n = 326)
   96% Year round
   3% Seasonal
   2% Some holidays and weekends

Q-33 What type of household do you live in? Please check (✓). (n = 321)
   19% Family with children
   54% Family without children
   4% People who are not family
   23% Alone

Q-34 Did you or someone in your household participate in the tsunami phone survey the City conducted during December? (n = 322)
   2% Yes If so, please provide the phone number called ____________________________
   98% No

In addition, the City sends informational e-mails out to community members on upcoming events.

Q-35 Would you like to be included on this informational e-mail list?
   30% Yes
   70% No
APPENDIX C: POST-OUTREACH PROGRAM MAIL SURVEY RESULTS

[Below is the survey and the percent of respondents who selected each choice; n is the number of respondents.]

Instructions: The City of Seaside randomly selected your household to participate in this survey to evaluate the Tsunami Awareness Program. This questionnaire must be filled out by an adult in the household, 18 years of age or older. This person should answer questions for all members of the household. All responses are confidential. Please drop off or mail this survey to the City of Seaside, Tsunami Awareness Program, 989 Broadway, Seaside, OR 97138. Completed surveys must be received by WEDNESDAY, MAY 4, 2005.

Your participation is voluntary. If you have any questions regarding the survey, please contact Darci Connor, Tsunami Outreach Coordinator, at (503) 738-7100 ext. 219.

First, I’d like to ask your opinion of tsunamis.

Q-36 How concerned are you about a tsunami event hitting Seaside? (n = 206)
   29% Very concerned
   43% Somewhat concerned
   21% A little concerned
   6% Not concerned

Q-37 You may have heard talk in the news lately about tsunamis. What do you think a tsunami is? (n = 206)
   14% One large wave
   88% A series of large waves
   2% Something else

Q-38 What do you think most commonly causes a tsunami? (n = 205)
   100% An earthquake under the ocean
   0% An unusually high tide
   0% Something else

Q-39 When do tsunamis typically occur? (n = 206)
   0.5% Daytime
   0% Nighttime
   0.5% Summertime
   99% Anytime of day or year

Q-40 A distant tsunami is most commonly triggered by an undersea earthquake far away from Oregon. What is your first indication that a distant tsunami is approaching? (n = 205)
   12% Ground shaking violently
   85% 3-minute siren blast
   13% Emergency personnel notifying you

Q-41 A local tsunami is most commonly triggered by an undersea earthquake near the Oregon coast. What is your first indication that a local tsunami is approaching? (n = 205)
   80% Ground shaking violently
   28% 3-minute siren blast
   3% Emergency personnel notifying you
Next, I'd like to ask you about how you would respond in a tsunami event.

Q-42 Let’s say a local tsunami is on the way. What would be your first response? (n = 201)
- 74% Walk quickly to high ground
- 33% Drive to high ground
- 0% Call 911
- 5% Turn on your local broadcast

Q-43 For a distant tsunami, what is the estimated time you will have to reach high ground? (n = 193)
- 22% 10–30 minutes
- 48% 1–2 hours
- 32% 4+ hours

Q-44 For a local tsunami, what is the estimated time you will have to reach high ground? (n = 204)
- 100% 10–30 minutes
- 0% 1–2 hours
- 0% 4+ hours

Q-45 Please indicate (✓) which of the following locations are outside the tsunami hazard zone? (n = 205)
- 0% City Hall
- 0% The Community Center
- 56% The Hospital
- 80% Seaside Heights Elementary School
- 0% Broadway Middle School
- 90% Sunset Hills neighborhood
- 0% Seaside aquarium
- 79% Tillamook Head

Q-46 Once the tsunami, distant or local, hits, when is it safe to return to low-lying areas? Please check (✓). (n = 205)
- 0% After the first wave hits
- 99% Once local emergency officials give an “all clear”
- 1% An hour after the tsunami arrives on shore

Now, I’d like to ask how you plan and prepare for a tsunami.

Q-47 Has your household developed emergency plans for a local and distant tsunami? Please check (✓). (n = 201)
- 69% Yes
- 31% No

Q-48 Did you or someone in your household receive tsunami information from a volunteer distributing information in your neighborhood? Please check (✓). (n = 203)
- 60% Yes
- 40% No

Q-49 If you have children in the Seaside School District, did they participate in the Tsunami Awareness School Program? Please check (✓). (n = 195)
- 18% Yes
- 0% No
- 82% Does not apply
Q-50  Please indicate (✓) if you or someone in your household attended the following workshops.  \( n = 200 \)

- 5% Business Workshop: How to be a tsunami-prepared business, March 9
- 15% Public Workshop on Tsunami Preparedness, March 29
- 80% I did not attend any workshops on tsunami preparedness

Q-15  Did you or someone in your household participate in the Tsunami Evacuation Drill? Please check (✓).  \( n = 206 \)

- 27% Yes
- 73% No

Q-16  What was the most beneficial part of the Tsunami Awareness Program?  \( n = 175 \)

- 44% Distribution of information in your neighborhood
- 11% The School Outreach Program
- 3% The Business Workshop
- 17% The Public Workshop
- 30% Tsunami Evacuation Drill
- 2% The City’s website (http://www.cityofseaside.us/html/tsunami_info.html)
- 7% I was not aware of the Tsunami Awareness Program
- 3% I did not find the Tsunami Awareness Program to be beneficial
- 4% Media

Finally, this optional section is about your household. It is included for statistical purposes only.

Q-51  Are you male or female? Please check (✓).  \( n = 202 \)

- 45% Male
- 55% Female

Q-52  What is your age?  \( n = 193 \)

64 years (average)

Q-53  What is your race or ethnic background? Please check (✓).  \( n = 193 \)

- 97% Caucasian
- 1% Hispanic or Latino
- 0% Black or African American
- 1% American Indian and Alaska Native
- 1% Asian
- 0% Native Hawaiian or Pacific Islander
- 0% Other (please specify):

Q-54  How much time do you spend in Seaside? Please check (✓).  \( n = 204 \)

- 96% Year round
- 3% Seasonal
- 1% Some holidays and weekends

Q-55  What type of household do you live in? Please check (✓).  \( n = 201 \)

- 13% Family with children
- 59% Family without children
- 3% People who are not family
- 24% Alone
Q-56  Please indicate if you participated in:  \( (n = 197) \)

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>7%</td>
<td>The Phone Survey (took place in November and December)</td>
</tr>
<tr>
<td>45%</td>
<td>The Pre-Outreach Mail Survey (January)</td>
</tr>
<tr>
<td>51%</td>
<td>This is the first survey I have received</td>
</tr>
</tbody>
</table>

Please provide any additional suggestions for how to improve the Tsunami Awareness Program.

- All crown on Williamate gate should be opened upon notice of a tsunami
- We didn’t think about tsunamis at all prior to this program. To be honest, the first time we heard Darci speak we still weren’t that concerned. But overtime, we came to see the importance of understanding this local risk and planning for it. Darci is certainly persistent and convincing. We never thought we’d sit down at dinner and talk about our family’s plan for a distant or local tsunami. But we do!
- At the Tsunami Drill I asked several people how long we need to wait and no one knew. Many people thought it wasn’t worth their time, so more drills and education is needed.
- Redistribute the tsunami materials you were giving out previously.
- For question 15- suggestion to offer more dates for workshops. I could not attend due to work conflicts.
- For question 16- suggestion to offer more dates for drills. Again, could not attend due to work conflicts.
- Sirens needed on Tillamook Head, maybe at turnaround and maybe at north end of town. Couldn’t hear at all from inside the house- barely from outside in the Cove. The supply list needs to be updated: 3 gallons of water is too much for most people to carry! List Iodine tablets instead.
- A speaking warning such as in Cannon Beach sounds better. People in Rite Aid and older people in homes did not hear the siren.
- The program made pertinent tsunami information readily available through a number of opportunities. We well appreciated it and further think Ms. Connor is fantastic!
- Some people said they could barely hear the siren blast. I had to be in Astoria that day so I don’t what it sounded like and couldn’t participate in the drill. I think there should be a drill every year and the siren tested more often so people get used to responding and recognizing the warning siren.
- Yearly tsunami drills? I know we practiced in Sitka, AK the summer I was there. Maybe encourage people to participate by offering random prize drawings for emergency gear? Is there going to be a supply cache in the hills?
- I think we need to have provisions for waste collection, water supply, food storage and medical supplies at all safe sites. In the event of a tsunami, there will be approximately 2 weeks before we can expect complete response. There will be a need for excrement containment. People can’t carry large supply of food, water and waste disposal equipment.
- Keep informing us of new info or updates in the Seaside Signal
- Louder siren needed.
- Did not hear siren. This would be on Beach Dr.
- You’re doing fine!
- A warning siren should be put near the Turnaround. I was in Trendwest on Wednesday at 7 PM and tried to hear the test. Even out on the balcony, I could barely hear it in the distance. Anyone in the motels would not hear any warning siren!
- Hold Evacuation Drill yearly.
- Annual Drill, more audible sirens, continue to distribute literature
- Very difficult to hear drill siren.
- Make the siren louder!
- In my apartment complex there are 3 elderly people, who would not be capable of leaving without assistance. I am disabled and unable to run or walk any distance. What is being done to assist the elderly and disabled?
- Have some meetings when most of the people are there in the summer.
• We have just recently moved from Seaside to the Willamette Valley. Part of the reason for moving— but not all— was because of the possible Tsunami. The other reason was financial.
• Some residents may not be able to easily walk or are disabled wheelchair bound. Plan should address this— how I have no idea?
• I think that this Tsunami Awareness should be done once a year (at least). Awareness is the only way to save lives.
• I believe another drill is necessary. I work at the hospital and there was no participation. I was here in the early 80’s when the town was evacuated for a potential tsunami but we had plenty of warning and time to evacuate. I would like to see how our local emergency response team would be activated, what the plan is regarding communication (HAM radios, cells?) How is the hospital, Fire and Police working together on this? Thank you.
• 1. Need discussion on drive out or walk to safe zone(s). 2. What are prospects of getting breaks on cost of Fed Flood Insurance? If we had full participation of property owners, coverage within identified flood zones A and B? 3. Emergency Services and assistance need better certification so affected residents can fill-in where public assistance is not covering.
• Need more info on what radio station to tune into for current info. Won’t be able to access a website during an event (local). I also think you are scaring people unnecessarily.
• Give out information about what someone disabled, as I am, should do to get to high ground. Some days it’s too hard for me to even walk out to the mailbox.
• Most people who participated in this evacuation most likely found out the probably would not make it. If we had a worst-case-scenario 9 magnitude quake off of our coast. The ground would not only shake but move up and down violently. Have a simulator built to give people an experiential view of what it would feel like. This would probably give most people the best idea of what they would be up against.
• Stress, above all, the importance of evacuation in the event of an earthquake.
• Newspaper, real estate magazines, road signs
• Newspaper and mail survey I learned the most info and the map at the Senior Center
• Neighborhood meetings- show a way out and info
• For starters, I think it’s a good idea to “prepare” people “in case” of a tsunami, but don’t go overboard and get people worried!! For myself, I’m staying at my home if one does occur! I live three blocks from the beach and I’m not abandoning my cat, property and values! I’ll take my chances.
• Have water available at the locations outside the hazard zone. Have a warning system that activates the phone or an electric outlet. Plan on some people helping the elderly and slow or handicapped.
• I was not aware there was a drill until I heard it on Channel 6 news Friday night. Nor was anyone else aware in my apartment complex. If the bridge on Ave. U was up I’d heard for Portland on Hwy 26 and pray the road wasn’t flooded at the campground, as it frequently is.
• Be making sure everyone in the Seaside area can (audibly) clearly hear the tsunami siren. People downtown on Broadway, on the beach, and on the s. side could not hear it. Thanks!
• schedule another alert
• We did not hear the siren inside our home.
• Siren has to be louder and longer
• More and louder sirens! Or Bull horns on the beach.
• Please tell people if you are checking the warning whistle. It goes off sometimes it’s not supposed to. How do we know if it’s real or not?
• We have a business in downtown Seaside. I surprised my staff before the official drill. The building was evacuated, secured and all employees (3) walked briskly to the safety zone in 14 minutes. I felt the drill was not taken serious enough. It reminded me of a stroll in the park. PS News reports on the drill all show people walking west- as a person who considers this a serious concern I was offended by the extremely casual approach and attitude to this “drill.”
• Create an evac program for disabled people and people in care centers they are people too.
• Darci has done an excellent job creating a much needed program.
The Outreach Program was great! We dealt with this topic at work and then with our neighborhood volunteer. It was great coverage!

It was great having more than one event!

I am in Necanicum Village and most of this does not apply.

We didn't hear the siren blast at all here in the Cove! That could be a BIG problem. We also have elderly neighbors with bad hearts or knees, etc. How will they get up to Tillamook Head?

I learned that people near and on the beach did not hear any sirens at noon for the Saturday Tsunami Drill. That is unacceptable! Please do something about those sirens!

We live on Sunset Blvd we could just faintly hear the 3 min siren from inside our home- had to go outside to hear it better. It should be louder.

Awareness of need for upgrade the tsunami sirens so they can be heard and have a distinctive sound.

We live on Ave U- and was not able to hear the siren on this day.

Am a resident of Necanicum Village

Better warning system- A system that can broadcast voice messages w/sirens! A few areas of the City you can't hear the sirens at this time.

The three minute siren not loud enough barely heard the siren. If I was sleeping I wouldn’t have heard it.

Having program like the March one every so often 2-3x a year is very worth while.

Need better sirens- so all people can hear.

I would appreciate written literature delivered or available at multiple sightings for pick-up. As so many local residences are not occupied year hand maybe this literature should be available on holiday weekends and throughout the summer season.

An important question: how many people did not hear the warning? Or would not hear it during the night?

Siren

Louder signal for the tsunami warning

The Program at the Convention Center was great! I wish more people would have come, maybe do it again.

Great

We could not hear the siren in our house. It was too quiet.

siren

I understand Tsunami signs are now something tourists “collect”- please replace and update.

Darci has done a great job in getting Seaside prepared for a tsunami or other natural disaster.

In the late 60’s when the tidal wave alarm sounded- emergency vehicles- police and fire vehicles- went through neighborhoods announcing to evacuate. Also I was then on active duty in the US Coast Guard and I was always notified about a half hour before the City gave any warning, so I had a jump on evacuating.

Suggest changing the siren blast from monotone to pulsating. Common household noise tends to override the sirens making it easy to ignore.

1. People still don’t understand that if there’s an earthquake, they need to flee to high ground and no siren will warn. 2. Why can’t the siren blow for a local tsunami/earthquake?

More adequate siren.

I’m 78, have trouble walking; my husband is 82, has physical and mental impairments. To walk to high ground is unrealistic. I doubt that we are the exception, but are rather a part of a large segment of Seaside’s population. What are our options?

We did not hear the siren. It is not going to do you any good if you can’t hear it.

We did not hear the siren blast in our house. We live in the Cove. You need a siren at the north and south end of town.

No alert in Safeway or office building.
• Have a suitcase with radio, change of clothes, blanket, medications, water, a little. Canned food (sardines, beans, Gatorade).
• Continue workshops, providing information and drills
• Continue with workshops and drills
• I did not hear the siren for the evacuation drill. I was near the Seaside Golf Course.
• How do you provide assistance for citizens, who are disabled and can't walk or drive to a safe place?
• I keep an emergency pack and a life jacket in my car- a life jacket may be necessary to get across the River to reach high ground.
• Volunteers posted at various areas to direct pedestrians, i.e.: Broadway and Wahanna- people (during the drill) didn't know if they were to go all the way up Broadway to Hilltop, and then were to go from there. You're doing a good job and great service to the community! Thanks for your efforts!
• Glad for the drill- took us 15 minutes to walk to Lewis and Clark Rd from 25th and DRE. We are concerned about bridges in the north end of town.
• I am sorry that more people did not participate in the drill. I heard many people say they did not hear the siren from inside their house. The City needs to have help for those with injuries that can't get around. When walking to high ground has anyone been told about life jackets? I gave all of mine to kids on my block (will they help?) More education passed on to the public will go a long way.
• I know that walking would be best but in home I take care of an elderly family member on oxygen, and driving would be the best solution for us.
• The Tsunami Drill was a great tool. From the Drill I think that we learned that more sirens need to be placed in the City. I wish more people participated in the drill. It answered some questions for us and now we feel more prepared... in case. Good job Darci and the City!
• Much louder siren
• Make the siren louder!
• We are thrilled that our community is doing something about the tsunami risks! The information provided was great.
APPENDIX D: SURVEY COMPARISON ANALYSIS

Q-1. How concerned are you about a tsunami event hitting Seaside?

<table>
<thead>
<tr>
<th>How Concerned</th>
<th>Pre-Outreach Survey (Pre-Sumatra Event)</th>
<th>Pre-Outreach Survey (Post-Sumatra Event)</th>
<th>Post-Outreach Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very</td>
<td>26</td>
<td>39</td>
<td>29</td>
</tr>
<tr>
<td>Somewhat</td>
<td>30</td>
<td>36</td>
<td>43</td>
</tr>
<tr>
<td>A little</td>
<td>25</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>Not</td>
<td>19</td>
<td>4</td>
<td>6</td>
</tr>
</tbody>
</table>

Q-2. What do you think a tsunami is?

<table>
<thead>
<tr>
<th>What is a tsunami?</th>
<th>Phone Survey</th>
<th>Mail Survey</th>
<th>Post-Outreach Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total %</td>
<td>Total %</td>
<td>Total %</td>
<td>Total %</td>
</tr>
<tr>
<td>One large wave</td>
<td>49</td>
<td>78</td>
<td>29</td>
</tr>
<tr>
<td>35</td>
<td>24</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>A series of large waves</td>
<td>82</td>
<td>248</td>
<td>181</td>
</tr>
<tr>
<td>58</td>
<td>75</td>
<td>88</td>
<td></td>
</tr>
<tr>
<td>Something else</td>
<td>11</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
Q-3. What do you think most commonly causes a tsunami?

<table>
<thead>
<tr>
<th></th>
<th>Phone Survey</th>
<th>Mail Survey</th>
<th>Post-Outreach Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>%</td>
<td>Total</td>
</tr>
<tr>
<td>Earthquake under the ocean</td>
<td>126</td>
<td>89</td>
<td>328</td>
</tr>
<tr>
<td>Unusually high tide</td>
<td>5</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Something else</td>
<td>10</td>
<td>7</td>
<td>2</td>
</tr>
</tbody>
</table>

Q-4. When do tsunamis typically occur?

<table>
<thead>
<tr>
<th></th>
<th>Phone Survey</th>
<th>Mail Survey</th>
<th>Post-Outreach Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>%</td>
<td>Total</td>
</tr>
<tr>
<td>Daytime</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Nighttime</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Summertime</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Anytime</td>
<td>139</td>
<td>98</td>
<td>329</td>
</tr>
</tbody>
</table>
Q-5. What is your first indication that a DISTANT tsunami is approaching?

<table>
<thead>
<tr>
<th></th>
<th>Phone Survey</th>
<th>Mail Survey</th>
<th>Post-Outreach Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground shaking</td>
<td>13</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>Siren</td>
<td>58</td>
<td>72</td>
<td>85</td>
</tr>
<tr>
<td>Direct Notification</td>
<td>33</td>
<td>29</td>
<td>13</td>
</tr>
</tbody>
</table>

Q-6. What is your first indication that a LOCAL tsunami is approaching?

<table>
<thead>
<tr>
<th></th>
<th>Phone Survey</th>
<th>Mail Survey</th>
<th>Post-Outreach Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground shaking</td>
<td>41</td>
<td>61</td>
<td>80</td>
</tr>
<tr>
<td>Siren</td>
<td>51</td>
<td>46</td>
<td>28</td>
</tr>
<tr>
<td>Direct Notification</td>
<td>12</td>
<td>7</td>
<td>3</td>
</tr>
</tbody>
</table>
Q-7. If a local tsunami was on the way, what would be your first response?

<table>
<thead>
<tr>
<th>Possible Response</th>
<th>Phone Survey</th>
<th>Mail Survey</th>
<th>Post-Outreach Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walk to high ground</td>
<td>36</td>
<td>51</td>
<td>74</td>
</tr>
<tr>
<td>Drive to high ground</td>
<td>43</td>
<td>51</td>
<td>33</td>
</tr>
<tr>
<td>Call 911</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Turn on local broadcast</td>
<td>22</td>
<td>8</td>
<td>5</td>
</tr>
</tbody>
</table>

Q-8. How much time will you have to reach high ground for a DISTANT tsunami?

<table>
<thead>
<tr>
<th>Timeframe</th>
<th>Phone Survey</th>
<th>Mail Survey</th>
<th>Post-Outreach Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-30 min</td>
<td>25</td>
<td>24</td>
<td>22</td>
</tr>
<tr>
<td>1-2 hours</td>
<td>49</td>
<td>55</td>
<td>48</td>
</tr>
<tr>
<td>4+ hours</td>
<td>27</td>
<td>23</td>
<td>32</td>
</tr>
</tbody>
</table>
Q-9. How much time will you have to reach high ground for a LOCAL tsunami?

<table>
<thead>
<tr>
<th></th>
<th>Phone Survey</th>
<th>Mail Survey</th>
<th>Post-Outreach Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-30 min</td>
<td>89</td>
<td>99</td>
<td>100</td>
</tr>
<tr>
<td>1-2 hours</td>
<td>7</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>4+ hours</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Q-10. Which locations are outside the tsunami hazard zone?

<table>
<thead>
<tr>
<th></th>
<th>Hospital</th>
<th>Heights</th>
<th>Sunset</th>
<th>Hills</th>
<th>Tillamook</th>
<th>Head</th>
<th>All 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone Survey</td>
<td>40</td>
<td>51</td>
<td>73</td>
<td>51</td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mail Survey</td>
<td>56</td>
<td>72</td>
<td>83</td>
<td>63</td>
<td>29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post Outreach Survey</td>
<td>56</td>
<td>80</td>
<td>90</td>
<td>79</td>
<td>41</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Q-11. Once a tsunami hits, when is it safe to return to low-laying areas?

<table>
<thead>
<tr>
<th></th>
<th>After Wave Hits</th>
<th>After Official “All Clear”</th>
<th>One Hour After Wave Hits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone Survey</td>
<td>2</td>
<td>97</td>
<td>1</td>
</tr>
<tr>
<td>Mail Survey</td>
<td>0.3</td>
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<td>0.3</td>
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<tr>
<td>Post Outreach Survey</td>
<td>0</td>
<td>99</td>
<td>1</td>
</tr>
</tbody>
</table>
Q-12. Has your household developed emergency plans for a local and distant tsunami?

<table>
<thead>
<tr>
<th></th>
<th>Phone Survey</th>
<th>Mail Survey</th>
<th>Post-Workshop</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>%</td>
<td>Total</td>
</tr>
<tr>
<td>Yes</td>
<td>49</td>
<td>35</td>
<td>176</td>
</tr>
<tr>
<td>No</td>
<td>91</td>
<td>65</td>
<td>153</td>
</tr>
</tbody>
</table>

Q-14. Where would you go to access more information on tsunamis?

<table>
<thead>
<tr>
<th>Location</th>
<th>Phone Survey</th>
<th>Mail Survey</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Library</td>
<td>28</td>
<td>120</td>
<td>148</td>
</tr>
<tr>
<td>Police Station</td>
<td>30</td>
<td>63</td>
<td>93</td>
</tr>
<tr>
<td>Fire Station</td>
<td>30</td>
<td>85</td>
<td>115</td>
</tr>
<tr>
<td>City Hall</td>
<td>49</td>
<td>173</td>
<td>222</td>
</tr>
<tr>
<td>City’s Website</td>
<td>56</td>
<td>92</td>
<td>148</td>
</tr>
<tr>
<td>Other</td>
<td>12</td>
<td>44</td>
<td>56</td>
</tr>
<tr>
<td>Total</td>
<td>205</td>
<td>307</td>
<td>512</td>
</tr>
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</table>
### Q-51–Q-56. Summary of Household Data; n is Sample Size

#### Pre-Outreach (Pre-Sumatra Event)

<table>
<thead>
<tr>
<th>Average Age</th>
<th>Sex</th>
<th>Race</th>
<th>Residency</th>
<th>Household Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n = 140)</td>
<td>(n = 140)</td>
<td>(n = 139)</td>
<td>(n = 141)</td>
</tr>
<tr>
<td>51</td>
<td>male 35</td>
<td>Caucasian 91</td>
<td>year 94</td>
<td>family without children 28</td>
</tr>
<tr>
<td></td>
<td>female 65</td>
<td>Hispanic 5</td>
<td>seasonal 2</td>
<td>family with children 48</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Black 1</td>
<td>holidays 4</td>
<td>people who are not family alone 9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>American Indian 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asian 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hawaiian 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Pre-Outreach (Post-Sumatra Event)

<table>
<thead>
<tr>
<th>Average Age</th>
<th>Sex</th>
<th>Race</th>
<th>Residency</th>
<th>Household Type</th>
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<tr>
<td></td>
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<td>(n = 31)</td>
<td>(n = 326)</td>
<td>(n = 231)</td>
</tr>
<tr>
<td>61</td>
<td>male 40</td>
<td>Caucasian 95</td>
<td>year 96</td>
<td>family without children 19</td>
</tr>
<tr>
<td></td>
<td>female 60</td>
<td>Hispanic 2</td>
<td>seasonal 3</td>
<td>family with children 54</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Black 0</td>
<td>holidays 2</td>
<td>people who are not family alone 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>American Indian 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asian 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hawaiian 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other 1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Post-Outreach Survey

<table>
<thead>
<tr>
<th>Average Age</th>
<th>Sex</th>
<th>Race</th>
<th>Residency</th>
<th>Household Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n = 202)</td>
<td>(n = 193)</td>
<td>(n = 204)</td>
<td>(n = 201)</td>
</tr>
<tr>
<td>64</td>
<td>male 45</td>
<td>Caucasian 97</td>
<td>year 96</td>
<td>family without children 13</td>
</tr>
<tr>
<td></td>
<td>female 55</td>
<td>Hispanic 1</td>
<td>seasonal 3</td>
<td>family with children 59</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Black 0</td>
<td>holidays 1</td>
<td>people who are not family alone 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>American Indian 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asian 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hawaiian 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX E: BUSINESS WORKSHOP RESOURCES

EDUCATE AND PREPARE

If a tsunami hits, will you be ready?

IT WILL SAVE LIVES

Event: Tsunami Preparedness Business Workshop
Date: March 9, 2005
Time: 6:30 PM – 8:30 PM
Location: Seaside Convention Center, Seaside Room

BUSINESS WORKSHOP Agenda

6:30- 6:35  1) Welcome and Workshop Overview (Darci Connor)

6:35- 6:55  2) Tsunami 101 (James Roddey, DOGAMI)
- What is a tsunami?
- What causes a tsunami?
- What are the 2 scenarios?
- What would you do in each scenario?

6:55- 7:25  3) Basics: a tsunami-prepared business (Lauren Darnell)
- Why it is important to businesses?
- What to do
- Ways to be prepared

7:25- 7:35  4) A local business: What are they doing?
- Bob Ewing, EbbTide Resort

7:35- 8:10  5) Small Group exercise:
- What is your business doing?
- At a minimum, what should businesses do?
- What does it take to be a tsunami-prepared business?
- How can the Tsunami Awareness Program help?

8:10- 8:30  6) Regroup, report out and reflect (Darci Connor)
- Each group presents
- Discuss common themes
- What can businesses do now?
- Closing comments

BUSINESS WORKSHOP ADMINISTRATIVE NOTES

Cue questions for Small Group Exercise:
  Part I: Your Business
  1. Is your business in the tsunami hazard zone? (Locate businesses on map)
  2. If so, do you know your evacuation route? What is the closest safe zone? Is it near an assembly area? Do you have to cross bridges?
  3. Do you have emergency plans in place for a distant and local tsunami?
  4. If so, what are they?
Part 2: Model Tsunami-Prepared Business
1. What does it take to be a tsunami-prepared business?
2. What should the minimum requirements be for a certification program?
   - Should specific action items from the checklist be required?
   - Should there be general requirements of fulfilling x number of actions in each list?
   - Should there be some combination of both?
3. Is there any action item missing from this checklist?
4. What do businesses need to accomplish these action items?
5. How can the Tsunami Awareness Program help?

Facilitators for Small Group Exercise:
Darci Connor, Tsunami Outreach Coordinator
Lauren Darnell, student volunteer and Lead Business Outreach Volunteer
Diego Colin, student volunteer and Lead Hispanic Outreach Volunteer
Daniel Terranova, student volunteer and Lead PR Volunteer
James Roddey, Dept. of Geology and Mineral Industries, Outreach Specialist
Lynn Smith, City of Seaside, Head of Dispatch
Kevin Cupples, City of Seaside, Planning Director
Jill Brewer, Tillamook County, Community Development Facilitator

Workshop details
- Jesse Taylor (City of Seaside, volunteer) will videotape the Event
- Kevin Cupples (City of Seaside, volunteer) will bring and set out refreshments
- Diego and Daniel will staff the sign in table
- Anne Frobenius (community volunteer) will attend to arising needs
- Jill Brewer (community volunteer) will take pictures
- Businesses will fill out survey on Workshop
- Advocate for businesses to participate in 4/16 Evacuation Drill
- Encourage them to report in on what they are doing so we can recognize them for their efforts

Handouts
- List of the Tsunami Awareness Program’s Upcoming Events
- Sign for Evacuation Drill
- Evacuation Drill sign-up forms
- Business Guide to Tsunami Preparedness check sheet
- Business Preparedness Questionnaire
Seaside: Getting Ahead of the Wave

Tsunami Preparedness Business Workshop

WHAT:  Learn how to be tsunami prepared
WHEN:  Wednesday, March 9th, 6:30 pm
WHO:   Business owners and staff
WHERE:  Seaside Convention Center

As part of the Tsunami Awareness Program, the City is holding a Tsunami Preparedness Business Workshop at the Seaside Convention Center on Wednesday, March 9th at 6:30 PM. This Workshop is designed to assist your business to become more prepared in case of a tsunami. Information will be available on tsunamis, safety procedures, and what you can do to help your business property. Additionally, there will be examples of local businesses that are already preparing for the inevitable.

In response to the recent media attention on tsunamis, this is our community’s opportunity to let Oregon know Seaside is a safe place to visit. Join us in an effort to prepare ourselves and our businesses. It will state our community’s commitment to public safety.

For more information, please contact Darci Connor, Tsunami Outreach Coordinator, at 738-7100, ext. 219.

Educate and prepare. It will save lives.
APPENDIX F: SCHOOL OUTREACH RESOURCES

SCHOOL TSUNAMI OUTREACH PROGRAM
Broadway Middle School
March 14-16, 2005

1) Welcome and Overview (Darci Connor, Outreach Coordinator)

2) Tsunami Basics
   What is a tsunami? (Diego Colin, student volunteer)
   One large wave vs. series of large waves

   What causes a tsunami? (Lauren Darnell, student volunteer)
   Earthquake inland (i.e. / Portland)?

   What are the 2 scenarios? (Daniel Terranova, student volunteer)
   Can an earthquake off the Alaskan coast cause a tsunami in Seaside?
   Can an earthquake off the Oregon coast cause a tsunami in Seaside?
   What’s the difference?
   TIME to respond
   WARNING for the tsunami
   EVACUATION CONDITIONS

3) Ways you can be prepared
   Know the safe and hazard areas in your town (Diego)

   Know evacuation routes for various places in town (Diego)

   Reeducate yourself and family (Daniel)
   COME TO PUBLIC WORKSHOP (Tuesday, March 29 at 6:30 PM)

   Have family emergency plans (Lauren)
   Local event (don’t have time to get in touch with family or prepare)
   Distant event (have time to get in touch with family and prepare)
   Day event (kids at school, parents at work)
   Evening event (everyone is home)

   Practice your plan (Daniel)
   APRIL 16 at 12 PM

4) Map your way to safety
   Each student mark on the map their house and evac route
   Map school’s evac route
   Scenario: Downtown
Do you know what to do in the event of a tsunami? Spread the word about how to be prepared!

**WHO CAN PARTICIPATE:** Any student enrolled in grades K-8.

**WHAT TO DO:** Create a poster to share your knowledge of tsunami readiness with others, and enter the City of Seaside’s Tsunami Readiness Poster Contest!

**INCLUDE:** Artwork and information that will inform and educate the public about what to do to be ready for a tsunami.

**DUE BY:** Monday, March 28, 2005.

**RULES:** Please see attached “City of Seaside’s Tsunami Readiness Poster Contest Rules & Regulations.”

For more information, contact Darci Connor at 738-7100, ext. 219.

Educate and prepare. It will save lives.
City of Seaside’s
TSUNAMI AWARENESS POSTER CONTEST
RULES & REGULATIONS

PLEASE READ CAREFULLY.

I. RULES & REGULATIONS:

A. This contest is open to all students in grades K through 8 enrolled in any school or home schooled.
B. The following grades will fall into four divisions:
   1. Kindergarten Division – Grade K.
   2. Primary Division - Grades 1, 2.
   3. Intermediate Division - Grades 3, 4, 5
   4. Middle School Division - Grades 6, 7, 8
C. The poster must be original and may be on anything relating to planning, preparing and responding to a tsunami event. Only individual work by the student, and one entry per student will be accepted.
D. Posters must conform to the following description:
   1. Size of poster: 14 inches by 22 inches. (approximately)
   2. Kind: Any art medium. Including painted, cut-outs, pen and ink, crayons, chalks, pencils, computer graphics, but not limited to these.
   3. **No** objects over one - half inch in height are to be placed on the poster.
E. The following information must be included in a piece of paper attached to the poster:
   1. Name of student.
   2. Name of school.
   3. Address of school.
   4. Grade of student.
   5. Name of teacher (art or general).
   6. Description: In one or two sentences, state why it is important to prepare for a tsunami.

Note: All posters must contain full information and conform to approximate paper size to avoid disqualification.

II. GENERAL INFORMATION: Posters must be submitted to the City of Seaside, Tsunami Awareness Program at City Hall by Monday, March 28 at 4:00 P. M. First, Second, and Third place posters will be given in each division. Five or seven judges will be selected by the City to serve the Tsunami Preparedness Poster Committee. The decision of the judges will be announced before the Tsunami Preparedness Public Workshop and the posters will be on display on Tuesday, March 29th from 6:30 PM - 8:30 PM. The decision of the judges is final. All posters will become the property of the City of Seaside to be exhibited in community buildings. Winning Poster will be displayed until May 2005. It is the schools or students responsibility to pick up the posters in May. Any poster not picked up will either be left on display or potentially disposed of.
APPENDIX G: PUBLIC WORKSHOP RESOURCES

EVENTS

If a tsunami hits, will you be ready?

IT WILL SAVE LIVES

Event: Tsunami Preparedness Public Workshop
Date: Tuesday, March 29, 2005
Time: 6:30 PM – 8:30 PM
Location: Seaside Convention Center, Exhibit Hall

Public Workshop Agenda

6:30- 6:35 1) Welcome and Workshop Overview (Darci Connor)

6:35- 7:05 2) Tsunami Basics (Jay Wilson, OEM)

7:05- 7:35 3) Question and Answer Panel
   Tyree Wilde, National Weather Service, Warning Coordination Meteorologist
   Jay Wilson, Oregon Emergency Mgt, Earthquake and Tsunami Coordinator
   George Priest, Dept. of Geology and Mineral Industries, Geologist
   Mark Winstanley, City of Seaside, City Manager
   Lynn Smith, Seaside Police Department, Communications Manager
   Doug Dougherty, School District #10, Superintendent
   Julie Flues, American Red Cross, Clatsop Services Center Manager

7:35- 8:05 4) Small Group Exercise
   Facilitators: Lauren Darnell
   Diego Colin
   Pat Corcoran, Oregon State University, Outreach Specialist
   Lynn Smith
   Jay Wilson
   Jill Brewer, Tillamook County, Community facilitator
   Julie Flues
   Doug Dougherty
   Kevin Cupples, City of Seaside, Planning Director
   Tyree Wilde

PART 1
1. Where are we on this map?
2. What bridges are built to seismic standards?
3. Map the evacuation route from the Convention Center
4. Have each person mark their home on map
5. Discuss what their evacuation route would be

PART 2   (Each facilitator has a different scenario)
Scenario 1: Ground shakes and you are…
   What does that mean? Local vs. Distant?
   How much time do you have to get to high ground?
   What do you do?
   Where do you go?
Scenario 2: Tsunami sirens sound and you are…
   What does that mean? Local vs. Distant?
   How much time do you have to get to high ground?
   What do you do?
   Where do you go?

PART 3
1. What can we do now to prepare?

8:05- 8:15  5) Report Out
8:15- 8:30  6) Closing Comments
TSUNAMI PREPAREDNESS PUBLIC WORKSHOP
THE BEHIND-THE-SCENE DETAILS
March 29, 2005, 6:30 PM

Pre Workshop
1. Volunteer Poster    Lauren Darnell, student volunteer
2. Count people/ Q Box John Bard, community volunteer
3. Sign in            Diego Colin, student volunteer
4. Name tags and Agenda Anne Frobenius, community volunteer
                      Dain Sprayberry, com. volunteer

During Workshop
5. Videotape         Benny Davis, City of Seaside, volunteer
6. Digital camera     Anne and John

Workshop
7. Q n’ A (?s and mic) Anne
8. Sm Group Facilitators Lauren, Diego, Pat, Lynn, Jay, Jill,
                                Julie, Doug, Kevin, and Tyree
8. Collect surveys    Anne
9. Pass out packets to tables Anne

Post Workshop
10. Take pictures     Stephanie Scordia, Seaside Signal
     Kids w/ posters   community volunteer
     Kids w/ Mayor and Councilors
     Volunteers w/ Mayor et al.
11. Collect surveys at door Anne
12. April 16 flyer    John
13. Volunteer Poster  Lauren
As part of an ongoing Tsunami Awareness Program sponsored by the City of Seaside, Oregon Emergency Management and the Oregon Department of Geology, The City of Seaside is holding a Tsunami Preparedness Public Workshop at the Seaside Convention Center on Tuesday March 29th at 6:30 PM.

Participants will learn what causes tsunamis, how often they happen and how you and your family can be tsunami prepared. There will be state and local emergency officials, tsunami experts and the Seaside Superintendent there to answer any questions. Additionally K-8th grade tsunami poster contest participants will also have their posters displayed.

For more information, please contact Darci Connor, Tsunami Outreach Coordinator, at 738-7100, ext. 219.

Educate and prepare. It will save lives.
APPENDIX H: TSUNAMI EVACUATION DRILL RESOURCES

TSUNAMI EVACUATION DRILL
 EVENT OUTLINE
Saturday, April 16, 2005

PRE DRILL
1. Registration 11 AM Turnaround
The registration is OPTIONAL. It is an opportunity for participants to get
information about the drill and an evacuation map. People will also receive an
orange band that indicates their participation in the drill. For people, who do not
wish to register, the City is encouraging them to also wear orange. If they do
not hear the sirens at noon, they should wait 5 minutes and evacuate.
REMEMBER the sirens are the indication for a distant tsunami, NOT a local
tsunami. In the event of al local tsunami, the only indication people need is the
ground shakes violently for 1-3 minutes.

DRILL
2. Sound sirens 12 PM Police Station
3. Traffic Control 11:45-1:30 Along Hwy 101
   Police: Ave U, Ave S, and the North Y
   Fire: 12th Ave, Broadway, Ave G, and Broadway and Wahanna
4. Main Evacuation Routes 11:45-1 7 routes
   Each route will have a greeter at the Safety Zone Line.
   • Lewis and Clark (Robin Hanson, community volunteer)
   • 12th Ave, Hillside Loop (Lauren Darnell, student volunteer)
   • 12th Ave, Skyline Drive (Anne, community volunteer)
   • Broadway, (Diego Colin and Daniel Terranova, student volunteers)
   • Ave S (Bob Chamberlin, community volunteer)
     a. Red Cross Shelter at Seaside Heights (Julie Flues)
   • Tillamook Head (Henry Davis, community volunteer)
   • Trendwest, 4th Floor of the parking structure (Marilyn Horecny,
     community volunteer)
5. Red Cross Shelter 12:15-1:30 Heights Elementary
6. Shuttle for participants 12:30-1:30 Loop
   Trolley will make a loop around to evacuation sites and transport people
   back to central areas in town.

POST DRILL
7. Debriefing with volunteers 1:30 City Hall
   The public is welcomed to attend and provide in-depth feedback on the
   event.
Seaside: Getting Ahead of the Wave

TSUNAMI DRILL

Saturday, **April 16 at 12 PM**

**Voluntary** evacuation drill

Practice your plan &
Walk your route to safety

There is an optional 11 AM registration on the Turnaround for people, who want to get information about the event. After registering, participants will return home in time for the drill.

When the sirens sound at noon, people are encouraged to walk their evacuation route to high ground. The City asks that you wear orange to signify your participation in this important drill.

The City of Seaside, Tsunami Awareness Program

Educate and prepare. It will save lives.
APPENDIX I: PROGRAM VOLUNTEER ASSESSMENT

Tsunami Awareness Program
Volunteer Evaluation Results
Monday, May 09, 2005

1. What did your volunteer hours include? (Check all that apply)
   37% Calling for the phone survey
   83% Serving as a Neighborhood Educator
   27% Assisting with public events
   12% Other (please specify) __________________________

2. How did you hear about this Program:
   42% Radio/ newspaper
   11% Flyer
   42% Public meeting/presentation
   17% A friend
   22% Other (please specify)
      • Tsunami Outreach Coordinator (5)
      • City (3)

3. Why did you get involved?
   • Good neighbor and community interest
   • To educate the public and community
   • I live here and I care about my City and my fellow citizens
   • To tell people what to expect so they are better prepared to figure out their solution to the tsunami risk
   • Seaside is my town!
   • I was here for the “flood” in the 60s. We need some good plans.
   • I wanted to do something meaningful with my Pacifica Project
   • To be part of the community
   • It is important to save lives and have businesses recover after such a disaster
   • To provide some community service and to learn more about a local concern because I am a local citizen.
   • I believe that a community works together and if you’re not part of the solution, you are part of the problem.
   • Give back to my community
   • To help understand where we are with this Program and see where I can help.
   • Because it sounded fun and it was something new!
   • Darci asked me and I thought it sounded important.
   • Wanted to give back to my community
   • To help my community understand how dangerous a tsunami is, know what to do, and know how to get to high ground.
   • Because I could, needed a good walk and interested in meeting more of my neighbors.

4. Overall, how would you rate your volunteer experience?
   68% Excellent
   32% Good
   0% Fair
   0% Poor
5. Would you be willing to continue volunteering with the Tsunami Awareness Program?

89% Yes
If so, please include your name and phone number:
- Tracy Schroeder 738-6106
- Les McNary 738-0759
- Marilyn Horency 717-8459
- Don McKay 738-9003
- Ken Gurian 738-9753
- Bob Ewing 440-8077
- Dan Terranova
- Reita Fackerell
- Wendy Rice 738-9931
- Troy Jasmin 791-4000
- Lauren Darnell 440-6564
- Dick Rees 738-6222
- Jerry Franciscovich 738-6234
- Remy Fackerell 717-0142
- Mike Hinton 738-5748
- Jack Palmieri 738-3398
- Leslie Palmieri 738-3398

0% No

11% Not sure

6. What recommendations would you make to improve the Tsunami Awareness Program?
- Bigger signs, continue education, need to make the public better aware
- Semi-annual newsletter and drill and make sure everyone can hear the sirens.
- We have to make sure the media gives positive information and let the public know we are prepared. This is important to our tourist industry.
- Hire Darci full time at whatever salary she needs.
- More drills
- Continue with drills, make sure vacation rental dwellings have tsunami information.
- Monthly or bi-yearly newsletters
- Running great!
- Continue the Program on a yearly basis
- The City should keep up being active!
- Keep up meetings, drills, sirens, and a newspaper pamphlet or weekly article
- I’m working on 3 neighborhoods including my own. Have all areas covered is important for strong simultaneous effect. We need a plan to help disabled evacuate.
- Map evacuation route maps easier to read/reproduce and post. Continue drills on a yearly basis. Vacation rentals should require owners to post info or stock evacuation maps in units.

Thank you for all your hard work and dedication to the Program!
Tsunami Evacuation Drill
Layout of Event
Saturday, April 16, 2005

Pre Drill
1. Registration 11 AM Turnaround
   (Kevin Cupples, City volunteer, setup at 10:15)
   James Roddey, DOGAMI
   Lauren Darnel, student volunteer
   Daniel Terranova, student volunteer
   Diego Colin, student volunteer

2. Operations Set Up 10:30 AM City Hall
   Staff to report:
   □ Trish
   □ Police
   □ Fire
   □ Red Cross
   □ Hamm Radio Operators
   □ Safety zone volunteers (7)
   □ Evacuation route volunteers (8)

Drill
3. Sound sirens 12 PM Police Station
4. Traffic Control 11:45-1:30 Along Hwy 101
   Police:
   □ Ave U
   □ Ave S
   □ North Y
   □ 12th Ave
   □ Broadway
   □ Ave G, and
   □ Broadway and Wahanna

5. Main Evacuation Routes 11:45-1 7 routes
   Each route will have a greeter at the Safety Zone Line.
   • Lewis and Clark
   • 12th Ave (Hillside Loop)
   • 12th Ave (Skyline Drive)
   • Broadway (Sunset Hills)
   • Ave S (and onto the RC Shelter at Seaside Heights)
   • Tillamook Head
   • Trendwest (4th Floor of the parking structure)

6. Red Cross Shelter 12:15-1:30 Heights Elementary
   Julie Flues
7. hamm radio operators 12:15 - 1 safety zone lines
   ed hauer, greg filliger, and jeff holege

post drill
8. debriefing with volunteers 1:30 city hall

major evacuation routes
evacuation route volunteers ( )- will be positioned to guide people to the evacuation routes
safety zone volunteers (7)- will be placed at the crossline to safety zones. they will check people in, record their evac time and distribute a quick survey.
1. lewis and clark
   ☐ traffic control (police) on 101
   ☐ robin hanson (safety zone volunteer)

2. 12th ave (hillside loop)
   ☐ traffic control (fire) on 101
   ☐ lauren darnell (safety zone volunteer)
   ☐ evacuation volunteer: ____________________________

3. 12th ave (skyline drive)
   ☐ anne (safety zone volunteer)

4. broadway
   ☐ 2 traffic control (101 and wahanna)
   ☐ diego colin (safety zone volunteer)
   ☐ daniel terranova (sf volunteer)
     a. 1st to broadway
        ☐ evacuation route volunteer: ____________________________
          (1st & holladay) directing people south to broadway
     b. ave a to broadway
        ☐ evacuation route volunteer: ____________________________
          (a and holladay) directing people north to broadway
     c. ave g to broadway
        ☐ evacuation route volunteer: ____________________________
          (g and holladay) directing people north to broadway

5. ave s
   ☐ 1 traffic control on 101 (police)
   ☐ bob chamberlin (safety zone volunteer)

6. tillamook head
   ☐ henry davis (sf volunteer)
   ☐ evacuation route volunteer: ____________________________

7. trendwest (4th floor of parking structure)
   ☐ marilyn horecny (safety zone volunteer)
APPENDIX J: BUSINESS WORKSHOP ASSESSMENT

Tsunami Preparedness Business Workshop
Participant Assessment
March 9, 2005

N=65 Businesses

Business type:
- Community organization or facility (8)
- Lodging (15)
- Real estate/rental properties (6)
- Restaurants (8)
- Retail stores (5)
- Downtown business (13)
- Grocery store (2)
- Entrepreneur (5)
- Other (3 total)
  ◦ Hair salon (1)
  ◦ Gas station (1)
  ◦ Movie theater (1)

1. I attended the Business Workshop because: (Check all that apply)
   - 32% I am concerned about tsunamis
   - 73% I want to be a tsunami-prepared business
   - 0% I felt I had to come
   - 19% I was curious
   - 0% I did not want to come

2. Overall, I thought the Business Workshop was:
   - 59% excellent
   - 35% good
   - 5% fair
   - 0% poor

3. The Business Workshop:
   - 62% exceeded my expectations.
   - 38% met my expectations.
   - 0% failed to meet my expectations because: _______________________________

   ______________________________________

   ______________________________________
4. Please rate how valuable each section of the workshop was to you and your business.  
   (Check ✓ your selection for each of the 4 sections)

<table>
<thead>
<tr>
<th>Workshop Section</th>
<th>Somewhat</th>
<th>Good</th>
<th>Very</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Tsunami 101 presentation</td>
<td>14%</td>
<td>57%</td>
<td>22%</td>
<td>8%</td>
</tr>
<tr>
<td>2. “How to Prepare Your Business” presentation</td>
<td>0%</td>
<td>8%</td>
<td>43%</td>
<td>49%</td>
</tr>
<tr>
<td>3. Small-group discussion</td>
<td>0%</td>
<td>11%</td>
<td>59%</td>
<td>30%</td>
</tr>
<tr>
<td>4. Group presentations and reflections</td>
<td>22%</td>
<td>54%</td>
<td>24%</td>
<td>0%</td>
</tr>
</tbody>
</table>

7. What was the most useful section of today’s Workshop? (Please check)
   16% Tsunami 101 Presentation
   38% How to Prepare Your Business Presentation
   46% Small Group discussion
   3% Group presentations and reflections

8. Did you prefer:
   32% The presentations
   68% The Small Group discussion

9. Did you learn anything new tonight? And if so, what?
   • Difference between distant and local
   • How to get my staff ready
   • Where to get more info
   • How to make a business plan
   • Why I should be thinking about potential tsunami risks
   • What I can do now
   • Lots of interesting tsunami information
   • Ways I can make my business prepared
   • I thought it was great how many other businesses are involved and interested!
   • Thanks to the City for putting on such an event. It is long overdue!
   • The fact that there are two types of tsunamis and how to plan for each!
   • Ways I can start preparing
   • How my business can develop a business plan
   • The info about the NOAA Weather Radio

10. Has this Workshop encouraged you to develop your business emergency plan?
    95% Yes
    5% No

11. Has this Workshop given you the necessary information to make your business emergency plan?
    76% Yes
    24% No
12. What additional information would be helpful for you to prepare your business?
   - More info on how to make a business plan
   - Info on flood insurance
   - Places to purchase pre-made emergency kids

13. What additional resources would be helpful?
   - Assistance actually developing an emergency plan
   - Training sessions for my staff
   - Help making an emergency plan
   - I would LOVE feedback on the emergency plan that I develop
   - A web-base storage place to store records and important business data

14. Would you like additional sessions of the Tsunami Preparedness Workshop?
   - 92% Yes
   - 8% No

15. From the list of actions in the Business Guide to Tsunami Preparedness, what will be one of the first action items your business tackles?
   - Business Plan (23)
   - NOAA Weather Radio (31)
   - Emergency Kit (40)
   - Post information (24)
   - Train staff (18)
   - Backup files (3)
   - Practice the Plan (37)

Please provide suggestions for improving the Tsunami Preparedness Business Workshop.
   - Hold 1 or 2x/yr workshop for businesses
   - Create a committee that works on business efforts to create a tsunami-prepared community
   - Post relevant info on the web
   - Offer this kind of workshop more often
   - Let's get more people involved
   - Certification Program and require businesses to educate other businesses
   - MORE WORKSHOPS
   - The City should create some certification program
   - We should promote our efforts with the media
   - Create a tag line “ask us about our tsunami preparedness!”
APPENDIX K: SCHOOL PROGRAM ASSESSMENT

Tsunami Awareness Program
School Outreach Project Assessment
March 2005

Each school submitted one formal review of the program.

School:

- Seaside Heights Elementary (H)
- Gearhart Elementary (G)
- Broadway Middle School (B)

2. Overall, I thought the School Tsunami Outreach Program was:

   - 67% excellent (G and B)
   - 33% good (H)
   - 0% fair
   - 0% poor

3. The Outreach Program:

   - 67% exceeded my expectations (G and B)
   - 33% met my expectations (H)
   - 0% failed to meet my expectations because

4. Please rate how valuable each aspect of the Outreach Program was to your school. Check ✓ your selection for each of the 7 sections

<table>
<thead>
<tr>
<th>Outreach Aspect</th>
<th>How Valuable?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Somewhat</td>
</tr>
<tr>
<td>1. Tsunami presentation</td>
<td>H, G</td>
</tr>
<tr>
<td>2. Quizzing with stickers and rulers</td>
<td>H, G, B</td>
</tr>
<tr>
<td>3. Small-group mapping exercise</td>
<td>B</td>
</tr>
<tr>
<td>4. High school students' participation</td>
<td>H, B</td>
</tr>
<tr>
<td>5. Handouts that were sent home</td>
<td>B</td>
</tr>
<tr>
<td>6. Poster contest</td>
<td>B</td>
</tr>
</tbody>
</table>

16. What was the most useful aspect of the Outreach Program?

- Working with smaller groups and having the high school students lead the session. (Broadway)
- Engaging the students with a series of questions and reviewing the differences between the near and distant event with the kids repeating the answers! (Heights)
- Being animated about knowing the basic tsunami information and having the stickers and rulers as prizes... that keeps the kids attentive. (Gearhart)
17. Any recommendation for how to improve the Outreach Program? Or additional comments?

- The Program was a wonderful benefit to our school. The high school students really made the Program special. The tie in with the handouts that were sent home along with the Poster Contest left a resonating conversation about the topic even after the students left. I would recommend perhaps turning the Program into a series of class lessons instead of just one visit to the classroom. That would really drive the message home to the students. But otherwise, we very thrilled with the Program! (Broadway)

- The Program was a bit difficult for the students to pay attention to. I might suggest not hosting an event, such as this one, the day before Spring Break. I would also reconsider having that presentation. It wasn't quite right for elementary school kids. I would recommend sticking to the basics that Darci covered. Having the little tsunami gimmicks to hand out were a great touch! The students were really excited about them and it motivated them to answer questions. I sat in on one of the middle school sessions. I realize that Program required much more time. However, I do think it would be a better way to approach, at least the upper level elementary classes. But overall, great job! We need more programs like this. (Broadway)

- I would section out the grades to provide more age appropriate information. I would not use the PowerPoint presentation. It did not keep the children’s attention. They were much more interested in the quizzing portion of the presentation done by Ms. Connor. I would also change the time of the Program to mid morning or early afternoon. It is difficult to keep the students’ attention at the end of the day. (Gearhart)
APPENDIX L: PUBLIC WORKSHOP ASSESSMENT

Tsunami Preparedness Public Workshop
Participant Assessment
Tuesday March 29, 2005

I live in:
- Seaside (68%)
- Cannon Beach (3%)
- Gearhart (8%)
- Other (22%)
  - Portland
  - Manzanita
  - Warrentown

1. I attended the Public Workshop because: (Check all that apply)
   68% I am concerned about tsunamis
   73% I want to get more prepared
   32% I was curious

2. Overall, I thought the Public Workshop was:
   49% excellent
   43% good
   8% fair
   0% poor

3. The Public Workshop:
   35% exceeded my expectations.
   59% met my expectations.
   5% failed to meet my expectations because:
     Needed more time for questions
     Q n A should be longer

4. Please rate how valuable each section of the Workshop was to you.
   (Check ✓ your selection for each of the 4 sections)

<table>
<thead>
<tr>
<th>Workshop Section</th>
<th>How Valuable?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Somewhat</td>
</tr>
<tr>
<td>1. Tsunami 101 Presentation</td>
<td>35%</td>
</tr>
<tr>
<td>2. Question Answer panel</td>
<td>0%</td>
</tr>
<tr>
<td>3. Small Group exercise</td>
<td>0%</td>
</tr>
</tbody>
</table>

18. What was the most useful section of today’s Workshop? (Please check)
   38% Tsunami 101 Presentation
   14% Question Answer panel
   68% Small Group exercise
19. Why was it the most useful?
   - Small Group time to ask specific questions
   - Small Group allowed people to come up with new ideas
   - (Q n A) People got questions answered
   - (Tsunami 101) Explained tsunamis and their dangers
   - (SG) Allowed people to interact and discuss
   - (Tsunami 101) Good introduction to the evening to get everyone on the same page
   - (SG) It was more personal
   - (SG) Helped me identify my evacuation route
   - (SG) Gave me a better understanding of how to respond in any given situation
   - (SG) Where to go
   - (SG) Let us know how to survive an earthquake and how to get to high ground
   - (SG) Individual questions were answered
   - (SG) More individual questions and answers
   - (SG) We could ask about our area
   - (QnA and SG) Gained better knowledge of local issues
   - (SG) More useful information
   - (SG) We had three of the panelists at our table.
   - (SG) Evacuation areas specific to our location
   - (all three) Tsunami knowledge
   - (SG) It explained the routes and supplies you need
   - (Ts 101) Because we got a lot of information
   - (SG) Multiple input from others in our group and listened to info more other groups. It was good to have others’ suggestions.
   - (Ts 101) Provide good overview and definitions about tsunamis. However it should not be scientific. Not appropriate for general audience.
   - (SG) Because I learned the most
   - (SG) Helped get us prepared
   - (SG) Sharing ideas
   - (SG) Useful info
   - (Ts 101) Because we got a lot of information
   - (Ts 101 and SG) Gets us more prepared

20. Did you learn anything new tonight? And if so, what?
   - What sirens sound like
   - About tsunamis elsewhere in the world and how Alaska can have earthquakes that cause tsunamis to hit here.
   - Ideas for pack
   - Have preparations in advance of tsunami
   - Who is who
   - Yes, 10-30 minutes to get out of town
   - NOAA radio
   - About the things you can do now to get ready
   - More about local and distant tsunami
   - I should walk not drive
   - To get scooter to get to high ground
   - Which bridges are safe
   - To have a family emergency plan and kit
• More about Oregon geology
• What tsunamis can do
• Bi-level planning for distant and near event
• Consider using a bike if mobility is an issue
• HAM Radios are good
• How long it takes before a tsunami hits
• A distant tsunami takes 4 hours to get here

21. What additional information would be helpful for you to prepare your family?
• Community party- blood drive, supply kit packing, HAM radio certification
• Items need for a 3-day supply kit
• To know that the assembly areas are prepared for us
• Sirens
• To know that the Assembly areas are more prepared!
• A plan for contacting relatives
• City function
• Evacuation maps for nearby cities
• Continuous education
• HIRE DARCI!
• Regular re-education programs
• Does the City have emergency supplies stock piled
• Where to get the supplies that we need

How can the Tsunami Preparedness Public Workshop be improved?
• Have someone represent the Seniors
• I learned much more useful information from Darci’s training session with the Neighborhood Educators than I did with the State’s presentation. I felt tonight was much more scattered.
• Have another one in at least 6 months and continue to frequently to keep us ready.
• Looking forward to April 16th Drill!
• Samples of 72 hour kit and HAM Radios
• Get assembly areas supplied with emergency supplies, water and communication equipment
• Continue this type of town hall meeting
• Continue to reach out to the community
• Repeat and advance presentation
• More public information and more coverage
• Be more specific on how people can help their neighbors
APPENDIX M: TSUNAMI EVACUATION DRILL ASSESSMENT

Tsunami Evacuation Drill
Event Summary
April 16, 2005

<table>
<thead>
<tr>
<th>Safety Zone</th>
<th>Number of People</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Lewis and Clark</td>
<td>58</td>
</tr>
<tr>
<td>2. Hillside Loop</td>
<td>65</td>
</tr>
<tr>
<td>3. Skyline Dr.</td>
<td>7</td>
</tr>
<tr>
<td>4. Sunset Hills</td>
<td>279</td>
</tr>
<tr>
<td>5. Red Cross Shelter</td>
<td>3</td>
</tr>
<tr>
<td>6. Wahanna/ Ave S</td>
<td>2</td>
</tr>
<tr>
<td>7. Tillamook Head</td>
<td>75</td>
</tr>
<tr>
<td>8. Trendwest</td>
<td>22</td>
</tr>
</tbody>
</table>

Partnerships
- Police Department
- Volunteer Fire Department (27)
- Red Cross
- HAM Radio Operators
- ODOT
- Sunset Empire Transportation District
- Seaside Signal

Community participants
- TOTAL: 436
- Businesses: 24
- Visitors: 29
- Cars: 56
- Average evacuation time: 15 minutes
- Number of people who reached high ground after 30 minutes: 2
- Average age: 47 years old
- Age range: infant–89 years

Public feedback
1. Did you hear the sirens? 76% Yes 24% No
2. When the siren sounded, were you: 74% Indoors 26% Outdoors
3. Did you have a predetermined route? 99% Yes 1% No
4. Did you follow the evacuation signs? 50% Yes 50% No
5. Did you find the drill confusing? 9% Yes 91% No
6. Will you practice your route again? 85% Yes 15% No

Additional comments:
1. Could not hear sirens
2. More signage is needed for Hillside and Skyline Dr
3. Regular drills (1 during the week and 1 on the weekend)