

Results for the Tsunami Planning and Hazard Mitigation Survey

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EXECUTIVE SUMMARY

This executive summary presents the highlights of the results from the 2010 Tsunami Planning and Hazard Mitigation Survey. The objective of this survey was to assess progress toward the goal of adequately prepared and tsunami resilient coastal communities in the United States. The survey focused on local government including towns/villages, cities, counties, and special districts that have coastal exposure and a documented risk of tsunami inundation.

The survey was fielded between October 18 and December 3, 2010. Five hundred and twenty-nine local emergency managers or other organizational representatives who were believed to be in charge of tsunami planning for their jurisdiction and for whom valid contact information was available were invited to take the survey. Together, these 529 potential respondents represented 536 jurisdictions.

In total, 159 people accessed the survey and answered at least one question. Of these 159 respondents, four dropped out of the survey at some point before the end of the first section (Organizational Demographics) and did not answer the question at the end of this section which asked, “Regardless of whether there is a person who is primarily responsible for tsunami planning, does your organization do any planning for tsunamis?” This is a key survey question in that respondents who answered “no” did not go on to answer any questions in the subsequent sections. Thus, the response rate is based on the 155 respondents who did answer this question, resulting in a response rate of 29.0 percent of the 529 contact names and 28.7 percent of the 536 jurisdictions. Nearly all of the respondents took the survey online; five completed the mail version.

The survey was organized into eight topical sections. The following provides an overview of the key findings for each section.

Section 2. Organizational Demographic Items

- Thirty percent (n = 47) of respondents reported that their organization does not do any tsunami planning. When these respondents were asked about the primary reason their organization does not do any planning, the most common response was that there is no evidence of a tsunami hazard (43%; n = 20).
- Seventy percent (n = 108) of respondents reported that their organization does tsunami planning. These respondents were eligible to answer questions in subsequent sections.
- The regional distribution of respondents who reported that their organization does tsunami planning is as follows: 67% (n = 72) from the West Coast (California, Oregon, and Washington); 14% (n = 15) from Alaska, Hawaii, and Pacific Islands; 10% (n = 11) from the East Coast (Georgia to Maine); 7% (n = 7) from the Gulf Coast (Texas to Florida), and 3% (n = 3) from the U.S. Caribbean Islands.
- Respondents from organizations that do tsunami planning were most likely to represent an organization that is an incorporated city or borough government (38%; n = 38) or county government (26%; n = 26), and be from organizations located in areas with a population of 10,001-50,000 residents and those with a population of 100,001-500,000 residents (both 20%; n = 20).
- Respondents from organizations that do tsunami planning were most likely to be Emergency Services Managers (34%; n = 35) or Emergency Services Coordinators (32%; n = 33).
- Even when organizations do have a person who is primarily responsible for tsunami planning, that person is spending relatively little time doing so. About 63 percent (n = 67) of respondents indicated that this person spends less than 10 percent of their time on tsunami planning and

another 23 percent (n = 25) indicated that this person spends 10-24 percent of their time on tsunami planning.

Section 3. Public Education Items

- The majority of respondents reported that their organization or jurisdiction provides tsunami information intended to raise tsunami awareness and promote preparedness (82%; n = 88). These respondents most commonly identified the target audience for this information as “residents of the community (in general)” (91%; n = 80), the method of dissemination as “literature tables/displays in public buildings” (78%; n = 68), and the source of this information as “state emergency management agency” and the “National Weather Service or NOAA” (both 75%; n = 65).
- Nearly two-thirds of organizations have published and disseminated tsunami evacuation route maps that direct residents or visitors to tsunami safe areas (64%; n = 55).
- When asked to identify the one most significant barrier to achieving adequate tsunami awareness and preparedness in their organization, the most commonly selected response was “insufficient resources” (26%; n = 22). No respondents chose “unavailability of high quality education materials.”

Section 4. Response Plan Items

- The majority of respondents reported that their organization has developed an emergency response plan that addresses tsunamis: 61 percent of respondents (n = 64) indicated that they have a completed plan that is updated periodically, and 9 percent (n = 9) indicated that they have a completed plan, albeit one that has not been updated. Sixteen percent (n = 17) are in the planning stage and another 11 percent (n = 11) have intentions to begin a plan. Only 4 percent (n = 4) said their organization does not have a plan and it does not intend to develop one.
- Nearly half of the 28 respondents who indicated that their organization has either initiated planning, or at least intends to do so, are uncertain as to when they will have a finalized and approved plan (46%; n = 13). Another 25 percent (n = 7) anticipate that it will be six months to a year before they have a finalized and approved plan.
- About 82 percent of respondents (n = 83) reported that their organization has used or will use tsunami inundation maps in their tsunami planning, most commonly from a state agency (71%; n = 58). Only 8 percent (n = 8) indicated that their organization does not use tsunami inundation maps in their planning, and the remaining 10 percent (n = 10) did not know if their organization used or will use inundation maps.
- When presented with a list of 18 elements and asked which elements their plan addresses (or will address), the most commonly selected elements were: “plan activation trigger” (88%; n = 86), “Emergency Operation Center Activation” (85%; n = 83), and “roles and responsibilities for multiple organizational personnel” (83%; n = 81). The least often selected elements were “provisions for notification and emergency period instructions for commercial and recreational boating communities” (33%; n = 32), and “vertical evacuation procedures for communities with no high ground” (26%; n = 25).

Section 5. Exercises and Training Items

- Nearly half of respondents reported that their organization conducts exercises to test their tsunami plan (44%; n = 44). These exercises most often test an organization’s “response plan in

general” (84%; n = 37). Exercises are least likely to test the “ability to evacuate part or all of an organization or community in tsunami inundation zones” (50%; n = 22).

- Respondents were most likely to report that these exercises: test the ability to “respond to a warning issued by the Pacific or West Coast and Alaska Tsunami Warning Center” (93%; n = 41), are “tabletop exercises” (91%; n = 39), and have been conducted by “internal emergency management personnel” (93%; n = 40).
- When asked to indicate what outcome(s) have occurred due to exercises, the most commonly selected outcome was “staff has become more familiar with roles” (95%; n = 40), followed by “plans have been updated or modified” (83%; n = 35). Both “equipment has been tested” (62%; n = 26) and “new procedures have been implemented” (57%; n = 24) were cited least often.

Section 6. Tsunami Hazard Mitigation Items

- Over half of respondents reported that their organization has developed a hazard mitigation plan that addresses tsunamis (54%; n = 53). Sixteen percent (n = 16) have initiated planning, and an equal number has not begun to plan but intends to do so. Thirteen percent of respondents (n = 13) reported that their organization has no intention of developing a plan.
- About 64 percent of respondents (n = 63) reported that their organization has critical facilities in the tsunami inundation zone, most often fire stations (66%; n = 41). Fifty-four percent of these respondents (n = 34) who indicated their organization has critical facilities in the tsunami inundation zone have a response plan for these facilities.
- Only a small number of organizations have abandoned, modified, or relocated an existing critical facility because it was in a tsunami hazard zone (10%; n = 6), the most common type of facility being a fire station (67%; n = 4).
- About 43 percent (n = 42) of respondents indicated that their organization has facilities or residents that cannot be rapidly evacuated in a tsunami event. When these respondents were asked how they have addressed this issue, the most common response was that they have not done anything (56%; n = 23).

Section 7. Signaling Devices Items

- Just over half of respondents (52%; n = 51) reported that their organization does not have tsunami signaling devices or sirens or use existing signaling devices for tsunami warnings. When asked why this is the case, the “Other” option was selected most often (70%; n = 35). These respondents were given the opportunity to elaborate on their response, and the most common explanation given was that respondents did not feel signaling devices were needed. Of the choices provided, the most frequently selected reason was that the “signaling devices are too expensive” (30%; n = 15).
- Among those organizations that do have tsunami signaling devices for tsunami warnings, they most often have 1-3 devices (37%; n = 16). Nineteen percent of respondents (n = 8) reported that their organization has more than 20 devices.
- For twenty-one percent of organizations (n = 9), 100 percent of the tsunami vulnerable population is covered by signaling devices. Fifty-six percent of respondents (n = 19) who indicated less than 100 percent coverage reported that their organization plans to deploy additional devices.
- Among respondents who do not know if their organization has or uses tsunami signaling devices or sirens, and those who reported less than 100 percent coverage of signaling devices, 75

percent (n = 48) have not and do not intend to purchase signaling devices (or additional devices). For organizations that do plan to deploy additional signaling devices, over half are uncertain as to how long it will be before these devices are deployed (56%; n = 15).

Section 8. Tsunami Hazard and Evacuation Signage Items

- Nearly half of organizations have deployed tsunami signs (48%; n = 47). Of these, the majority have deployed “tsunami hazard zone” signs (80%; n = 37) and “tsunami evacuation route” signs (79%; n = 37). “Entering and leaving tsunami hazard zone” signs have been deployed least frequently (47%; n = 22).
- Of the 47 respondents who reported that their organization has deployed tsunami signs, 34 percent (n = 16) reported that signs have not been deployed to all tsunami vulnerable areas, most commonly due to “inadequate funding to complete deployment” (63%; n = 10).
- Among respondents who reported that their organization has not deployed tsunami signs, the most common reason selected (aside from the “Other” option) was that respondents “do not consider them needed” (30%; n = 15).

Section 9. TsunamiReady Status

- The majority of organizations have not been recognized by NOAA’s National Weather Service as “TsunamiReady” (71%; n = 70). Forty-one percent (n = 29) of these organizations are currently working toward “TsunamiReady” status.
- Among the 28 organizations that have been recognized as “TsunamiReady,” over half received this designation more than three years ago (57%; n = 16). Half of these 16 organizations have renewed their “TsunamiReady” recognition one time.
- The majority of organizations did not encounter any difficulties or challenges in their efforts to become “TsunamiReady” (71%; n = 20). For the eight that did, the most common barrier was “resources shortfalls that made planning difficult” (88%; n = 7).
- When respondents from organizations that are not working toward “TsunamiReady” recognition were asked to select the main reason this is the case, nearly half chose the response, “low probability that our organization/jurisdiction will be hit by a tsunami” (45%; n = 18). Also notable is the 25 percent of respondents (n = 10) who selected “unfamiliar with the TsunamiReady program.”

SECTION 1. OVERVIEW OF SURVEY METHODOLOGY AND ANALYSES

This report presents the results from the 2010 Tsunami Planning and Hazard Mitigation Survey. The objective of this survey was to assess progress toward the goal of adequately prepared and tsunami resilient coastal communities in the United States. The focus of the survey was local government including towns/villages, cities, counties, and special districts that have coastal exposure and a documented risk of tsunami inundation.

This first section provides information about how the survey data were collected and how to read and interpret the results presented in this report.

Survey Administration. The survey was fielded between October 18 and December 3, 2010. Prior to survey administration, the National Tsunami Hazard and Mitigation Program (NTHMP) provided Strategic Research Group (SRG) with a list of 529 valid contacts that included a regular mail address and/or e-mail address for each contact. This list was comprised of local emergency managers or other organizational representatives who were believed to be in charge of tsunami planning for their jurisdiction. It should also be noted that one person was listed as overseeing two jurisdictions and another was listed as overseeing seven jurisdictions, resulting in a total of 536 jurisdictions.

SRG sent a survey invitation via regular mail to all contacts for whom both a physical address and e-mail address was provided. This letter included the link to the survey website and a passcode for accessing the survey.¹ For the small number of respondents for whom a physical address was available but not an e-mail address, SRG sent a paper version of the survey and a self-addressed stamped envelope. However, these respondents were also provided with the survey link and passcode in case they preferred to take the survey online. The small number of respondents for whom an e-mail address was available but not a regular address was sent a survey invitation via e-mail. Over the course of the survey administration phase, two reminder e-mails were sent to all contacts for whom we had an email address (94 percent of contacts) to encourage participation. NTHMP State members also contacted the targeted survey audience in their respective jurisdictions to encourage them to participate in the survey.

Response Numbers and Rates. In total, 159 people accessed the survey and answered at least one question. Of these 159 respondents, four dropped out of the survey at some point before the end of the first section (Organizational Demographics) and did not answer the question at the end of this section which asked, “Regardless of whether there is a person who is primarily responsible for tsunami planning, does your organization do any planning for tsunamis?” This is a key survey question in that respondents who answered “no” did not go on to answer any questions in the subsequent sections. Thus, the response rate is based on the 155 respondents who did answer this question, resulting in a response rate of 29.3 percent of the 529 contact names and 28.9 percent of the 536 jurisdictions.

It is important to note, however, that the actual response rate is likely higher. A review of the contact list indicated that there may be a small number of organizations or jurisdictions represented more than once. Although these potential duplicates listed different contact people, there were 46 instances in which a town or city appeared on the list two, three, and, in a small number of instances, four times. It is likely that for the larger cities, these contact people did, in fact, represent organizations overseeing separate jurisdictions. It is questionable whether this is the case for smaller towns and cities. Additionally, in a small number of instances, the contact people had the same street address. In some other cases, PO boxes were provided, making it impossible to determine if the street address for multiple contacts was the same. Thus, the exact final number of organizations/jurisdictions is difficult to estimate.

¹ The nine contacts in Puerto Rico were provided a link to the Spanish version of the survey.

Despite the instances of some number of duplicates in the contact list, it is important to note that the contact information for the survey respondents was reviewed closely to verify that no organizations or jurisdictions are represented in the data more than once.

Report Format and Contents. Sections 2-9 of this report present the results of the survey items, which were grouped into topical themes, as well as a summary of the key findings for each section. The results are presented in both percentages and raw numbers (which appear in the tables in parentheses and as “n” in the text).

The tables in Appendices A through G provide the results of the survey items broken out by various organizational characteristics and practices pertaining to tsunami readiness. These tables allow comparisons in survey responses by the following:

- Whether or not an organization has developed an emergency response plan that addresses tsunamis, the plan is complete, and the plan is updated periodically (Appendix A)
- Whether or not an organization used tsunami inundation maps in its tsunami planning (Appendix B)
- Whether or not an organization or jurisdiction provides tsunami information intended to raise tsunami awareness and promote preparedness (Appendix C)
- Whether or not an organization or jurisdiction conducts exercises to test its tsunami plan (Appendix D)
- Whether or not an organization or jurisdiction has tsunami signaling devices or sirens or uses existing signaling devices for tsunami warnings (Appendix E)
- Whether or not an organization or jurisdiction is recognized by NOAA’s National Weather Service as “TsunamiReady” (Appendix F)
- Region of organization or jurisdiction (Appendix G)

To assist in the interpretation of these tables, it is important to note that:

- The table number before each survey question refers to the table/figure in the report so readers can easily refer back at the overall results of a particular item.
- Where applicable, the skip instructions have been included to assist readers in understanding which items were asked of which respondents.
- For items in which respondents were asked to check all that apply, results reflect the percentage of respondents that selected each response, and thus the percentages for all responses for that item will not total 100 percent.

Finally, Appendix H provides all of the write-in responses that were given by respondents for questions that offered an “Other” choice along with a text box where respondents could elaborate on their response and for the two open-ended survey questions.

One final note: the majority of questions asked respondents about the “organization or jurisdiction” which they represent; throughout the report, this was usually shortened to “organization.”

Contact Information for Questions. If you have questions regarding this report, please contact Jenifer Rhoades with NOAA’s National Tsunami Hazard Mitigation Program at Jenifer.Rhoades@noaa.gov.

SECTION 2. ORGANIZATIONAL DEMOGRAPHICS ITEMS

This section provides results for the survey items pertaining to the demographics of respondents' organization and the organizational representative primarily responsible for tsunami planning (when applicable).

This section begins with the results of the most crucial question, "Regardless of whether there is a person who is primarily responsible for tsunami planning, does your organization do any planning for tsunamis," which appeared at the end of the demographic section of the survey. This is a key survey question in that respondents who answered "no" did not go on to answer any questions in the subsequent sections. Given the importance of this question, the results for other items in this section have been broken out by whether or not an organization does any planning for tsunamis. These breakout tables provide the percentages in two ways: *across* the categories of a demographic variable (i.e., column percentages) and *within* each category of each demographic variable (i.e., row percentages; these appear in italics). The column percentages provide the demographic distribution of organizations that do tsunami planning, and those that do not. The row percentages show whether or not organizations within a given demographic category do any tsunami planning. Given that the majority of respondents reported that their organization does tsunami planning, the italicized row percentages are of interest as they show instances in which a greater percentage of respondents stated their organization does not do any tsunami planning.

Summary of findings:

- Thirty percent (n = 47) of respondents reported that their organization does not do any tsunami planning. When these respondents were asked about the primary reason their organization does not do any planning, the most common response was that there is no evidence of a tsunami hazard (43%; n = 20). (Tables 2.1 and 2.2)
- Respondents from organizations that do tsunami planning were most likely to represent organizations in the West Coast (i.e., California, Oregon, or Washington) (67%; n = 72). Of the five regions, the Gulf Coast is the only one in which a higher percentage of the respondents answered no to the question of whether their organization does any tsunami planning. (Table 2.3)
- Among organizations that do tsunami planning, respondents were most likely to represent an organization that is an incorporated city or borough government (38%; n = 38) or county government (26%; n = 26). Looking within organization types, the category "incorporated town, village, or township government" is the only one in which a higher percentage of the respondents answered no to the question of whether their organization does any tsunami planning. (Table 2.4)
- Respondents representing organizations that do tsunami planning were most likely to be from organizations located in areas with a population of 10,001-50,000 residents and those with a population of 100,001-500,000 residents (both 20%; n = 20). Looking within categories of population size, the "under 1,000" group was the only one in which a higher percentage of the respondents answered no to the question of whether their organization does any tsunami planning. (Table 2.5)
- Among organizations that do tsunami planning, respondents were most likely to report the position or job title of the organizational representative primarily responsible for tsunami planning as an Emergency Services Manager (34%; n = 35) or an Emergency Services Coordinator (32%; n = 33). Within job titles, "Fireman/Fire Services" was the only one in which a higher percentage of the respondents answered no to the question of whether their organization does any tsunami planning. (Table 2.6)

- Respondents representing organizations that do tsunami planning were most likely to report that the person primarily responsible for tsunami planning in their organization is a full-time employee (87%; n = 94). (Table 2.7)
- Although the majority of respondents representing organizations that do tsunami planning reported that the person primarily responsible for tsunami planning in their organization is a full-time employee, they also indicated that this person is spending a relatively low percentage of their time on tsunami planning. About 63 percent (n = 67) of respondents indicated that this person spends less than 10 percent of their time on tsunami planning and another 23 percent (n = 25) indicated that this person spends 10-24 percent of their time on tsunami planning. (Table 2.8)

Table 2.1 Does Organization Do Any Tsunami Planning

Does Tsunami Planning	% (number)
Yes	69.7% (108)
No	30.3% (47)
Total	100% (155)

Table 2.2 Primary Reason Organization Does Not Plan For Tsunami Hazards

Reason	% (number)
No evidence of tsunami hazard ¹	42.6% (20)
Tsunami hazard is a low priority	29.8% (14)
Inadequate funding for tsunami planning	14.9% (7)
Other	12.8% (6)
Total	100% (47)

¹ e.g., protected by coastal bluffs

Table 2.3 Region

Region	Does Org Do any Tsunami Planning?	
	Yes	No
Alaska, Hawaii, and Pacific Islands	13.9% 88.2% (15)	4.3% 11.8% (2)
West Coast (CA, OR, WA)	66.7% 73.5% (72)	55.3% 26.5% (26)
Gulf Coast (TX to FL)	6.5% 35.0% (7)	27.7% 65.0% (13)
East Coast (GA to ME)	10.2% 64.7% (11)	12.8% 35.3% (6)
U.S. Caribbean Islands	2.8% 100.0% (3)	0.0% 0.0% (0)
Total	100% (108)	100% (47)

Table 2.4 Organization Type

Organization Type	Does Org Do any Tsunami Planning?	
	Yes	No
Incorporated Town, Village, or Township Government	8.9% 37.5% (9)	33.3% 62.5% (15)
Unincorporated Community Government	2.0% 66.7% (2)	2.2% 33.3% (1)
Incorporated City or Borough Government	37.6% 76.0% (38)	26.7% 24.0% (12)
Tribal Government	3.0% 42.9% (3)	8.9% 57.1% (4)
County Government	25.7% 70.3% (26)	24.4% 29.7% (11)
Special District	3.0% 60.0% (3)	4.4% 40.0% (2)
State Agency	12.9% 100.0% (13)	0.0% 0.0% (0)
Federal Agency	1.0% 100.0% (1)	0.0% 0.0% (0)
Other	5.9% 100.0% (6)	0.0% 0.0% (0)
Total	100% (101)	100% (45)

Table 2.5 Population Size of Locality

Population Size	Does Org Do any Tsunami Planning?	
	Yes	No
Under 1,000	5.9% 42.9% (6)	17.4% 57.1% (8)
1,000 to 5,000	9.8% 76.9% (10)	6.5% 23.1% (3)
5,001 to 10,000	11.8% 92.3% (12)	2.2% 7.7% (1)
10,001 to 50,000	19.6% 50.0% (20)	43.5% 50.0% (20)
50,001 to 100,000	17.6% 72.0% (18)	15.2% 28.0% (7)
100,001 to 500,000	19.6% 80.0% (20)	10.9% 20.0% (5)
500,001 to one million	5.9% 100.0% (6)	0.0% 0.0% (0)
Over one million but less than 5 million	4.9% 71.4% (5)	4.3% 28.6% (2)
5 million or more	2.0% 100.0% (2)	0.0% 0.0% (0)
Not applicable ¹	2.9% 100.0% (3)	0.0% 0.0% (0)
Total	100% (102)	100% (46)

¹ e.g., organization is a harbor or special district

Table 2.6 Position or Job Title of Organizational Representative Primarily Responsible for Tsunami Planning

Job Title of Tsunami Planner	Does Org Do any Tsunami Planning?	
	Yes	No
Emergency Services Coordinator	32.0% 71.7% (33)	28.3% 28.3% (13)
Emergency Services Manager	34.0% 76.1% (35)	23.9% 23.9% (11)
Police Officer/Sheriff's Deputy	5.8% 100.0% (6)	0.0% 0.0% (0)
Fireman/Fire Services	3.9% 44.4% (4)	10.9% 55.6% (5)
Administrator ¹	3.9% 57.1% (4)	6.5% 42.9% (3)
Elected Official ²	1.9% 50.0% (2)	4.3% 50.0% (2)
Legislative Officer ³	0.0% 0.0% (0)	0.0% 0.0% (0)
Other	18.4% 79.2% (19)	10.9% 20.8% (5)
No one is assigned to tsunami planning	0.0% 0.0% (0)	15.2% 100.0% (7)
Total	100% (103)	100% (46)

¹ e.g., CAO, Special District Administrator

² e.g., Mayor, city council, county supervisor

³ e.g., Analyst, aide

Table 2.7 Position Type for Person Responsible for Tsunami Planning

Position Type of Tsunami Planner	Does Org Do any Tsunami Planning?	
	Yes	No
Full-time permanent employee	87.0% 79.7% (94)	51.1% 20.3% (24)
Part-time employee	7.4% 72.7% (8)	6.4% 27.3% (3)
Contract employee	0.0% 0.0% (0)	0.0% 0.0% (0)
Other	1.9% 40.0% (2)	6.4% 60.0% (3)
No one is assigned to tsunami planning	3.7% 19.0% (4)	36.2% 81.0% (17)
Total	100% (108)	100% (47)

Table 2.8 Percentage of Time Spent on Tsunami Planning

Time Spent	Does Org Do any Tsunami Planning?	
	Yes	No
90-100%	0.0% 0.0% (0)	0.0% 0.0% (0)
75-89%	0.0% 0.0% (0)	0.0% 0.0% (0)
50-74%	0.0% 0.0% (0)	2.1% 100.0% (1)
25-49%	7.5% 100.0% (8)	0.0% 0.0% (0)
10-24%	23.4% 100.0% (25)	0.0% 0.0% (0)
Less than 10%	62.6% 76.1% (67)	44.7% 23.9% (21)
No one is assigned to tsunami planning	6.5% 21.9% (7)	53.2% 78.1% (25)
Total	100% (107)	100% (47)

SECTION 3. PUBLIC EDUCATION ITEMS

This section provides results for the survey items pertaining to efforts to raise tsunami awareness and promote preparedness.

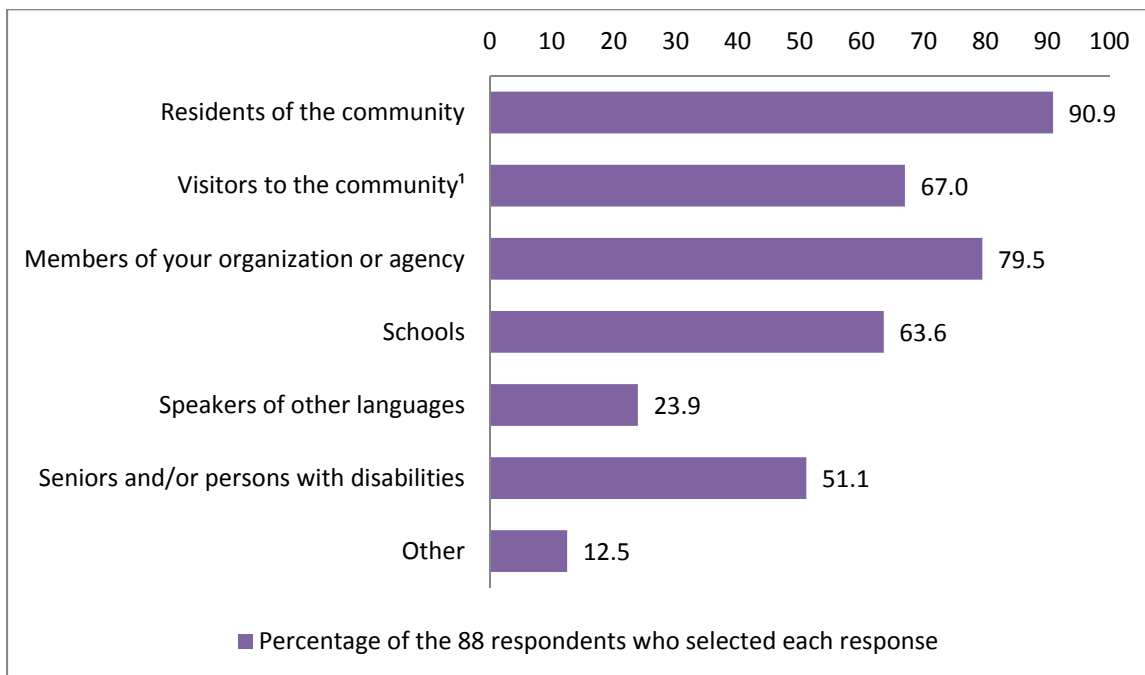
Summary of findings:

- The majority of respondents reported that their organization or jurisdiction provides tsunami information intended to raise tsunami awareness and promote preparedness (82%; n = 88). (Table 3.1)
- When asked which target audiences are included in the provision of tsunami education, the most commonly selected choice was “residents of the community (in general)” with 91 percent (n = 80), and “members of your organization or agency” was the second most commonly selected option with 80 percent (n = 70). “Speakers of other languages” was selected least often, with 24 percent (n = 21). (Table 3.2)
- Respondents most often reported “literature tables/displays in public buildings” as the method by which their organization disseminates tsunami public education materials (78%; n = 68), followed closely by “public meetings, workshops, or seminars” (74%; n = 64). “Published in telephone books” was the least frequently cited method of dissemination, with 8 percent (n = 7). (Table 3.3)
- With regard to the sources of tsunami public education materials that are disseminated by organizations, respondents chose “state emergency management agency” and the “National Weather Service or NOAA” most often, both with 75 percent (n = 65), followed by “local emergency management agency” with 66 percent (n = 57). The least frequently selected source was “university or hazard education oriented center” with 17 percent (n = 15). (Table 3.4)
- Nearly two-thirds of organizations have published and disseminated tsunami evacuation route maps that direct residents or visitors to tsunami safe areas (64%; n = 55). (Table 3.5)
- Over half of respondents (58%; n = 50) reported that schools within their jurisdiction’s tsunami inundation/hazard zones do not conduct tsunami evacuation drills. (Table 3.6)
- When asked to identify the one most significant barrier to achieving adequate tsunami awareness and preparedness in their organization, the most commonly selected response was “insufficient resources” (26%; n = 22), followed closely by “infrequency of damaging tsunamis” (22%; n = 19) and “individual or community apathy” (20%; n = 17). No respondents chose “unavailability of high quality education materials.” (Table 3.7)

Table 3.1 Does Organization Provide Information Intended to Raise Tsunami Awareness and Promote Preparedness

Provide Information	% (number)
Yes	81.5% (88)
No	18.5% (20)
Total	100% (108)

Table 3.2 Target Audiences Included in Provision of Tsunami Education



¹ e.g., beach visitors, tourists

Table 3.3 Methods of Disseminating Tsunami Public Information Employed by Organization

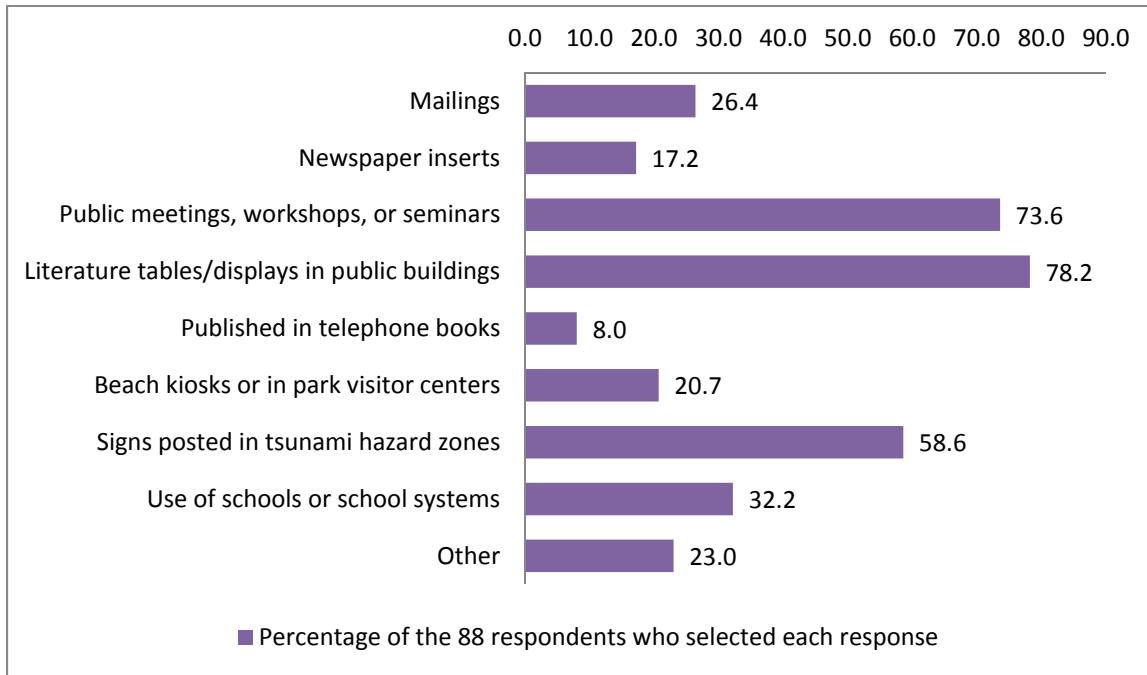


Table 3.4 Sources of Tsunami Public Education Materials

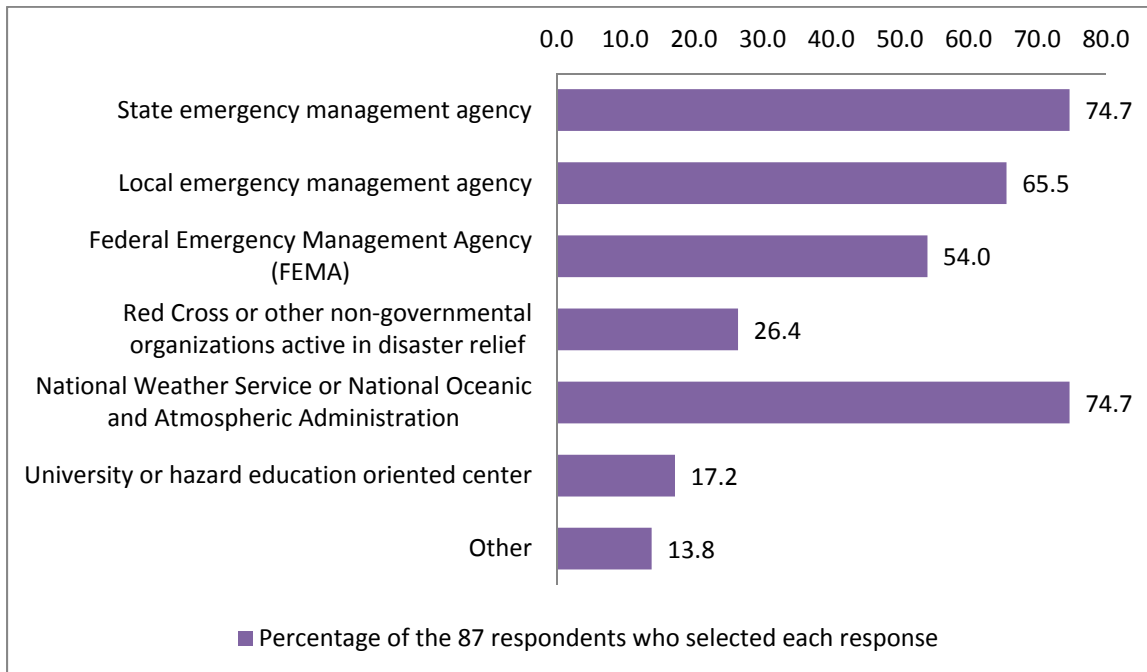


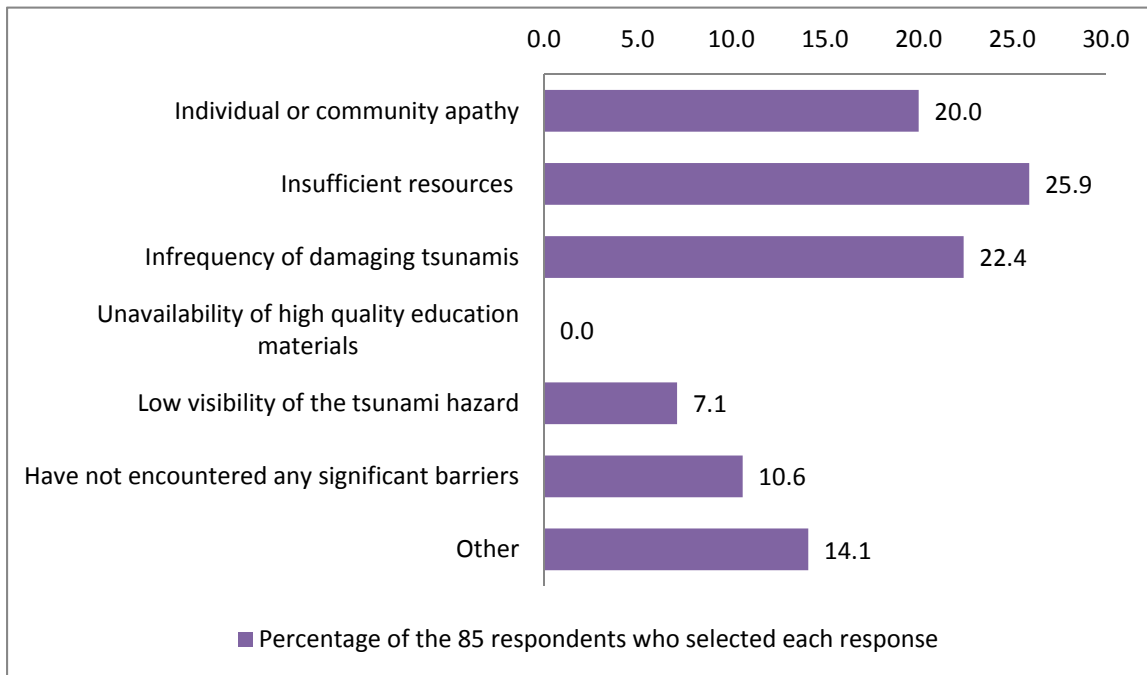
Table 3.5 Has Organization Published and Disseminated Evacuation Route Maps

Published and Disseminated	% (number)
Yes	64.0% (55)
No	36.0% (31)
Total	100% (86)

Table 3.6 Do Schools Within Jurisdiction’s Tsunami Inundation/Hazard Zones Conduct Tsunami Evacuation Drills

Conduct Drills	% (number)
Yes	41.9% (36)
No	58.1% (50)
Total	100% (86)

Table 3.7 Most Significant Barrier to Achieving Adequate Tsunami Awareness and Preparedness



SECTION 4. RESPONSE PLAN ITEMS

This section provides results for items concerning organizations' emergency response plans.

Summary of findings:

- The majority of respondents reported that their organization has developed an emergency response plan that addresses tsunamis: 61 percent of respondents (n = 64) indicated that they have a completed plan that is updated periodically, and 9 percent (n = 9) indicated that they have a completed plan, albeit one that has not been updated. Sixteen percent (n = 17) are in the planning stage and another 11 percent (n = 11) have intentions to begin a plan. Only 4 percent (n = 4) said their organization does not have a plan and it does not intend to develop one. (Table 4.1)
- The majority of organizations that have a completed plan that addresses tsunamis finalized their plan after 2004 (77%; n = 56). Seventy-three percent (n = 47) of respondents who reported that their organization has a completed plan that is updated periodically also reported that the plan was last updated after 2004. (Table 4.2)
- Nearly half of the 28 respondents who indicated that their organization has either initiated planning, or at least intends to do so, are uncertain as to when they will have a finalized and approved plan (46%; n = 13). Another 25 percent (n = 7) anticipate that it will be six months to a year before they have a finalized and approved plan. (Table 4.3)
- For just over half of organizations (52%; n = 52), some combination of internal and outside personnel developed, or will develop, their tsunami plan. For another 41 percent (n = 41) the plan was or will be developed by emergency planners within the organization. Only 2 percent (n = 2) had or will have the plan developed by private consultants. (Table 4.4)
- When asked to select the type(s) of information from the Pacific Tsunami Warning Center or the West Coast and Alaska Tsunami Warning Center on which their organization's plan was or will be activated, nearly half of respondents (47%; n = 43), selected the "Warning," "Advisory," and "Watch" options. The next most frequently selected option was "Warning" (23%; n = 21). (Table 4.5)
- About 82 percent of respondents (n = 83) reported that their organization has used or will use tsunami inundation maps in their tsunami planning. Only 8 percent (n = 8) indicated that their organization does not use tsunami inundation maps in their planning, and the remaining 10 percent (n = 10) did not know if their organization used or will use inundation maps. (Table 4.6)
- When the 8 respondents who reported that their organization did not or will not use tsunami inundation maps for tsunami planning were asked why not, the unavailability of current maps for their organization's area was the most commonly selection option (50%; n = 4), followed by the option, "in the process of developing tsunami inundation maps" (38%; n = 3). (Table 4.7)
- For the organizations that did or will use tsunami inundation maps in their tsunami planning, the most common source of these maps is a state agency (71%; n = 58). "University-based research center or research faculty" was the second most frequently selected source (39%; n = 32). (Table 4.8)
- When presented with a list of 18 elements and asked which elements their plan addresses (or will address), the most commonly selected elements were: "plan activation trigger" (88%; n = 86), "Emergency Operation Center Activation" (85%; n = 83), and "roles and responsibilities for multiple organizational personnel" (83%; n = 81). The least frequently selected elements were "provisions for notification and emergency period instructions for commercial and recreational

boating communities” (33%; n = 32), and “vertical evacuation procedures for communities with no high ground” (26%; n = 25). (Table 4.9)

- The majority of respondents reported that their organization receives tsunami information from the West Coast and Alaska Tsunami Warning Center in Palmer, Alaska (78%; n = 72). Eleven percent (n = 10) indicated that their organization receives tsunami information from the Pacific Tsunami Warning Center in Ewa Beach, Hawaii, and the remaining 11 percent (n = 10) selected “Other.” (Table 4.10)
- When asked to select the method(s) by which their organization receives tsunami messages from the appropriate Tsunami Warning Center, the most commonly selected option was “NOAA Weather Radio” (70%; n = 67), followed by “National Warning System” (57%; n = 55), and “state telecomm systems” (53%; n = 51). The least commonly selected methods were “US Coast Guard Radio (10%; n = 10), “NOAA Port” (6%; n = 6), and “Aeronautical Fixed Telecommunication Network” (1%; n = 1). (Table 4.11)

Table 4.1 Has Organization Developed Emergency Response Plan That Addresses Tsunamis

Developed Plan	% (number)
Yes, have a completed plan that is updated periodically	61.0% (64)
Yes, have a completed plan but it has not been updated	8.6% (9)
Have initiated planning, but plan is not yet complete	16.2% (17)
Have not begun to plan but intend to do so	10.5% (11)
Have no response plan for tsunamis and do not intend to develop one	3.8% (4)
Total	100% (105)

Table 4.2 When Plan Was Finalized by Whether or Not Plan Has Been Updated

When Plan Was Finalized	Plan Has Been Updated*	Plan Has Not Been Updated	Total
Prior to 1991	0.0% (0)	0.0% (0)	0.0% (0)
Between 1991 and 2000	10.9% (7)	0.0% (0)	9.6% (7)
Between 2000 and 2004	15.6% (10)	0.0% (0)	13.7% (10)
After 2004	73.4% (47)	100.0% (9)	76.7% (56)
Total	100% (64)	100.0% (9)	100.0% (73)

* These 64 respondents were next asked when their organization had last updated its plan; all chose the response "After 2004."

Table 4.3 Anticipated Completion and Approval of Plan

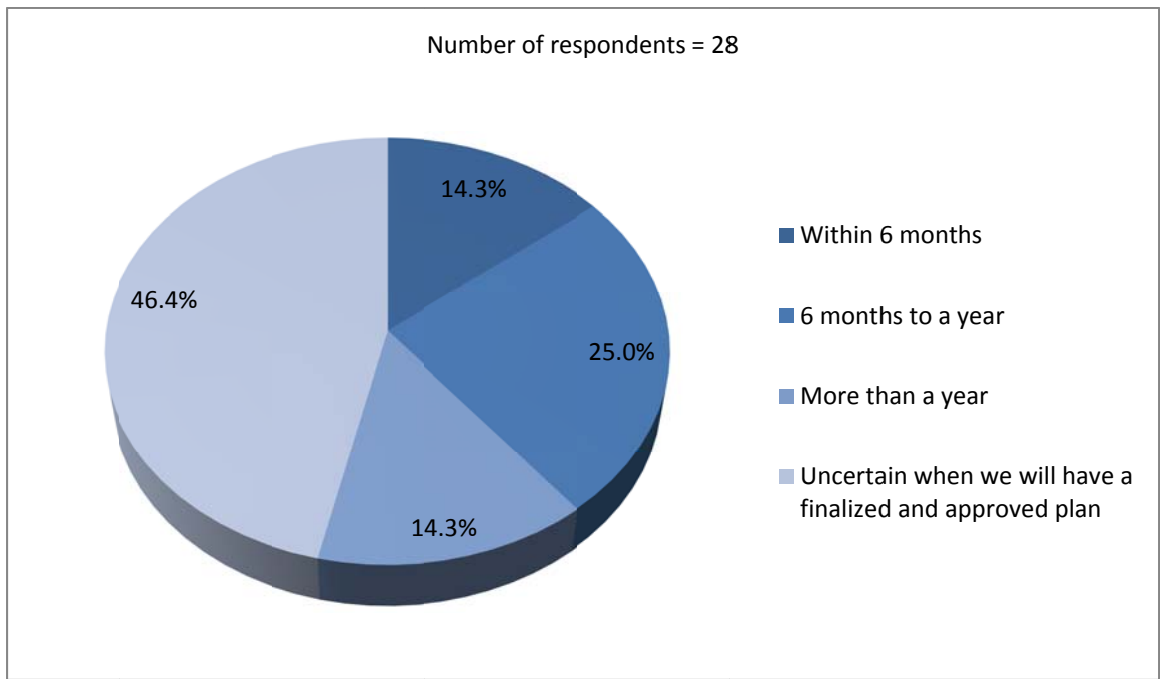


Table 4.4 Tsunami Plan Was or Will Be Developed By

Developer	% (number)
Emergency planners within my organization	41.0% (41)
Private consultants outside my organization	2.0% (2)
Some combination of internal and outside personnel	52.0% (52)
Other	5.0% (5)
Total	100% (100)

Table 4.5 Information Basis for Plan Being Activated

Basis for Activation	% (number)
Warning only	21.4% (21)
Advisory only	6.1% (6)
Watch only	10.2% (10)
Warning and Advisory	10.2% (10)
Warning and Watch	2.0% (2)
Advisory and Watch	1.0% (1)
Warning, Advisory, and Watch	45.9% (45)
Other*	3.1% (3)
Total number	(98)

* Note: This "Other" category includes only those respondents who selected the "Other" choice and not any of the "Watch," "Advisory," or "Warning" options.

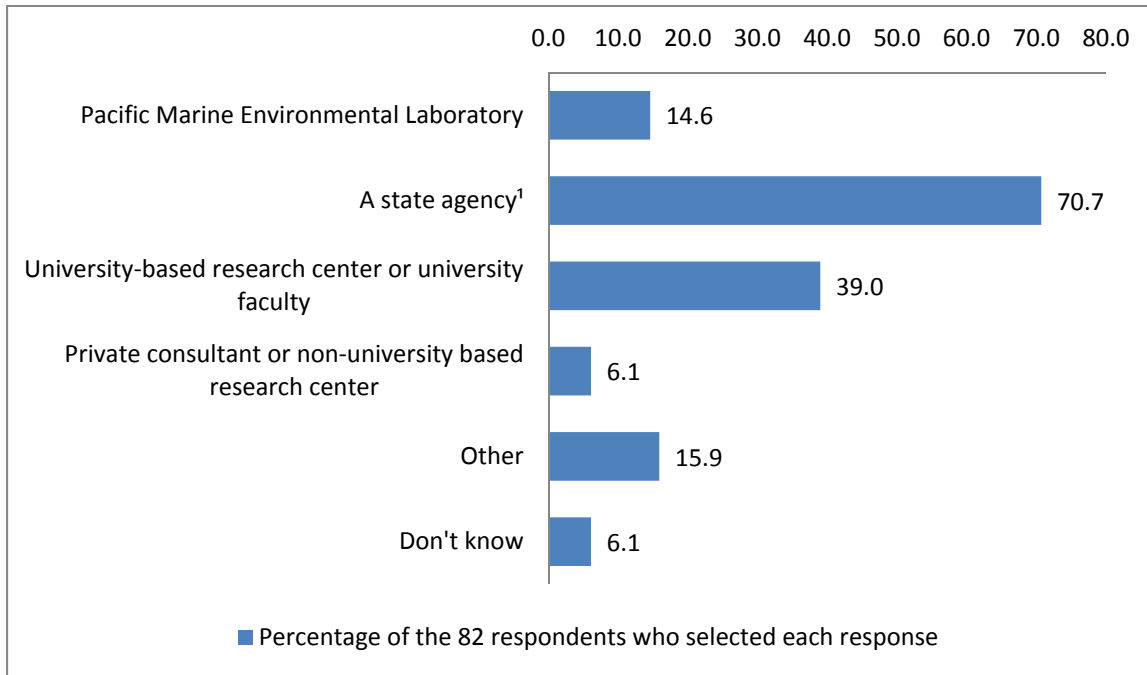
Table 4.6 Has/Will Organization Use Tsunami Inundation Maps in Tsunami Planning

Use Maps	% (number)
Yes	82.2% (83)
No	7.9% (8)
Don't know	9.9% (10)
Total	100% (101)

Table 4.7 Why is Organization Not Using Tsunami Inundation Maps

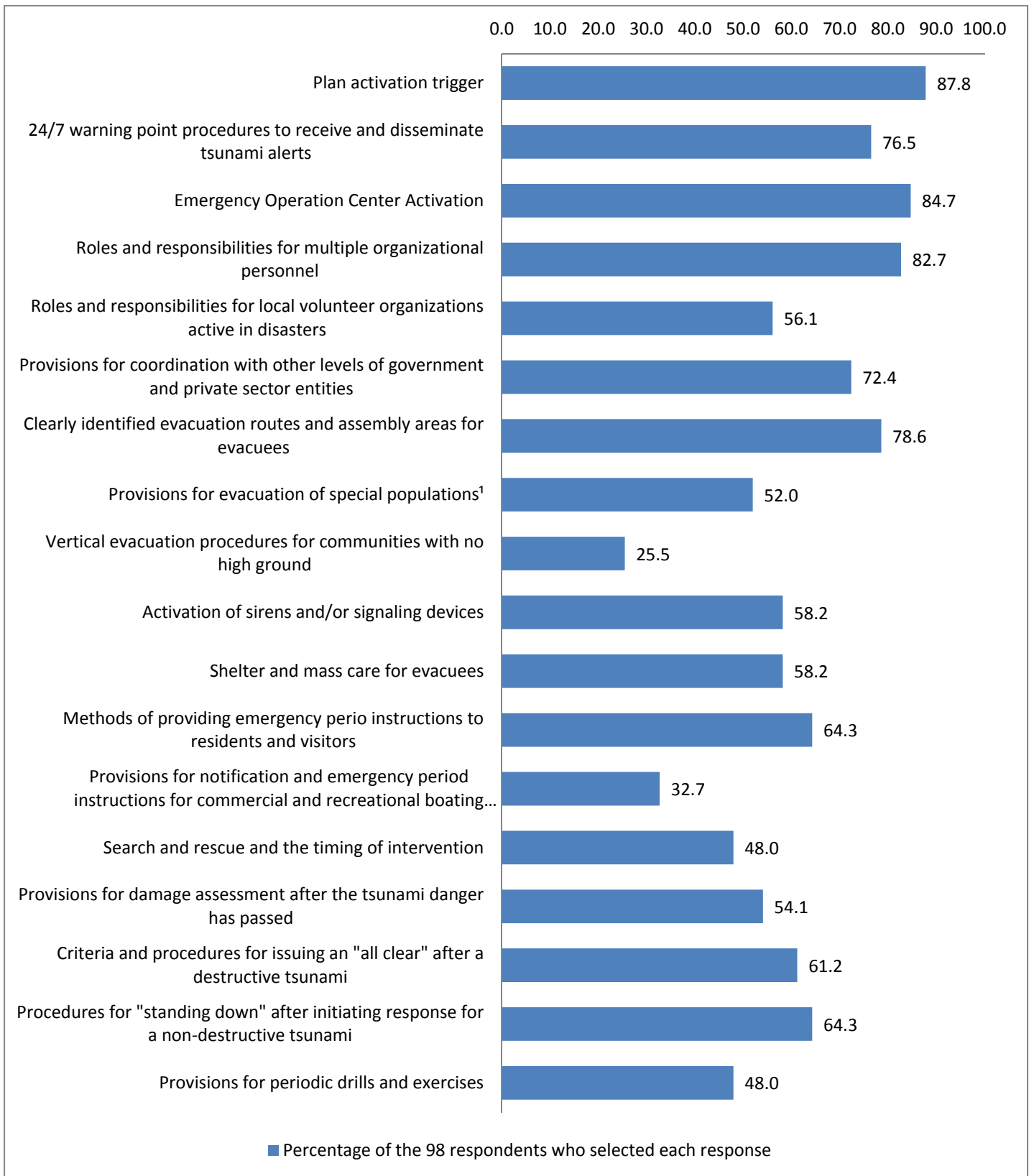
Reason Not Using Maps	% (number)
Not anticipating inundation in populated areas	25.0% (2)
Maps not currently available for area in which my organization or jurisdiction is located	50.0% (4)
Maps are not needed for planning purposes	12.5% (1)
In the process of developing tsunami inundation maps	37.5% (3)
Using evaluation maps developed without tsunami inundation maps	25.0% (2)
Total number	(8)

Table 4.8 What Is/Will be Source of Maps



¹ e.g., state office of emergency management, state geological survey

Table 4.9 Elements Plan Will Address

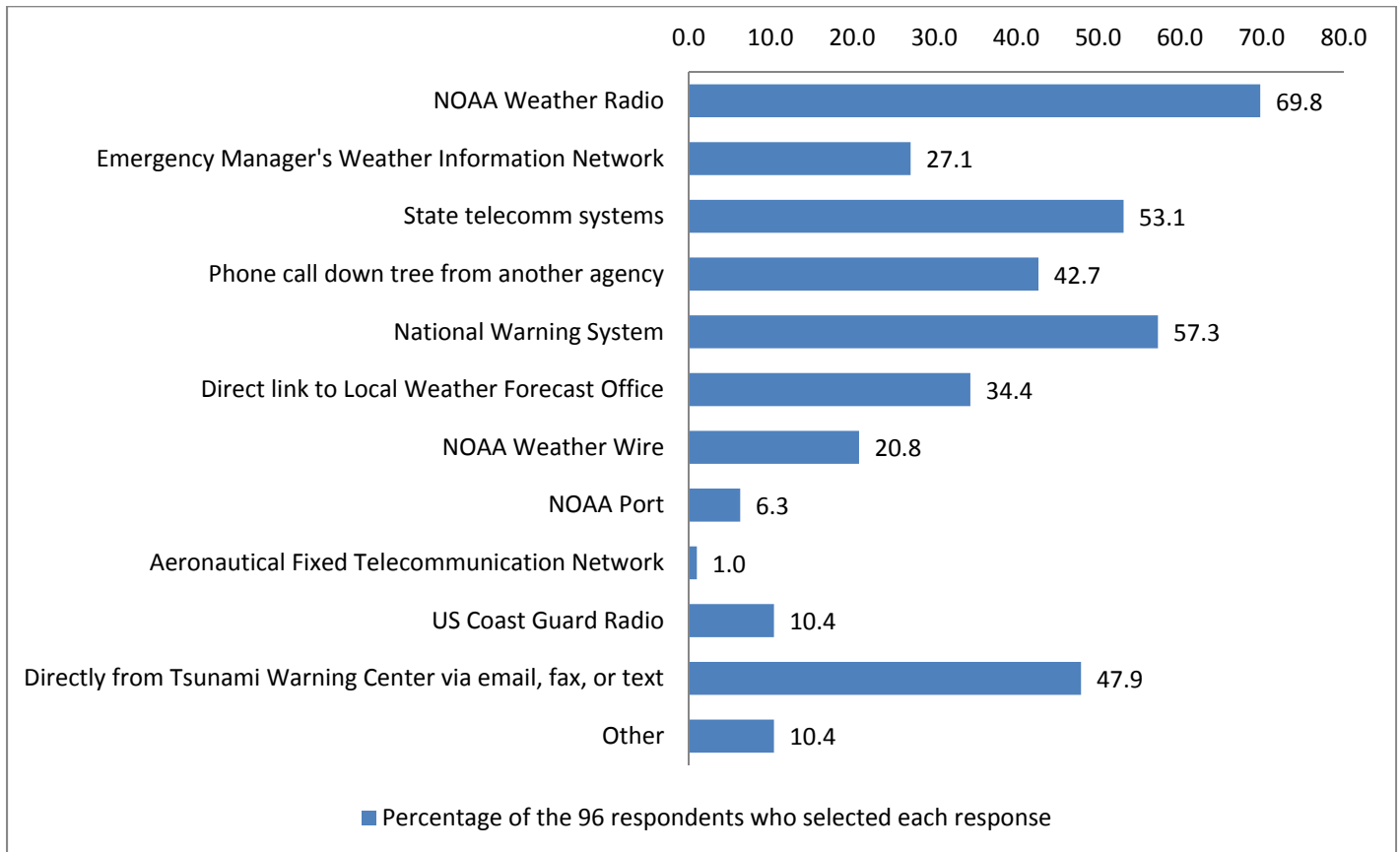


¹ e.g., persons with disabilities, non-English speaking persons, visitors

Table 4.10 From What Tsunami Warning Center Organization Receives Tsunami Information

Warning Center	% (number)
Pacific Tsunami Warning Center in Eva Beach, Hawaii	10.9% (10)
West Coast and Alaska Tsunami Warning Center in Palmer, Alaska	78.3% (72)
Other	10.9% (10)
Total	100% (92)

Table 4.11 Method Organization Receives Tsunami Messages from Tsunami Warning Center



SECTION 5. EXERCISES AND TRAINING ITEMS

This section provides results for items concerning exercises and training related to tsunami preparedness.

Summary of findings:

- Nearly half of respondents reported that their organization conducts exercises to test their tsunami plan (44%; n = 44). These exercises most often test an organization's "response plan in general" (84%; n = 37) and the "Emergency Alert System ability to deliver a warning" (66%; n = 29). Exercises are least likely to test the "ability to evacuate part or all of an organization or community in tsunami inundation zones" (50%; n = 22). (Tables 5.1 and 5.2)
- Nearly all of the exercises conducted by organizations test the ability to "respond to a warning issued by the Pacific or West Coast and Alaska Tsunami Warning Center" (93%; n = 41). About 59 percent (n = 26) indicated that the exercises conducted by the organization test the ability to "respond to an actual tsunami impact," and only 21 percent (n = 9) indicated that the exercises test the ability to "recover from a damaging tsunami impact." (Table 5.3)
- The vast majority of respondents indicated that the exercises being conducted are "tabletop exercises" (91%; n = 39). Nearly 42 percent of respondents (n = 18) reported that their organization is conducting "full scale exercises." (Table 5.4)
- Nearly all of the exercises have been conducted by "internal emergency management personnel" (93%; n = 40). (Table 5.5)
- When asked to indicate what outcome(s) have occurred due to exercises, the most commonly selected outcome was "staff has become more familiar with roles" (95%; n = 40), followed by "plans have been updated or modified" (83%; n = 35). Both "equipment has been tested" (62%; n = 26) and "new procedures have been implemented" (57%; n = 24) were cited least often. (Table 5.6)
- About two-thirds of respondents (66%; n = 65) answered affirmatively when asked if tsunami planning staff within their organization received training in tsunami planning or in issues related to tsunamis. The most commonly cited type of training was "tsunami science" (89%; n = 58) and "social science contributions" was selected least often (55%; n = 36). (Tables 5.7 and 5.8)

Table 5.1 Does Organization Conduct Exercises to Test Tsunami Plan

Conduct Exercises	% (number)
Yes	44.0% (44)
No	56.0% (56)
Total	100% (100)

Table 5.2 What Do Exercises Test

Aspect Tested	% (number)
Response plan in general	84.1% (37)
Ability to evacuate part or all of organization or community in tsunami inundation zones	50.0% (22)
Siren function	56.8% (25)
Emergency Alert System ability to deliver a warning	65.9% (29)
Other	9.1% (4)
Total number	(44)

Table 5.3 What Abilities Do Response Exercises Test

Ability Tested	% (number)
Respond to a warning issued by the Pacific or West Coast and Alaska Tsunami Warning Center	93.2% (41)
Respond to an actual tsunami impact	59.1% (26)
Recover from a damaging tsunami impact	20.5% (9)
Other	4.5% (2)
Total number	(44)

Table 5.4 What Types of Response Exercises

Type of Exercise	% (number)
Tabletop exercises ¹	90.7% (39)
Functional exercise ²	72.1% (31)
Full scale exercises ³	41.9% (18)
Total number	(43)

¹ Discussion exercises, low stress to clarify roles & responsibilities

² Performance exercises, sequence of messages, evaluate plans and standard operating procedures

³ Field event with Emergency Operations Center activation, deployment, comprehensive)

Table 5.5 Who Facilitated Exercises

Facilitator	% (number)
Internal emergency management personnel	93.0% (40)
External emergency management personnel	55.8% (24)
Outside consultants	23.3% (10)
Other	7.0% (3)
Total number	(43)

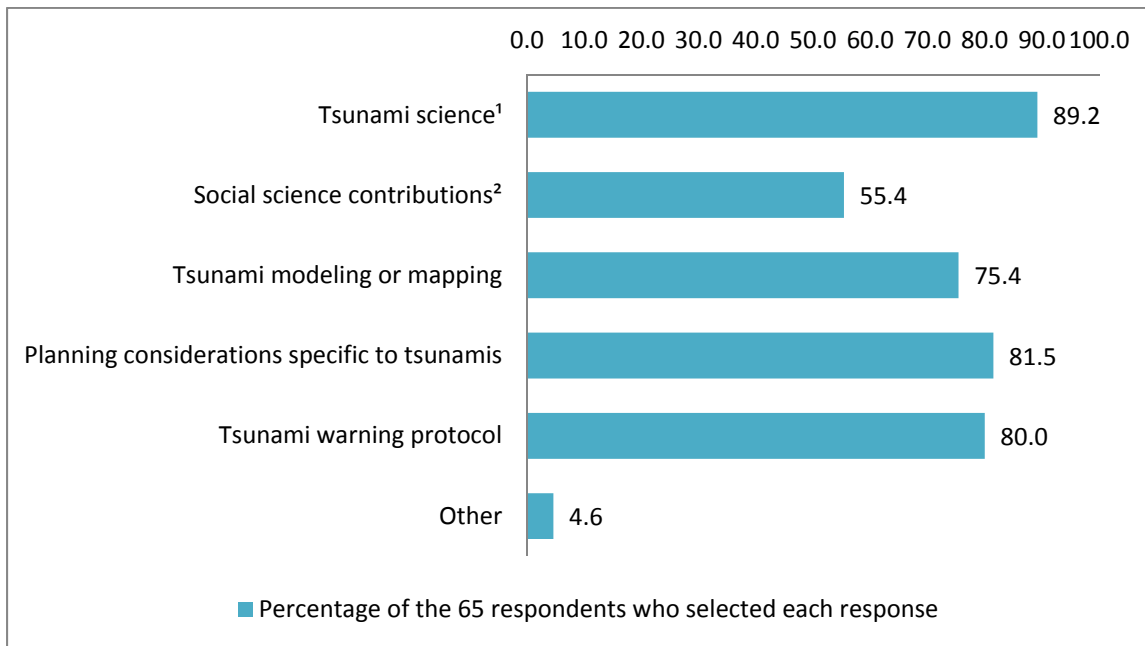
Table 5.6 What Outcomes Occurred Due to Exercises

Outcome	% (number)
Plans have been updated or modified	83.3% (35)
Staff has become more familiar with roles	95.2% (40)
Equipment has been tested	61.9% (26)
New procedures have been implemented	57.1% (24)
Other	2.4% (1)
Total number	(42)

Table 5.7 Has Tsunami Planning Staff Received Training

Staff Received Training	%
Yes	65.7% (65)
No	34.3% (34)
Total	100% (99)

Table 5.8 Type of Training Included



¹ e.g., seminar on how tsunamis occur, regional hazards, history of tsunami events

² e.g., information on how to make warnings more effective

SECTION 6. TSUNAMI HAZARD MITIGATION ITEMS

This section provides results for items concerning organizations' tsunami hazard mitigation efforts.

Summary of findings:

- Over half of respondents reported that their organization has developed a hazard mitigation plan that addresses tsunamis (54%; n = 53). Sixteen percent (n = 16) have initiated planning, and an equal number has not begun to plan but intends to do so. Thirteen percent of respondents (n = 13) reported that their organization has no intention of developing a plan. (Table 6.1)
- About 64 percent of respondents (n = 63) answered affirmatively when asked if their organization has critical facilities in the tsunami inundation zone. Twenty-six percent (n = 26) selected "no," and 10 percent (n = 10) do not know. (Table 6.2)
- For organizations with critical facilities in the tsunami inundation zone, the most common type of facility is fire stations (66%; n = 41), followed by schools and facilities hosting a lifeline or utility (both 60%; n = 37). (Table 6.3)
- Fifty-four percent of respondents (n = 34) who indicated their organization has critical facilities in the tsunami inundation zone have a response plan for these facilities. (Table 6.4)
- Only a small number of organizations have abandoned, modified, or relocated an existing critical facility because it was in a tsunami hazard zone (10%; n = 6). The most common type of facility that organizations have abandoned, modified, or relocated is a fire station (67%; n = 4). (Tables 6.5 and 6.6)
- When asked if their organization has considered the tsunami hazard or mapped inundation zones in other land-use planning decisions, the most common response was "don't know" (38%; n = 38), followed by "yes" (37%; n = 37). Only about one-fourth of respondents (n = 24) selected "no." (Table 6.7)
- Respondents were almost equally split as to whether their organization has facilities or residents that cannot be rapidly evacuated in a tsunami event (43% "yes" and 42% "no"). The remaining 15 percent (n = 15) selected "don't know." (Table 6.8)
- When the respondents who indicated that their organization has facilities or residents that cannot be rapidly evacuated in a tsunami event were asked how they have addressed this issue, the most common response was that they have not done anything (56%; n = 23). Forty-nine percent (n = 20) have "identified safe areas within the facility for them to remain in place during the tsunami." The options, "modified the facility to withstand tsunamis" and "built special structures that serve as evacuation sites for those who can't reach higher ground," were not chosen by any respondents. (Table 6.9)

Table 6.1 Has Organization Developed Hazard Mitigation Plan

Developed Plan	%
Yes, have a completed hazard mitigation plan that addresses tsunamis	54.1% (53)
Have initiated planning, but plan is not yet complete	16.3% (16)
Have no begun to plan, but intend to do so	16.3% (16)
Have no hazard mitigation plan for tsunamis and do not plan to develop one	13.3% (13)
Total	100% (98)

Table 6.2 Does Organization Have Critical Facilities in Tsunami Inundation Zone

Critical Facilities in Zone	%
Yes	63.6% (63)
No	26.3% (26)
Don't know	10.1% (10)
Total	100% (99)

Table 6.3 Types of Critical Facilities in Inundation Zone

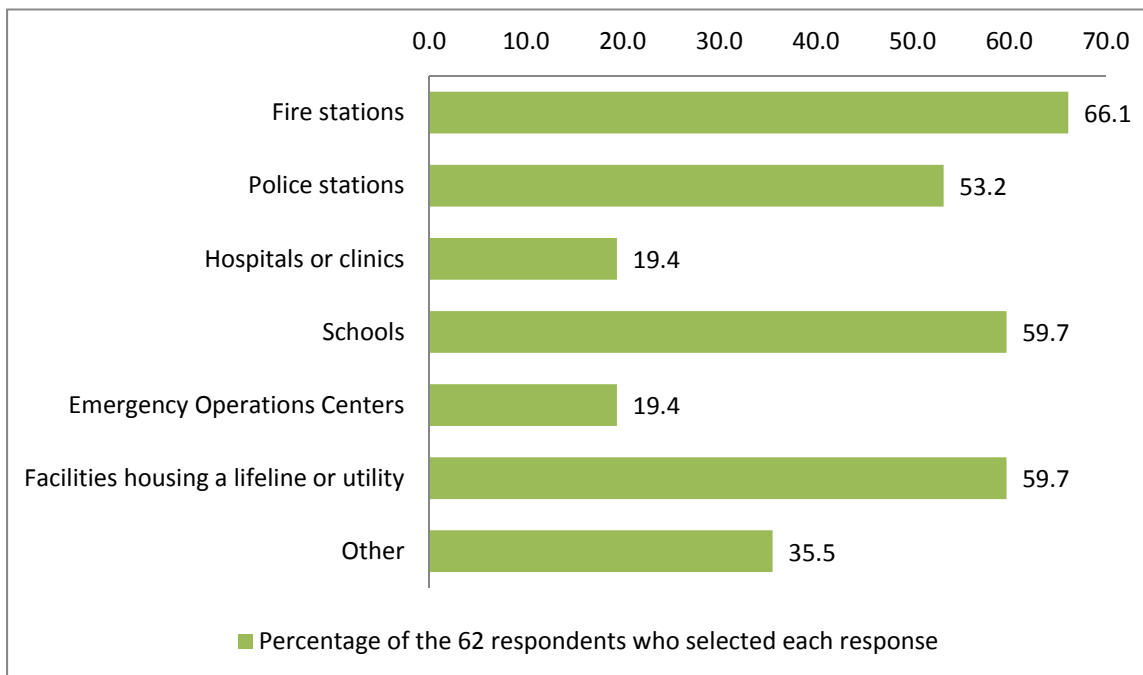


Table 6.4 Have Response Plan for Critical Facilities in Inundation Zone

Have Response Plan	% (number)
Yes	54.0% (34)
No	46.0% (29)
Total	100% (63)

Table 6.5 Has Organization Abandoned, Modified, or Relocated Critical Facility in Hazard Zone

Abandoned/Modified/Relocated Facility	% (number)
Yes	9.5% (6)
No	79.4% (50)
Don't know	11.1% (7)
Total	100% (63)

Table 6.6 Abandoned/Modified/Relocated Facility Type

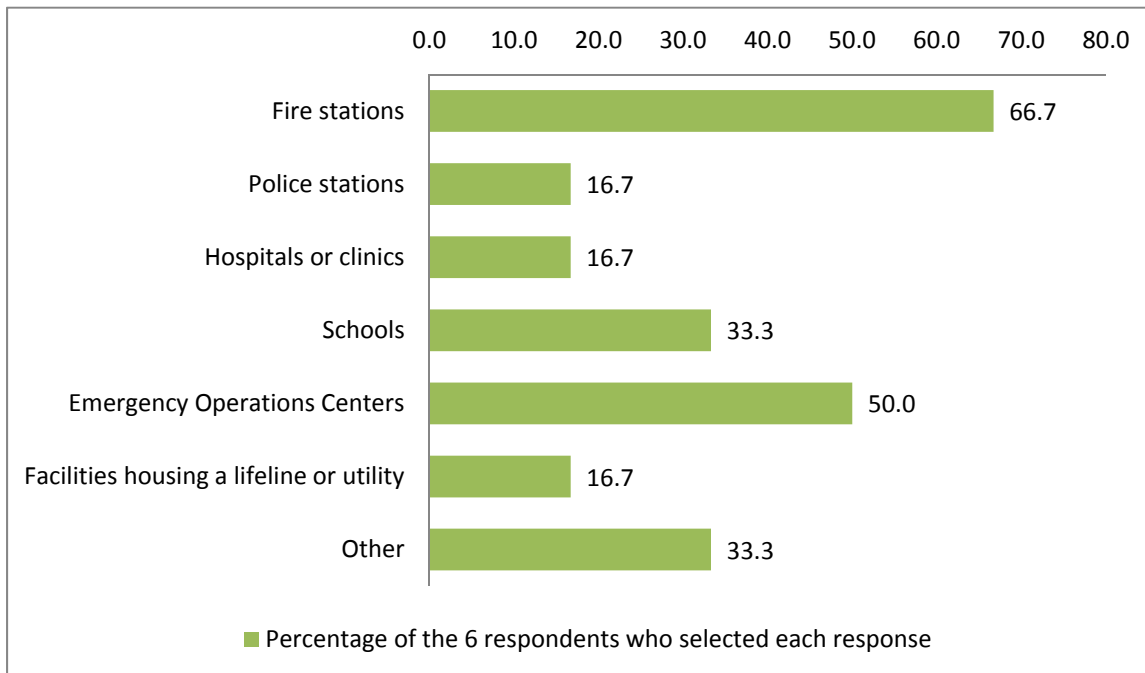


Table 6.7 Has Organization Considered Tsunami Hazard or Mapped Inundation Zones in Other Land-Use Planning Decisions

Considered in Other Decisions	% (number)
Yes	37.4% (37)
No	24.2% (24)
Don't know	38.4% (38)
Total	100% (99)

Table 6.8 Are There Areas in Which Organization has Facilities/Residents That Cannot Be Rapidly Evacuated

Areas That Cannot Be Rapidly Evacuated	% (number)
Yes	42.9% (42)
No	41.8% (41)
Don't know	15.3% (15)
Total	100% (98)

Table 6.9 How Have Those Facilities/Residents Been Handled

How Handled	% (number)
Identified safe areas within the facility for them to remain in place during the tsunami	48.8% (20)
Modified the facility to withstand tsunamis	0.0% (0)
Built special structures that serve as evacuation sites for those who can't reach higher ground	0.0% (0)
Have not done anything to address the issue	56.1% (23)
Total number	(41)

SECTION 7. SIGNALING DEVICES ITEMS

This section provides results for items concerning tsunami sirens and signaling devices.

Summary of findings:

- Just over half of respondents (52%; n = 51) reported that their organization does not have tsunami signaling devices or sirens or use existing signaling devices for tsunami warnings. (Table 7.1)
- When respondents who reported that their organization does not have tsunami signaling devices or sirens or use existing signaling devices for tsunami warnings were asked why this is the case, the “Other” option was selected most often (70%; n = 35). These respondents were given the opportunity to elaborate on their response, and the most common explanation given was that respondents did not feel signaling devices were needed. Of the choices provided, the most frequently selected reason was that the “signaling devices are too expensive” (30%; n = 15). (Table 7.2)
- Among those organizations that do have tsunami signaling devices for tsunami warnings, they most often have 1-3 devices (37%; n = 16). Nineteen percent of respondents (n = 8) reported that their organization has more than 20 devices. (Table 7.3)
- Signaling devices typically have both voice and audible signal capabilities (63%; n = 27), and use tones for tsunami warnings that are different than tones used for other hazards (56%; n = 24). (Tables 7.4 and 7.5)
- Nearly half of devices are tested monthly (49%; n = 21). Another 26 percent (n = 11) are tested weekly. Only 1 respondent (2%) reported that their organization’s devices are never tested. (Table 7.6)
- Nearly three-fourths of respondents reported that there is a specific day of the week and time of the day in which signaling devices are tested (72%; n = 31). For these organizations, Mondays and Wednesdays are the most common days for testing (both 43%; n = 12) and midday (11AM-12:59PM) is the most common time of day for testing (54%; n = 15). (Tables 7.7-7.7b)
- For twenty-one percent of organizations (n = 9), 100 percent of the tsunami vulnerable population is covered by signaling devices. For nine percent of organizations (n = 4), 10 percent or less of the tsunami vulnerable population is covered by signaling devices. (Table 7.8)
- Fifty-six percent of respondents (n = 19) who indicated less than 100 percent coverage reported that their organization plans to deploy additional devices. (Table 7.9)
- Among respondents who do not know if their organization has or uses tsunami signaling devices or sirens, and those who reported less than 100 percent coverage of signaling devices, 75 percent (n = 48) have not and do not intend to purchase signaling devices (or additional devices). Table 7.10)
- For organizations that plan to deploy additional signaling devices (indicated by a “yes” response in Tables 7.9 or 7.10), over half are uncertain as to how long it will be before these devices are deployed (56%; n = 15). (Table 7.11)
- All respondents were asked to select what other method(s) besides sirens are used or would be used to alert the public of a tsunami hazard. The most commonly selected method was “loudspeaker announcements on emergency vehicles” (74%; n = 72), closely followed by “NOAA Weather Radios” and “television audio/video overrides” (both 73%; n = 71). Only 1 respondent reported that “no other methods are or would be used.” (Table 7.12)

Table 7.1 Does Organization Have Tsunami Signaling Devices or Use Existing Signaling Devices for Tsunami Warnings

Have Signaling Devices	% (number)
Yes	43.9% (43)
No	52.0% (51)
Don't know	4.1% (4)
Total	100% (98)

Table 7.2 Why Has Organization Not Deployed Tsunami Signaling Devices or Used Existing Signaling Devices for Tsunami Warnings

Reason Devices Not Deployed/Used	% (number)
Have ordered signaling devices but have not yet deployed them	4.0% (2)
Signaling devices are too expensive	30.0% (15)
Signaling devices will not be purchased and deployed due to community opposition	8.0% (4)
Signaling devices are opposed by environmental or coastal conservancy groups	4.0% (2)
Other	70.0% (35)
Total number	(50)

Table 7.3 How Many Signaling Devices Deployed Within Boundaries of Organization/Jurisdiction

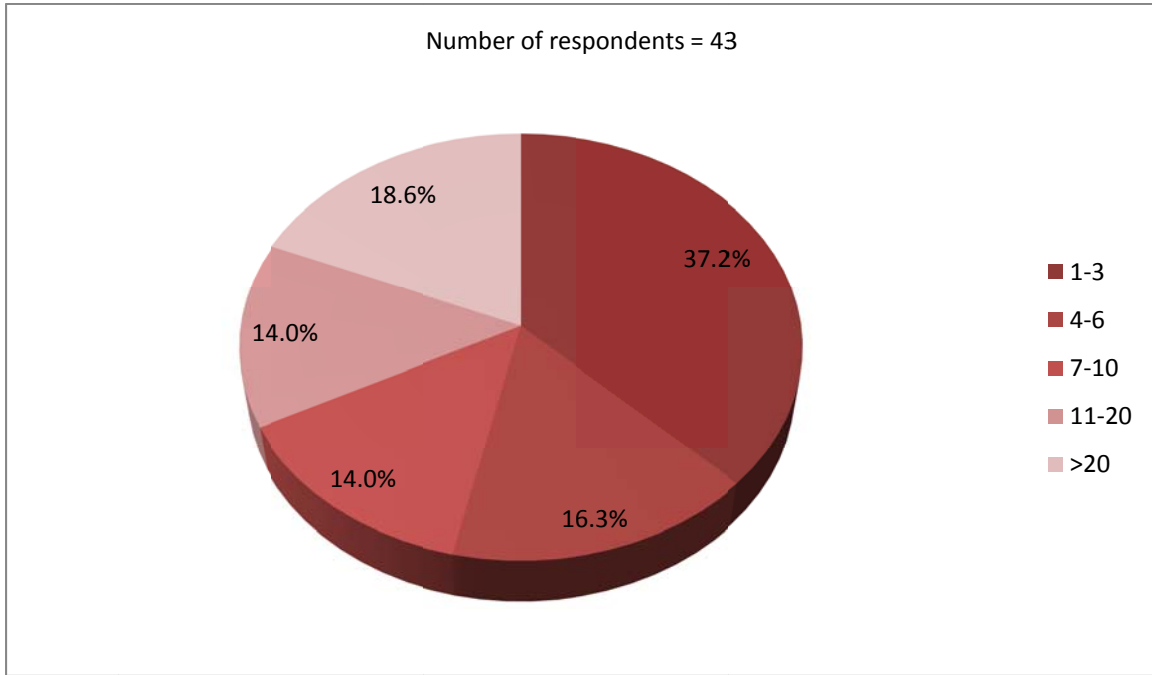


Table 7.4 Do Signaling Devices Have Both Voice and Audible Signal Capabilities

Devices Have Voice and Audible Signal	% (number)
Yes	62.8% (27)
No	37.2% (16)
Total	100% (43)

Table 7.5 Are Tones Used for Tsunami Warning Different Than Tones Used for Other Hazards

Tsunami Tones Different From Others	% (number)
Yes	55.8% (24)
No	44.2% (19)
Total	100% (43)

Table 7.6 How Often Are Signaling Devices Tested

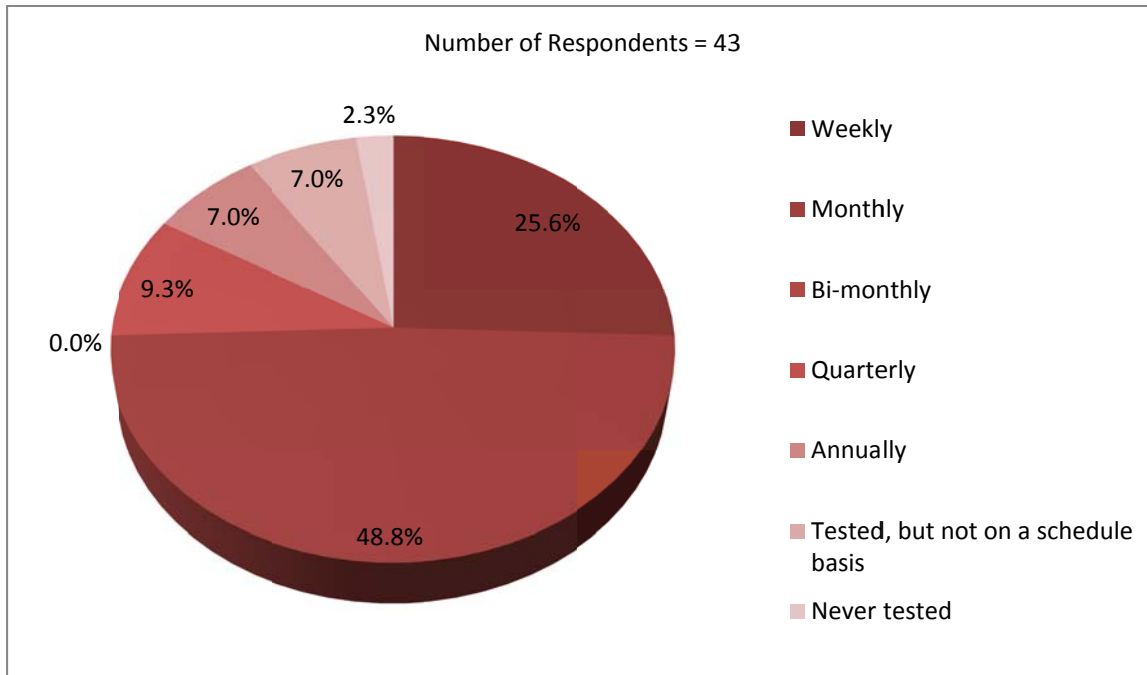


Table 7.7 Specific Day of Week and Time of Day Devices are Tested

Specific Day of Week/Time of Day Tested	% (number)
Yes	72.1% (31)
No	27.9% (12)
Total	100% (43)

Table 7.7a Day of Week Signaling Devices are Tested

Day of Week	% (number)
Sunday	0.0% (0)
Monday	42.9% (12)
Tuesday	3.6% (1)
Wednesday	42.9% (12)
Thursday	0.0% (0)
Friday	3.6% (1)
Saturday	7.1% (2)
Total	100% (28)

Table 7.7b Time of Day Signaling Devices are Tested

Time of Day	% (number)
Morning (9 AM-10:59 AM)	17.9% (5)
Midday (11 AM-12:59 PM)	53.6%* (15)
Early Afternoon (1 PM-2:59 PM)	17.9% (5)
Late Afternoon (3 PM-5 PM)	10.7% (3)
Total	100% (28)

* Three respondents listed the testing time as 12:00 AM, and another listed 12:00 without specifying AM or PM. It is assumed that these responses meant 12 noon, rather than 12 midnight, as a testing time.

Table 7.8 Percentage of Tsunami-Vulnerable Population Covered by Signaling Devices

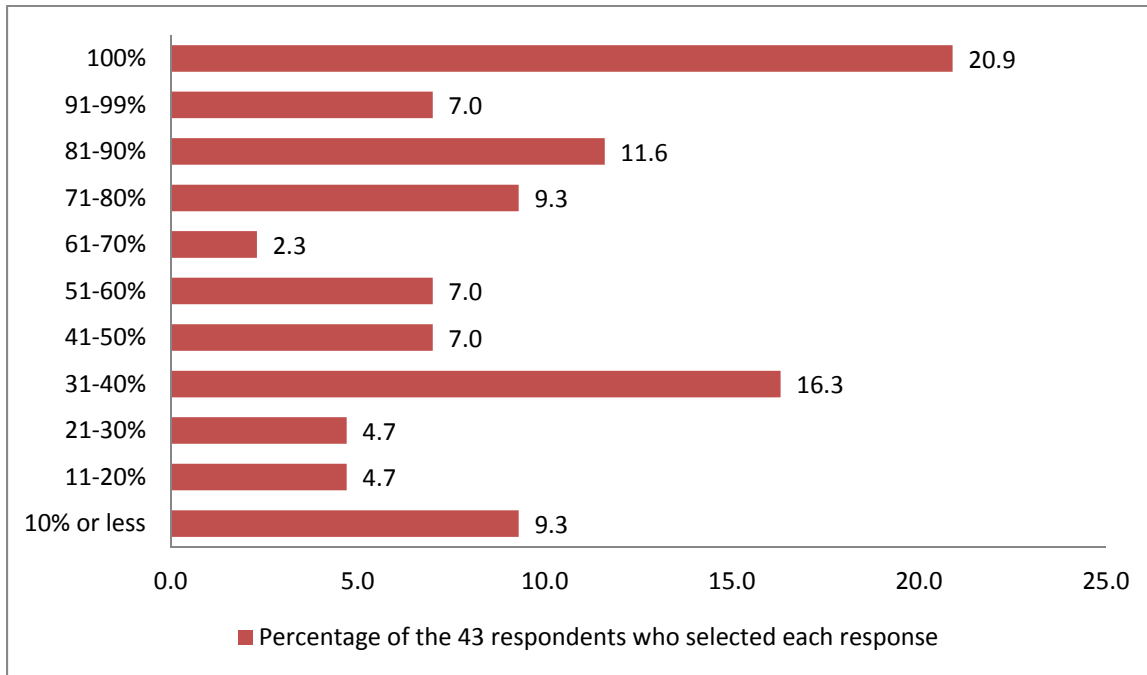


Table 7.9 Plan to Deploy Additional Devices

Plan to Deploy	% (number)
Yes	55.9% (19)
No	44.1% (15)
Total	100% (34)

Table 7.10 Plan to Purchase or Already Purchased Signaling Devices That Have Not Yet Been Deployed

Plan to Purchase or Have Purchased	% (number)
Yes	12.5% (8)
No	75.0% (48)
Don't know	12.5% (8)
Total	100% (64)

Table 7.11 How Long Before Signaling Devices are Deployed

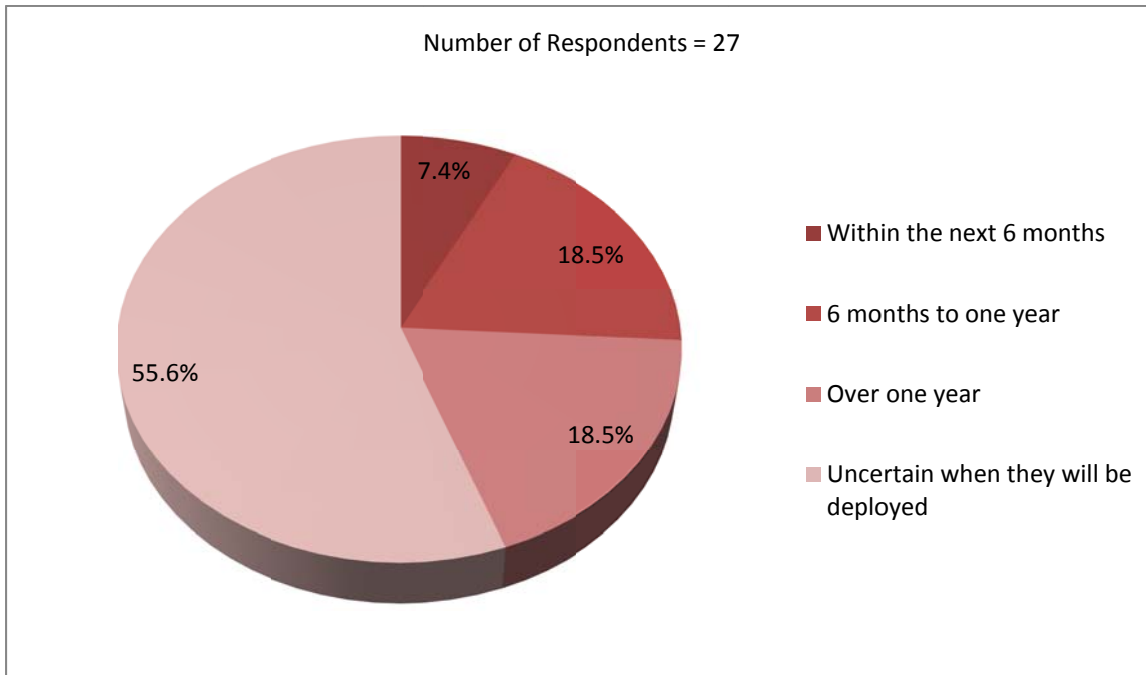
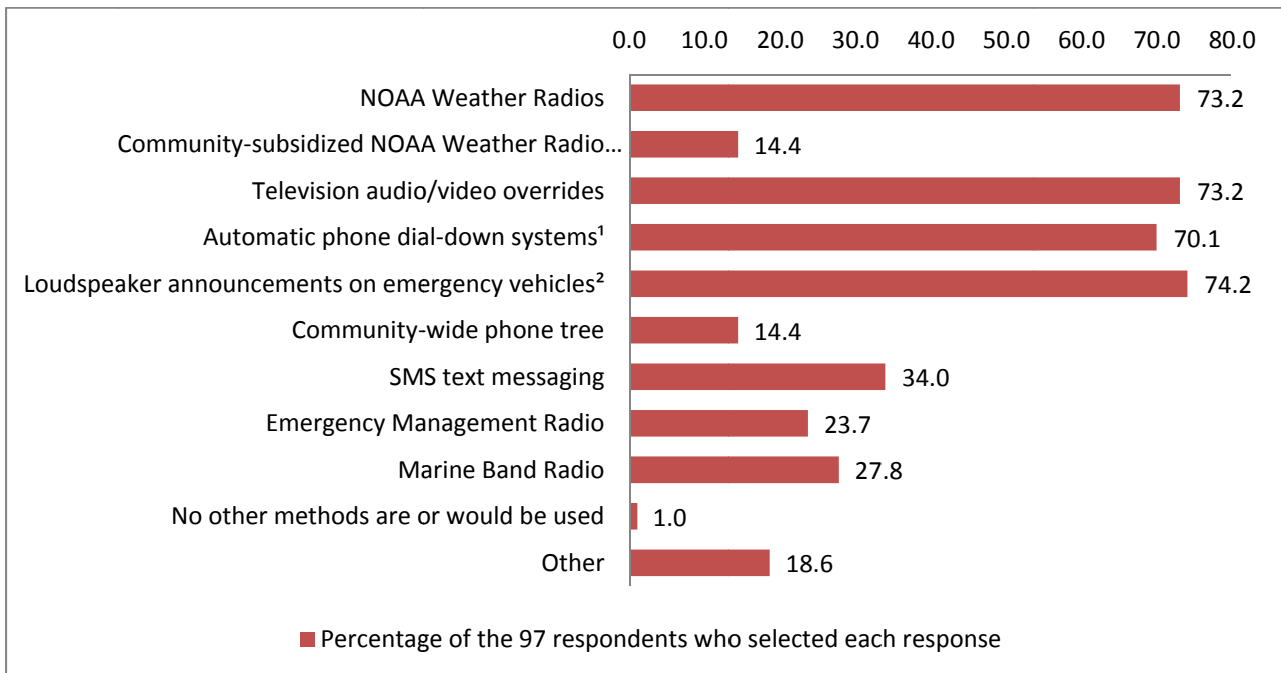


Table 7.12 Other Methods Used/Would Be Used to Alert Public of Tsunami Hazard



¹ e.g., Reverse 911

² and aircraft, if applicable

SECTION 8. TSUNAMI HAZARD AND EVACUATION SIGNAGE ITEMS

This section provides results for items concerning use of tsunami hazard and evacuation signs.

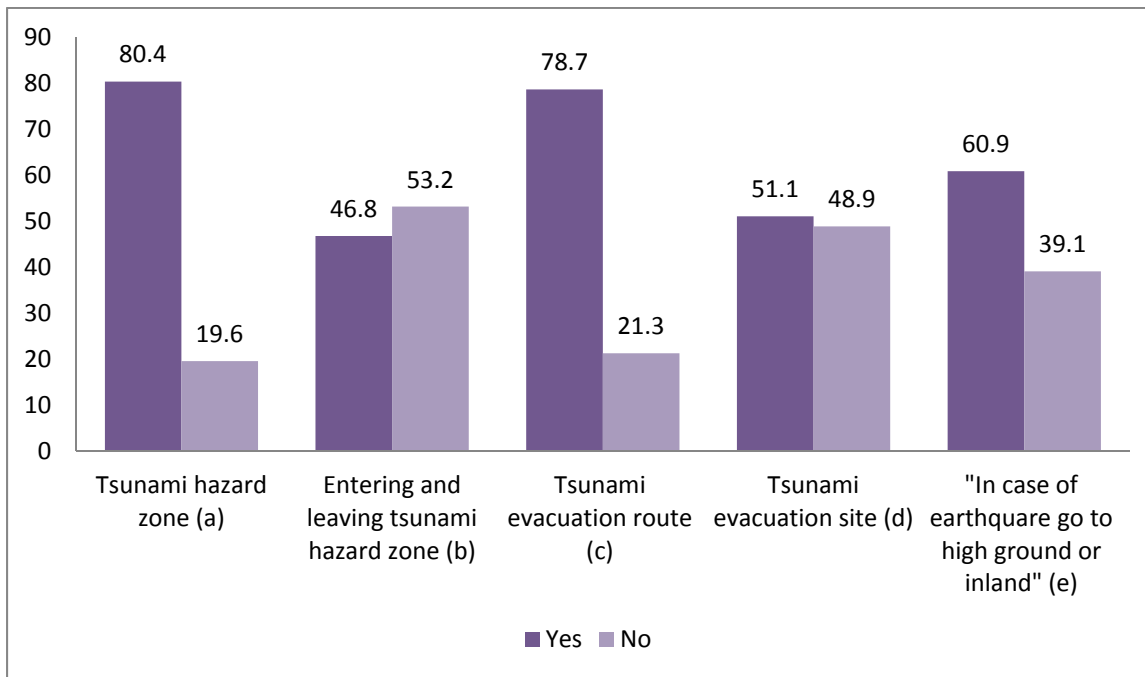
Summary of findings:

- Nearly half of organizations have deployed tsunami signs (48%; n = 47). Of these, the majority have deployed “tsunami hazard zone” signs (80%; n = 37) and “tsunami evacuation route” signs (79%; n = 37). “Entering and leaving tsunami hazard zone” signs have been deployed least frequently (47%; n = 22). (Tables 8.1 and 8.2a-e)
- Of the 47 respondents who reported that their organization has deployed tsunami signs, 66 percent (n = 31) also reported that signs have been deployed to all tsunami vulnerable areas. (Table 8.3)
- When the 16 respondents who indicated that signs have not been deployed to all tsunami vulnerable areas were asked why this is the case, the most frequency reason given was “inadequate funding to complete deployment” (63%; n = 10). (Table 8.4)
- Thirty-six percent of respondents (n = 16) felt that theft or destruction of tsunami signs in their jurisdiction is “not at all a problem,” and another 38 percent (n = 17) felt that theft or destruction of tsunami signs is a “minor problem.” Only 9 percent (n = 4) felt that it is a “major problem.” (Table 8.5)
- When asked how their organization decides where to put up tsunami signs, the most common response was “tsunami inundation maps” (77%; n = 36) followed by “tsunami evacuation maps” (57%; n = 27). “Environmental or aesthetic factors” was selected least often (11%; n = 5). (Table 8.6)
- When asked to indicate which other method(s) their organization uses to identify tsunami hazard routing, over half of respondents chose the response, “no methods used to identify tsunami hazard routing” (53%; n = 25). (Table 8.7)
- Among respondents who reported that their organization has not deployed tsunami signs, the most common reason selected (aside from the “Other” option, see Appendix H for write-in responses) was that respondents “do not consider them needed” (30%; n = 15). (Table 8.8)

Table 8.1 Organization Deployed Tsunami Signs

Deployed Signs	% (number)
Yes	48.0% (47)
No	52.0% (51)
Total	100% (98)

Table 8.2a-e Deployed Types of Signs¹

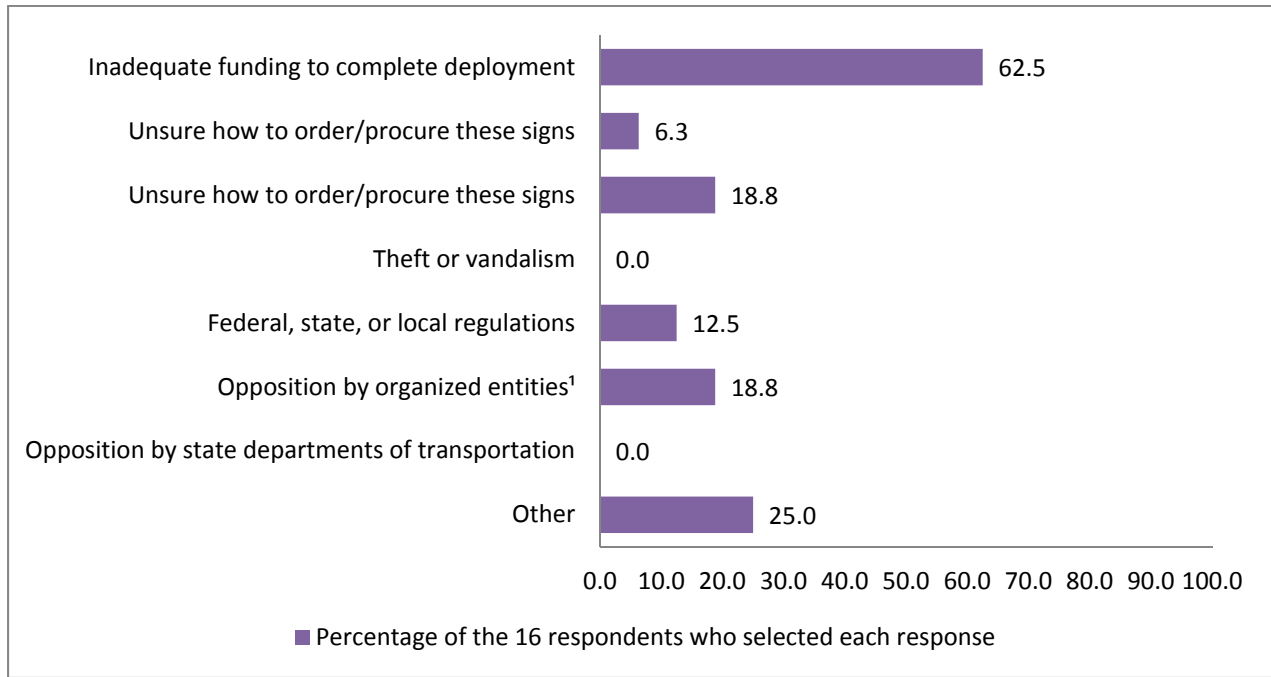


¹The number of respondents for all items in the table above is 47, with the exception of the item regarding "Tsunami hazard zone" signs for which N = 46.

Table 8.3 Has Jurisdiction Covered All Tsunami-Vulnerable Areas with Appropriate Signage

Covered All Areas	% (number)
Yes	66.0% (31)
No	34.0% (16)
Total	100% (47)

Table 8.4 Why Jurisdiction Has Not Deployed Signs to All Vulnerable Areas



¹ e.g., business or community group

Table 8.5 Theft or Destruction of Tsunami Signs

How Problematic	% (number)
Not at all a problem	35.6% (16)
Minor problem	37.8% (17)
Moderate problem	17.8% (8)
Major problem	8.9% (4)
Total	100% (45)

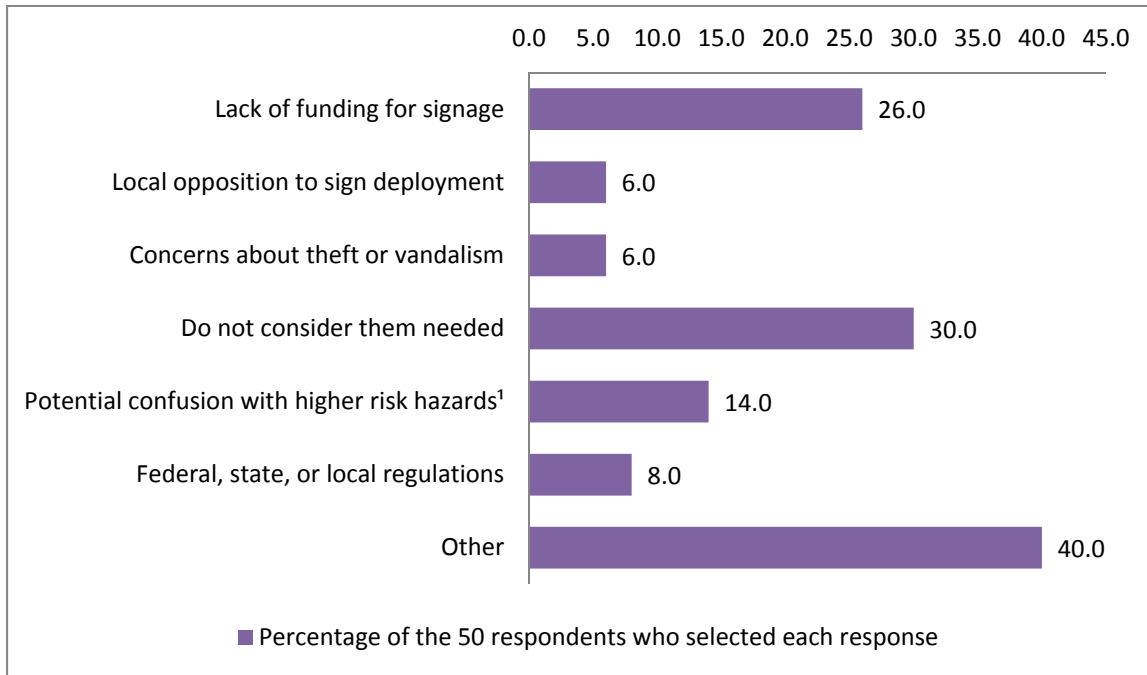
Table 8.6 Basis for Decision as to Where to Place Signs

Basis	% (number)
Tsunami inundation maps	76.6% (36)
Tsunami evacuation maps	57.4% (27)
Public vs. private property	29.8% (14)
Environmental or aesthetic factors	10.6% (5)
Federal, state, or local government regulation	34.0% (16)
Other	12.8% (6)
Total number	(47)

Table 8.7 Other Methods to Identify Tsunami Hazard Routing

Other Methods Used	% (number)
Non-standard signage	8.5% (4)
Routing messages painted on roads	4.3% (2)
Routing information painted on sidewalks	0.0% (0)
No methods used to identify tsunami hazard routing	53.2% (25)
Other	14.9% (7)
Total number	(47)

Table 8.8 Why Organization Has Not Deployed Tsunami Signs



¹ e.g., hurricanes

SECTION 9. TSUNAMIREADY STATUS

This section provides results for items concerning organizations' TsunamiReady status.

Summary of findings:

- The majority of organizations have not been recognized by NOAA's National Weather Service as "TsunamiReady" (71%; n = 70). (Table 9.1)
- Among the 28 organizations that have been recognized as "TsunamiReady," over half received this designation more than three years ago (57%; n = 16). Half of these 16 organizations have renewed their "TsunamiReady" recognition one time. (Tables 9.2 and 9.3)
- The majority of organizations did not encounter any difficulties or challenges in their efforts to become "TsunamiReady" (71%; n = 20). For the eight that did, the most common barrier was "resources shortfalls that made planning difficult" (88%; n = 7). (Tables 9.4 and 9.5)
- Among the 70 organizations that have not been recognized as "TsunamiReady," 41 percent (n = 29) are currently working toward "TsunamiReady" status. Thirty-five percent of those (n = 10) are expecting to complete all the requirements and be recognized as "TsunamiReady" within the next six months, and an additional 28 percent (n = 8) anticipate that it will be between six months to one year before they are recognized as "TsunamiReady." (Tables 9.6 and 9.7)
- When respondents from organizations that are not working toward "TsunamiReady" recognition were asked to select the main reason this is the case, nearly half chose the response, "low probability that our organization/jurisdiction will be hit by a tsunami" (45%; n = 18). Also notable is the 25 percent of respondents (n = 10) who selected "unfamiliar with the TsunamiReady program." (Table 9.8)

Table 9.1 Organization Recognized by National Weather Service as "TsunamiReady"

Recognized as TsunamiReady	% (number)
Yes	28.6% (28)
No	71.4% (70)
Total	100% (98)

Table 9.2 When Designation was Received

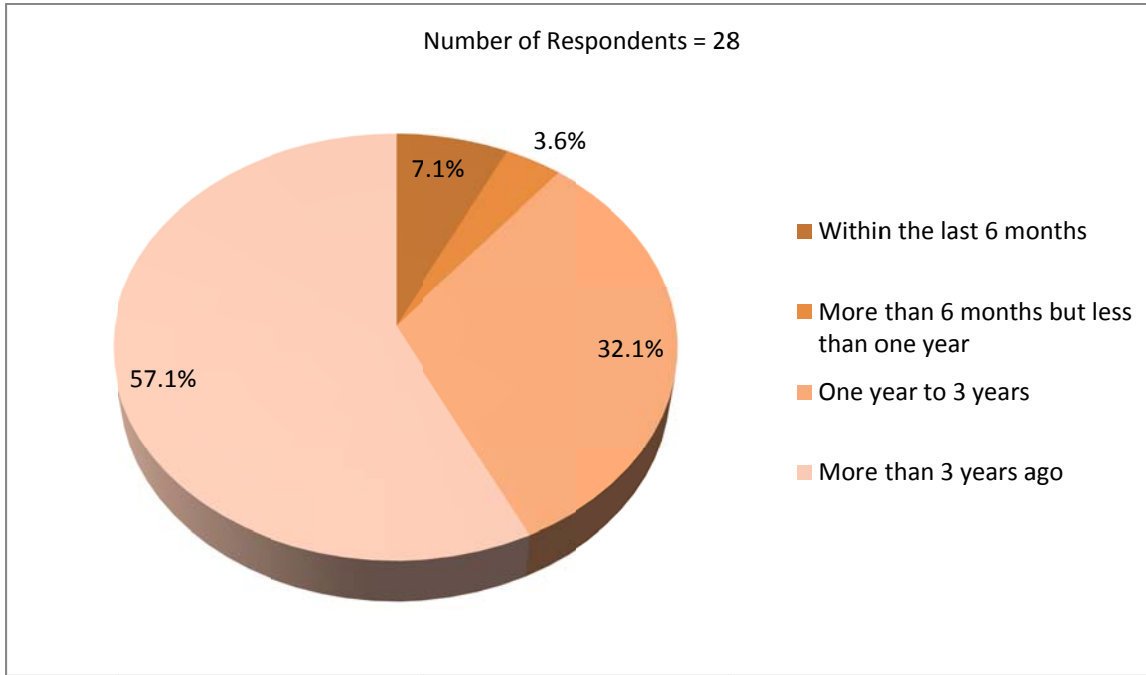


Table 9.3 Number of Times TsunamiReady Recognition has Been Renewed

Number of Renewals	% (number)
Once	57.1% (8)
Twice	28.6% (4)
Three times	7.1% (1)
More than three times	7.1% (1)
Total	100% (14)

Table 9.4 Difficulties or Challenges in Efforts to Become TsunamiReady

Experience Challenges	% (number)
Yes	28.6% (8)
No	71.4% (20)
Total	100% (28)

Table 9.5 Nature of Barriers Encountered

Nature of Barriers	% (number)
Convincing decision makers that there was a tsunami hazard that required planning	62.5% (5)
Resources shortfalls that made planning difficult ¹	87.5% (7)
Meeting specific criteria required by NOAA for TsunamiReady status	25.0% (2)
Other barriers	25.0% (2)
Total number	(8)

¹ e.g., personnel, funding, etc.

Table 9.6 Organization Currently Working Toward TsunamiReady status

Currently Working Towards TsunamiReady	% (number)
Yes	41.4% (29)
No	58.6% (41)
Total	100% (70)

Table 9.7 Expected Timeframe to Complete Requirements and be Recognized as TsunamiReady

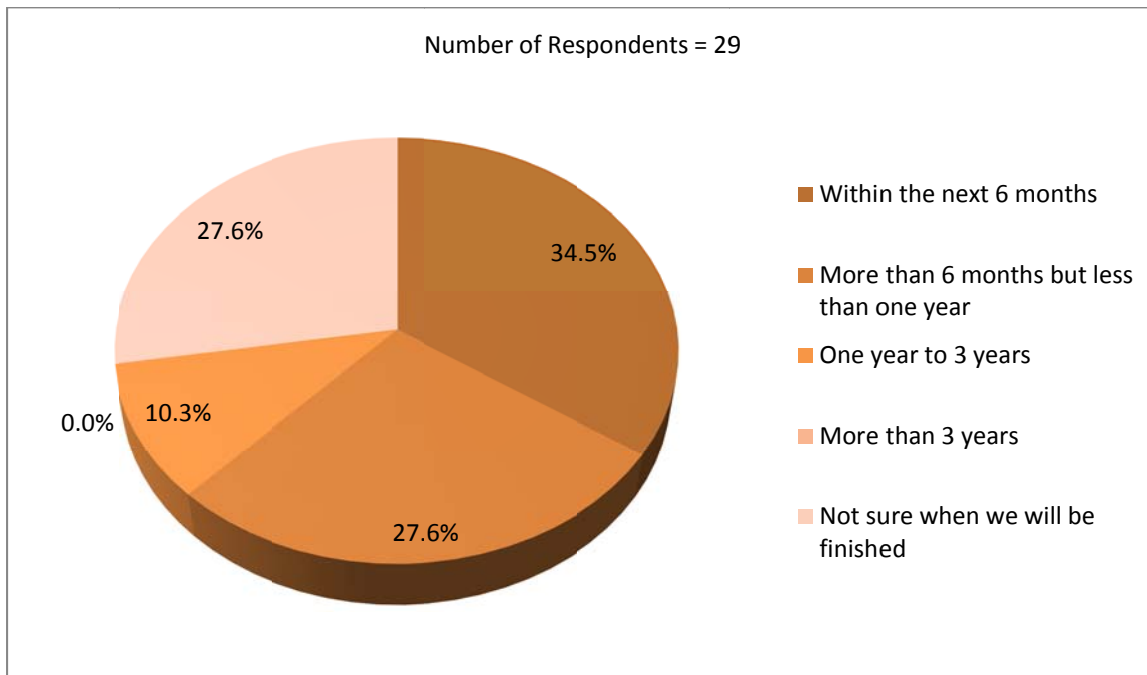
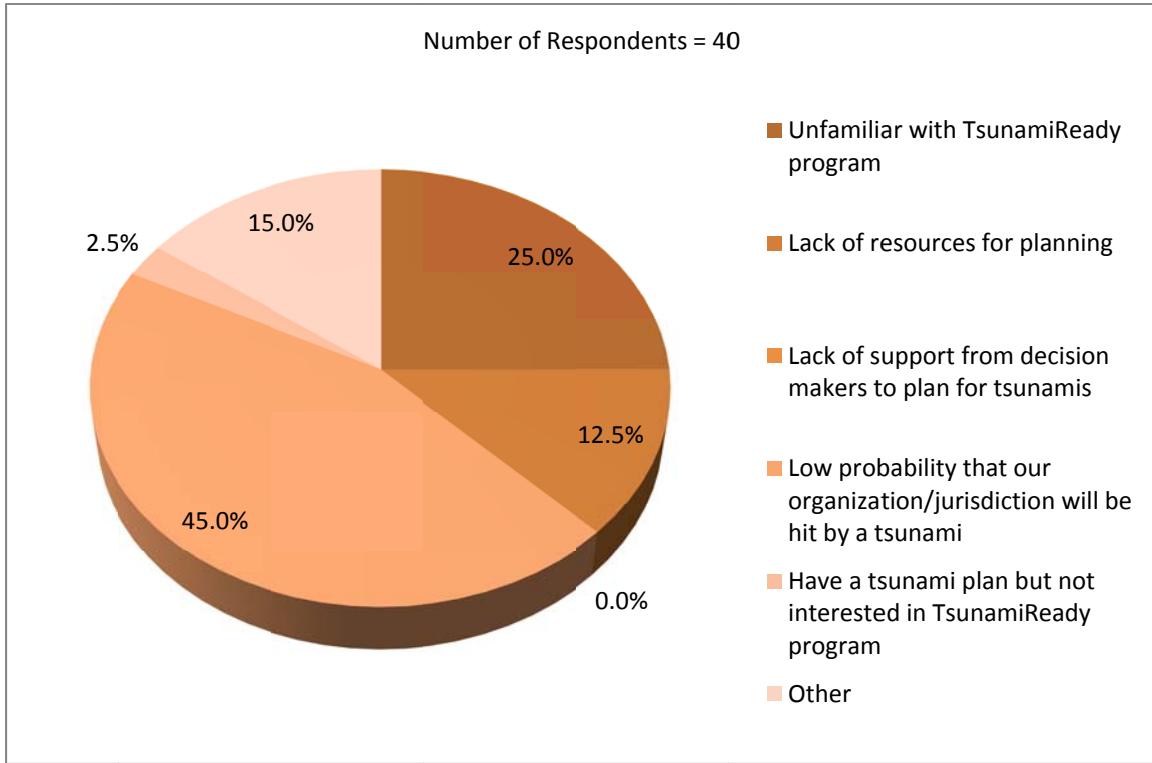


Table 9.8 Main Reason Organization is Not Working Toward TsunamiReady Status



Appendix A. Survey Results by Whether or Not Organization has an Emergency Response Plan that Addresses Tsunamis

Survey respondents were asked, “Has your organization developed an emergency response plan that addresses tsunamis?” As presented in Table 4.1, 61 percent (n = 64) chose “Yes, have a completed plan that is updated periodically,” 9 percent (n = 9) chose “Yes, have a completed plan but it has not been updated,” 16 percent (n = 17) chose “Have initiated planning, but plan is not yet complete,” 11 percent (n = 11) chose “Have not begun to plan but intend to do so,” and 4 percent (n = 4) chose “Have no response plan for tsunamis and do not intend to develop one.” The table below provides a comparison of the survey responses for each of these five groups of respondents.

Survey Items and Response Choices	Have a Completed Plan (and is updated periodically)	Have a Completed Plan (but has not yet been updated)	Have Initiated Planning (but plan not yet complete)	Have Not Begun to Plan (but intend to do so)	No Plan and No Intention to Develop One
PART 2. ORGANIZATIONAL DEMOGRAPHICS ITEMS					
2.4 Please select the box below that most closely describes your organization:	N = 60	N = 9	N = 16	N = 10	N = 4
Incorporated Town, Village or Township Government	13.3% (8)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)
Unincorporated Community Government	3.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Incorporated City or Borough Government	30.0% (18)	33.3% (3)	56.3% (9)	50.0% (5)	50.0% (2)
Tribal Government	5.0% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
County Government	31.7% (19)	33.3% (3)	12.5% (2)	20.0% (2)	0.0% (0)
Special District	3.3% (2)	0.0% (0)	6.3% (1)	0.0% (0)	0.0% (0)
State Agency	6.7% (4)	22.2% (2)	18.8% (3)	20.0% (2)	25.0% (1)
Federal Agency	1.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Other	5.0% (3)	11.1% (1)	6.3% (1)	0.0% (0)	25.0% (1)
2.5 Which category below best characterizes the total population of the town, village, city, or county in which your organization is located?	N = 60	N = 9	N = 17	N = 10	N = 4
Under 1,000	5.0% (3)	0.0% (0)	0.0% (0)	20.0% (2)	25.0% (1)
1,000 to 5,000	11.7% (7)	0.0% (0)	11.8% (2)	0.0% (0)	0.0% (0)
5,001 to 10,000	11.7% (7)	0.0% (0)	11.8% (2)	20.0% (2)	0.0% (0)
10,001 to 50,000	23.3% (14)	33.3% (3)	17.6% (3)	0.0% (0)	0.0% (0)
50,001 to 100,000	21.7% (13)	11.1% (1)	17.6% (3)	0.0% (0)	25.0% (1)
100,001 to 500,000	16.7% (10)	44.4% (4)	23.5% (4)	20.0% (2)	0.0% (0)
500,001 to one million	3.3% (2)	0.0% (0)	5.9% (1)	20.0% (2)	25.0% (1)
Over one million but less than 5 million	5.0% (3)	0.0% (0)	0.0% (0)	20.0% (2)	0.0% (0)
5 million or more	1.7% (1)	0.0% (0)	5.9% (1)	0.0% (0)	0.0% (0)
Not applicable (e.g., organization is a harbor or special district)	0.0% (0)	11.1% (1)	5.9% (1)	0.0% (0)	25.0% (1)
2.7 Please identify the organizational representative who is primarily responsible for	N = 60	N = 9	N = 17	N = 11	N = 4

Survey Items and Response Choices	Have a Completed Plan (and is updated periodically)	Have a Completed Plan (but has not yet been updated)	Have Initiated Planning (but plan not yet complete)	Have Not Begun to Plan (but intend to do so)	No Plan and No Intention to Develop One
tsunami planning within your organization. Is this person:					
Emergency Services Coordinator	33.3% (20)	44.4% (4)	29.4% (5)	18.2% (2)	50.0% (2)
Emergency Services Manager	33.3% (20)	22.2% (2)	35.3% (6)	54.5% (6)	25.0% (1)
Police Officer/Sheriff's Deputy	8.3% (5)	0.0% (0)	5.9% (1)	0.0% (0)	0.0% (0)
Fireman/ Fire Services	1.7% (1)	11.1% (1)	5.9% (1)	0.0% (0)	0.0% (0)
Administrator (e.g., CAO, Special District Administrator)	3.3% (2)	11.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)
Elected Official (e.g., mayor, city council, county supervisor)	1.7% (1)	0.0% (0)	0.0% (0)	9.1% (1)	0.0% (0)
Legislative Officer (e.g., Analyst, Aide, etc.)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Other	18.3% (11)	11.1% (1)	23.5% (4)	18.2% (2)	25.0% (1)
No one is assigned to tsunami planning	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
2.8 Whether it is you or someone else, is the person responsible for tsunami planning a:	N = 64	N = 9	N = 17	N = 11	N = 4
Full-time permanent employee	90.6% (58)	77.8% (7)	88.2% (15)	63.6% (7)	100.0% (4)
Part-time employee	7.8% (5)	22.2% (2)	5.9% (1)	0.0% (0)	0.0% (0)
Contract employee	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Other	0.0% (0)	0.0% (0)	5.9% (1)	9.1% (1)	0.0% (0)
No one is assigned to tsunami planning	1.6% (1)	0.0% (0)	0.0% (0)	27.3% (3)	0.0% (0)
2.9 Whether it is you or someone else, approximately what percentage of time does the person responsible for tsunami planning spend on tsunami planning issues and projects?	N = 64	N = 9	N = 17	N = 10	N = 4
90-100%	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
75-89%	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
50-74%	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
25-49%	7.8% (5)	11.1% (1)	11.8% (2)	0.0% (0)	0.0% (0)
10-24%	28.1% (18)	44.4% (4)	17.6% (3)	0.0% (0)	0.0% (0)
Less than 10%	62.5% (40)	44.4% (4)	70.6% (12)	50.0% (5)	75.0% (3)
No one is assigned to tsunami planning	1.6% (1)	0.0% (0)	0.0% (0)	50.0% (5)	25.0% (1)
PART 3. PUBLIC EDUCATION ITEMS					
3.1 Does your organization or jurisdiction provide tsunami information intended to raise tsunami awareness and promote preparedness?	N = 64	N = 9	N = 17	N = 11	N = 4
Yes	93.8% (60)	66.7% (6)	70.6% (12)	45.5% (5)	75.0% (3)
No (<i>skip to 4.1</i>)	6.3% (4)	33.3% (3)	29.4% (5)	54.5% (6)	25.0% (1)

Survey Items and Response Choices	Have a Completed Plan (and is updated periodically)	Have a Completed Plan (but has not yet been updated)	Have Initiated Planning (but plan not yet complete)	Have Not Begun to Plan (but intend to do so)	No Plan and No Intention to Develop One
3.2 What target audiences are included in your provision of tsunami education? (Please select all that apply)	N = 60	N = 6	N = 12	N = 5	N = 3
Residents of the community (in general)	98.3% (59)	83.3% (5)	91.7% (11)	60.0% (3)	33.3% (1)
Visitors to the community (e.g., beach visitors, tourists)	76.7% (46)	66.7% (4)	58.3% (7)	0.0% (0)	33.3% (1)
Members of your organization or agency	85.0% (51)	83.3% (5)	75.0% (9)	40.0% (2)	66.7% (2)
Schools (students, teachers, administrators)	71.7% (43)	66.7% (4)	58.3% (7)	0.0% (0)	33.3% (1)
Speakers of other languages	25.0% (15)	16.7% (1)	25.0% (3)	0.0% (0)	33.3% (1)
Seniors and/or persons with disabilities	60.0% (36)	66.7% (4)	33.3% (4)	0.0% (0)	33.3% (1)
Other	15.0% (9)	0.0% (0)	0.0% (0)	20.0% (1)	33.3% (1)
3.3 What methods of disseminating tsunami public information are employed by your organization or jurisdiction? (Please select all that apply)	N = 60	N = 6	N = 12	N = 5	N = 3
Mailings	30.0% (18)	33.3% (2)	16.7% (2)	20.0% (1)	0.0% (0)
Newspaper inserts	23.3% (14)	0.0% (0)	8.3% (1)	0.0% (0)	0.0% (0)
Public meetings, workshops, or seminars	80.0% (48)	16.7% (1)	58.3% (7)	100.0% (5)	66.7% (2)
Literature tables/displays in public buildings	81.7% (49)	100.0% (6)	75.0% (9)	40.0% (2)	33.3% (1)
Published in telephone books	11.7% (7)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Beach kiosks or in park visitor centers	23.3% (14)	16.7% (1)	25.0% (3)	0.0% (0)	0.0% (0)
Signs posted in tsunami hazard zones	66.7% (40)	66.7% (4)	50.0% (6)	20.0% (1)	0.0% (0)
Use of schools or school systems	36.7% (22)	16.7% (1)	33.3% (4)	0.0% (0)	33.3% (1)
Other	23.3% (14)	0.0% (0)	33.3% (4)	0.0% (0)	66.7% (2)
3.4 What are the sources of tsunami public education materials disseminated by your organization or jurisdiction? (Please select all that apply)	N = 60	N = 6	N = 12	N = 5	N = 3
State emergency management agency	76.7% (46)	50.0% (3)	83.3% (10)	80.0% (4)	66.7% (2)
Local emergency management agency	76.7% (46)	66.7% (4)	41.7% (5)	20.0% (1)	33.3% (1)
Federal Emergency Management Agency (FEMA)	53.3% (32)	33.3% (2)	66.7% (8)	60.0% (3)	33.3% (1)
Red Cross or other non-governmental organizations active in disaster relief	35.0% (21)	16.7% (1)	8.3% (1)	0.0% (0)	0.0% (0)
National Weather Service or the National Oceanic and Atmospheric Administration (NOAA)	73.3% (44)	83.3% (5)	83.3% (10)	40.0% (2)	100.0% (3)
University or hazard education oriented center	20.0% (12)	0.0% (0)	0.0% (0)	20.0% (1)	66.7% (2)
Other	16.7% (10)	0.0% (0)	8.3% (1)	20.0% (1)	0.0% (0)
3.5 Has your organization or jurisdiction published and disseminated tsunami evacuation route maps that direct residents or visitors to tsunami safe areas?	N = 60	N = 6	N = 12	N = 5	N = 3

Survey Items and Response Choices	Have a Completed Plan (and is updated periodically)	Have a Completed Plan (but has not yet been updated)	Have Initiated Planning (but plan not yet complete)	Have Not Begun to Plan (but intend to do so)	No Plan and No Intention to Develop One
Yes	78.3% (47)	83.3% (5)	16.7% (2)	0.0% (0)	33.3% (1)
No	21.7% (13)	16.7% (1)	83.3% (10)	100.0% (5)	66.7% (2)
3.6 Do schools within your jurisdiction's tsunami inundation/hazard zones conduct tsunami evacuation drills?					
	N = 60	N = 6	N = 12	N = 5	N = 3
Yes	46.7% (28)	83.3% (5)	16.7% (2)	0.0% (0)	33.3% (1)
No	53.3% (32)	16.7% (1)	83.3% (10)	100.0% (5)	66.7% (2)
3.7 In your opinion, what is the one most significant barrier to achieving adequate tsunami awareness and preparedness in your organization or jurisdiction?					
	N = 59	N = 6	N = 12	N = 5	N = 3
Individual or community apathy	22.0% (13)	33.3% (2)	0.0% (0)	20.0% (1)	33.3% (1)
Insufficient resources	25.4% (15)	33.3% (2)	41.7% (5)	0.0% (0)	0.0% (0)
Infrequency of damaging tsunamis	18.6% (11)	0.0% (0)	33.3% (4)	60.0% (3)	33.3% (1)
Unavailability of high quality education materials	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Low visibility of the tsunami hazard	8.5% (5)	0.0% (0)	8.3% (1)	0.0% (0)	0.0% (0)
Have not encountered any significant barriers	13.6% (8)	0.0% (0)	8.3% (1)	0.0% (0)	0.0% (0)
Other	11.9% (7)	33.3% (2)	8.3% (1)	20.0% (1)	33.3% (1)
PART 4. RESPONSE PLAN ITEMS					
4.2 When was your plan finalized?					
	N = 64	N = 9	N = 0	N = 0	N = 0
Prior to 1991	0.0% (0)	0.0% (0)			
1991 to 2000	10.9% (7)	0.0% (0)			
2001 to 2004	15.6% (10)	0.0% (0)			
After 2004	73.4% (47)	100.0% (9)			
4.3 When was your plan last updated? (All responses skip to 4.5)					
	N = 64	N = 9	N = 0	N = 0	N = 0
Prior to 1991	0.0% (0)	0.0% (0)			
1991 to 2000	0.0% (0)	0.0% (0)			
2001 to 2004	0.0% (0)	0.0% (0)			
After 2004	100.0% (64)	0.0% (0)			
Has not been updated	0.0% (0)	100.0% (9)			
4.4 When do you anticipate completion and approval of the plan?					
	N = 0	N = 0	N = 17	N = 11	N = 0
Within the next 6 months			23.5% (4)	0.0% (0)	
6 months to 1 year			35.3% (6)	9.1% (1)	

Survey Items and Response Choices	Have a Completed Plan (and is updated periodically)	Have a Completed Plan (but has not yet been updated)	Have Initiated Planning (but plan not yet complete)	Have Not Begun to Plan (but intend to do so)	No Plan and No Intention to Develop One
More than a year			17.6% (3)	9.1% (1)	
Uncertain when we will have a finalized and approved plan			23.5% (4)	81.8% (9)	
4.5 The tsunami response plan was or will be developed by:					
	N = 64	N = 9	N = 17	N = 10	N = 0
Emergency planners within my organization	45.3% (29)	33.3% (3)	35.3% (6)	30.0% (3)	
Private consultants outside my organization	1.6% (1)	11.1% (1)	0.0% (0)	0.0% (0)	
Some combination of internal and outside personnel	48.4% (31)	44.4% (4)	58.8% (10)	70.0% (7)	
Other	4.7% (3)	11.1% (1)	5.9% (1)	0.0% (0)	
4.6 Based upon what type of information from the Pacific Tsunami Warning Center or the West Coast and Alaska Tsunami Warning Center does or will your plan be activated? (Please select all that apply)					
	N = 62	N = 9	N = 16	N = 11	N = 0
Warning only	14.5% (9)	33.3% (3)	37.5% (6)	27.3% (3)	
Advisory only	8.1% (5)	0.0% (0)	0.0% (0)	9.1% (1)	
Watch only	11.3% (7)	0.0% (0)	6.3% (1)	18.2% (2)	
Warning and Advisory	12.9% (8)	11.1% (1)	6.3% (1)	0.0% (0)	
Warning and Watch	1.6% (1)	11.1% (1)	0.0% (0)	0.0% (0)	
Advisory and Watch	1.6% (1)	0.0% (0)	0.0% (0)	0.0% (0)	
Warning, Advisory, and Watch	46.8% (29)	44.4% (4)	50.0% (8)	36.4% (4)	
Other criteria	3.2% (2)	0.0% (0)	0.0% (0)	9.1% (1)	
4.7 Has (or will) your organization use(d) tsunami inundation maps in your tsunami planning?					
	N = 64	N = 9	N = 17	N = 11	N = 0
Yes (<i>skip to 4.9</i>)	89.1% (57)	88.9% (8)	64.7% (11)	63.6% (7)	
No	4.7% (3)	11.1% (1)	17.6% (3)	9.1% (1)	
Don't know (<i>skip to 4.10</i>)	6.3% (4)	0.0% (0)	17.6% (3)	27.3% (3)	
4.8 Why is your organization not using tsunami inundation maps? (Please select all that apply) (All responses skip to 4.10)					
	N = 3	N = 1	N = 3	N = 1	N = 0
Not anticipating inundation in populated areas	66.7% (2)	0.0% (0)	0.0% (0)	0.0% (0)	
Maps not currently available for area in which my organization or jurisdiction is located	66.7% (2)	0.0% (0)	66.7% (2)	0.0% (0)	
Maps are not needed for planning purposes	0.0% (0)	0.0% (0)	33.3% (1)	0.0% (0)	
In the process of developing tsunami inundation maps	0.0% (0)	100.0% (1)	33.3% (1)	100.0% (1)	
Using evacuation maps developed without tsunami inundation maps	33.3% (1)	0.0% (0)	33.3% (1)	0.0% (0)	

Survey Items and Response Choices	Have a Completed Plan (and is updated periodically)	Have a Completed Plan (but has not yet been updated)	Have Initiated Planning (but plan not yet complete)	Have Not Begun to Plan (but intend to do so)	No Plan and No Intention to Develop One
4.9 What is, or will be, the source of those maps? (Please select all that apply)	N = 57	N = 8	N = 11	N = 6	N = 0
Pacific Marine Environmental Laboratory (PMEL-NOAA)	15.8% (9)	0.0% (0)	18.2% (2)	16.7% (1)	
A state agency (e.g., state office of emergency management, state geological survey, etc.)	68.4% (39)	62.5% (5)	90.9% (10)	66.7% (4)	
University-based research center or university faculty	40.4% (23)	37.5% (3)	27.3% (3)	50.0% (3)	
Private consultant or non-university based research center	5.3% (3)	12.5% (1)	0.0% (0)	16.7% (1)	
Other	17.5% (10)	25.0% (2)	0.0% (0)	16.7% (1)	
Don't know	5.3% (3)	12.5% (1)	9.1% (1)	0.0% (0)	
4.10 Please indicate if your plan addresses (or will address) the following elements: (Please select all that apply)	N = 62	N = 9	N = 16	N = 11	N = 0
A plan activation trigger (e.g., notification from the Pacific or West Coast and Alaska Tsunami Warning Center of a Warning, Advisory or Watch for your area)	85.5% (53)	100.0% (9)	81.3% (13)	100.0% (11)	
24/7 warning point procedures to receive and disseminate tsunami alerts	80.6% (50)	77.8% (7)	62.5% (10)	72.7% (8)	
Emergency Operation Center Activation (with staffing levels)	85.5% (53)	77.8% (7)	81.3% (13)	90.9% (10)	
Roles and responsibilities for multiple organizational personnel	83.9% (52)	77.8% (7)	81.3% (13)	81.8% (9)	
Roles and responsibilities for local volunteer organizations active in disasters	58.1% (36)	22.2% (2)	50.0% (8)	81.8% (9)	
Provisions for coordination with other levels of government and private sector entities	75.8% (47)	66.7% (6)	68.8% (11)	63.6% (7)	
Clearly identified evacuation routes and assembly areas for evacuees	74.2% (46)	77.8% (7)	87.5% (14)	90.9% (10)	
Provisions for evacuation of special populations (e.g., persons with disabilities, non-English speaking persons, visitors, etc.)	51.6% (32)	22.2% (2)	50.0% (8)	81.8% (9)	
Vertical evacuation procedures for communities with no high ground	29.0% (18)	11.1% (1)	12.5% (2)	36.4% (4)	
Activation of sirens and/or signaling devices	62.9% (39)	33.3% (3)	50.0% (8)	63.6% (7)	
Shelter and mass care for evacuees	62.9% (39)	44.4% (4)	37.5% (6)	72.7% (8)	
Methods of providing emergency period instructions to residents and visitors	69.4% (43)	44.4% (4)	43.8% (7)	81.8% (9)	
Provisions for notification and emergency period instructions for commercial and recreational boating communities	33.9% (21)	11.1% (1)	25.0% (4)	54.5% (6)	
Search and rescue and the timing of intervention	46.8% (29)	33.3% (3)	43.8% (7)	72.7% (8)	
Provisions for damage assessment after the tsunami danger has passed	59.7% (37)	22.2% (2)	31.3% (5)	81.8% (9)	
Criteria and procedures for issuing an "all clear" after a destructive tsunami	58.1% (36)	44.4% (4)	56.3% (9)	100.0% (11)	
Procedures for "standing down" after initiating response for a non-destructive tsunami	64.5% (40)	22.2% (2)	62.5% (10)	100.0% (11)	
Provisions for periodic drills and exercises	53.2% (33)	33.3% (3)	37.5% (6)	45.5% (5)	

Survey Items and Response Choices	Have a Completed Plan (and is updated periodically)	Have a Completed Plan (but has not yet been updated)	Have Initiated Planning (but plan not yet complete)	Have Not Begun to Plan (but intend to do so)	No Plan and No Intention to Develop One
4.11 From what tsunami warning center does your organization or jurisdiction receive tsunami information?	N = 60	N = 9	N = 14	N = 9	N = 0
Pacific Tsunami Warning Center in Eva Beach, Hawaii	11.7% (7)	11.1% (1)	14.3% (2)	0.0% (0)	
West Coast and Alaska Tsunami Warning Center, Palmer, Alaska	76.7% (46)	88.9% (8)	71.4% (10)	88.9% (8)	
Other source	11.7% (7)	0.0% (0)	14.3% (2)	11.1% (1)	
4.12 How does your organization or jurisdiction receive tsunami messages from the appropriate Tsunami Warning Center? (Please select all that apply)	N = 61	N = 9	N = 15	N = 11	N = 0
NOAA Weather Radio	78.7% (48)	55.6% (5)	46.7% (7)	63.6% (7)	
Emergency Manager's Weather Information Network	26.2% (16)	44.4% (4)	33.3% (5)	9.1% (1)	
State telecomm systems	59.0% (36)	44.4% (4)	33.3% (5)	54.5% (6)	
Phone call down tree from another agency	45.9% (28)	44.4% (4)	33.3% (5)	36.4% (4)	
National Warning System (NAWAS – national or state-side)	68.9% (42)	22.2% (2)	33.3% (5)	54.5% (6)	
Direct link to Local Weather Forecast Office	31.1% (19)	44.4% (4)	26.7% (4)	54.5% (6)	
NOAA Weather Wire	24.6% (15)	0.0% (0)	13.3% (2)	27.3% (3)	
NOAA Port	6.6% (4)	0.0% (0)	6.7% (1)	9.1% (1)	
Aeronautical Fixed Telecommunication Network (AFTN)	1.6% (1)	0.0% (0)	0.0% (0)	0.0% (0)	
US Coast Guard Radio	13.1% (8)	0.0% (0)	0.0% (0)	18.2% (2)	
Directly from Tsunami Warning Center (TWC) via monitored email, FAX, or text messaging	54.1% (33)	55.6% (5)	46.7% (7)	9.1% (1)	
Other	4.9% (3)	44.4% (4)	13.3% (2)	9.1% (1)	
PART 5. EXERCISES AND TRAINING ITEMS					
5.1 Does your organization or jurisdiction conduct exercises to test your tsunami plan?	N = 61	N = 9	N = 15	N = 11	N = 4
Yes	62.3% (38)	44.4% (4)	13.3% (2)	0.0% (0)	0.0% (0)
No (<i>skip to 5.7</i>)	37.7% (23)	55.6% (5)	86.7% (13)	100.0% (11)	100.0% (4)
5.2 Do these exercises test: (Please select all that apply)	N = 38	N = 4	N = 2	N = 0	N = 0
Response plan in general	86.8% (33)	100.0% (4)	0.0% (0)		
Ability to evacuate part or all of your organization or community in tsunami inundation zones	52.6% (20)	50.0% (2)	0.0% (0)		
Siren function	63.2% (24)	25.0% (1)	0.0% (0)		
Emergency Alert System ability to deliver a warning	65.8% (25)	50.0% (2)	100.0% (2)		
Other	10.5% (4)	0.0% (0)	0.0% (0)		

Survey Items and Response Choices	Have a Completed Plan (and is updated periodically)	Have a Completed Plan (but has not yet been updated)	Have Initiated Planning (but plan not yet complete)	Have Not Begun to Plan (but intend to do so)	No Plan and No Intention to Develop One
5.3 Have these response exercises mainly tested your ability to: (Please select all that apply)	N = 38	N = 4	N = 2	N = 0	N = 0
Respond to a warning issued by the Pacific or West Coast and Alaska Tsunami Warning Center	92.1% (35)	100.0% (4)	100.0% (2)		
Respond to an actual tsunami impact	60.5% (23)	75.0% (3)	0.0% (0)		
Recover from a damaging tsunami impact	21.1% (8)	25.0% (1)	0.0% (0)		
Other	5.3% (2)	0.0% (0)	0.0% (0)		
5.4 Have your response exercises been: (Please select all types of exercises done)	N = 37	N = 4	N = 2	N = 0	N = 0
Tabletop exercises (e.g., discussion exercises, low stress to clarify roles and responsibilities)	91.9% (34)	100.0% (4)	50.0% (1)		
Functional exercises (e.g., performance exercises, sequence of messages, evaluate plans and Standard Operating Procedures (SOPs))	75.7% (28)	50.0% (2)	50.0% (1)		
Full scale exercises (e.g., field event with Emergency Operations Center (EOC) activation, deployment, comprehensive)	45.9% (17)	25.0% (1)	0.0% (0)		
5.5 Who has facilitated the exercises held? (Please select all that apply)	N = 37	N = 4	N = 2	N = 0	N = 0
Internal emergency management personnel	97.3% (36)	50.0% (2)	100.0% (2)		
External emergency management personnel (e.g., state or federal partners)	54.1% (20)	75.0% (3)	50.0% (1)		
Outside consultants	21.6% (8)	50.0% (2)	0.0% (0)		
Other	5.4% (2)	25.0% (1)	0.0% (0)		
5.6 As a result of conducting these exercises, have any of the following occurred? (Please select all that apply)	N = 37	N = 3	N = 2	N = 0	N = 0
Plans have been updated or modified	89.2% (33)	66.7% (2)	0.0% (0)		
Staff has become more familiar with roles	94.6% (35)	100.0% (3)	100.0% (2)		
Equipment has been tested	64.9% (24)	33.3% (1)	50.0% (1)		
New procedures have been implemented	59.5% (22)	33.3% (1)	50.0% (1)		
Other	2.7% (1)	0.0% (0)	0.0% (0)		
5.7 Has tsunami planning staff within your organization received training in tsunami planning or in issues related to tsunami?	N = 60	N = 9	N = 15	N = 11	N = 4
Yes	73.3% (44)	55.6% (5)	66.7% (10)	27.3% (3)	75.0% (3)
No (skip to 6.1)	26.7% (16)	44.4% (4)	33.3% (5)	72.7% (8)	25.0% (1)

Survey Items and Response Choices	Have a Completed Plan (and is updated periodically)	Have a Completed Plan (but has not yet been updated)	Have Initiated Planning (but plan not yet complete)	Have Not Begun to Plan (but intend to do so)	No Plan and No Intention to Develop One
5.8 Has this training included: (Please select all that apply)	N = 44	N = 5	N = 10	N = 3	N = 3
Tsunami science (e.g., seminar on how tsunamis occur, regional hazards, history of tsunami events, etc.)	88.6% (39)	80.0% (4)	90.0% (9)	100.0% (3)	100.0% (3)
Social science contributions (e.g., information on how to make warnings more effective)	50.0% (22)	60.0% (3)	50.0% (5)	100.0% (3)	100.0% (3)
Tsunami modeling or mapping	72.7% (32)	80.0% (4)	90.0% (9)	66.7% (2)	66.7% (2)
Planning considerations specific to tsunamis	84.1% (37)	60.0% (3)	80.0% (8)	100.0% (3)	66.7% (2)
Tsunami warning protocol	84.1% (37)	60.0% (3)	90.0% (9)	66.7% (2)	33.3% (1)
Other	6.8% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
PART 6. TSUNAMI HAZARD MITIGATION ITEMS					
6.1 Has your organization or jurisdiction developed a hazard mitigation plan that addresses tsunamis?	N = 59	N = 9	N = 15	N = 11	N = 4
Yes, have a completed hazard mitigation plan that addresses tsunamis	74.6% (44)	11.1% (1)	20.0% (3)	27.3% (3)	50.0% (2)
Have initiated planning, but plan is not yet complete	8.5% (5)	33.3% (3)	33.3% (5)	18.2% (2)	25.0% (1)
Have not begun to plan, but intend to do so	8.5% (5)	11.1% (1)	33.3% (5)	45.5% (5)	0.0% (0)
Have no hazard mitigation plan for tsunamis and do not plan to develop one	8.5% (5)	44.4% (4)	13.3% (2)	9.1% (1)	25.0% (1)
6.2 Does your organization or jurisdiction have critical facilities that are in the tsunami inundation zone?	N = 60	N = 9	N = 15	N = 11	N = 4
Yes	71.7% (43)	44.4% (4)	53.3% (8)	45.5% (5)	75.0% (3)
No (<i>skip to 6.7</i>)	25.0% (15)	44.4% (4)	33.3% (5)	9.1% (1)	25.0% (1)
Don't know (<i>skip to 6.7</i>)	3.3% (2)	11.1% (1)	13.3% (2)	45.5% (5)	0.0% (0)
6.3 Please identify the type of critical facilities located in the tsunami inundation zone: (Please select all that apply)	N = 43	N = 4	N = 8	N = 4	N = 3
Fire station(s)	62.8% (27)	50.0% (2)	62.5% (5)	100.0% (4)	100.0% (3)
Police station(s)	51.2% (22)	25.0% (1)	62.5% (5)	75.0% (3)	66.7% (2)
Hospital(s) or clinic(s)	18.6% (8)	0.0% (0)	12.5% (1)	25.0% (1)	66.7% (2)
School(s)	55.8% (24)	100.0% (4)	50.0% (4)	75.0% (3)	66.7% (2)
Emergency Operations Center(s)	25.6% (11)	0.0% (0)	0.0% (0)	0.0% (0)	33.3% (1)
Facility housing a lifeline or utility	58.1% (25)	25.0% (1)	62.5% (5)	75.0% (3)	100.0% (3)
Other	41.9% (18)	0.0% (0)	25.0% (2)	25.0% (1)	33.3% (1)

Survey Items and Response Choices	Have a Completed Plan (and is updated periodically)	Have a Completed Plan (but has not yet been updated)	Have Initiated Planning (but plan not yet complete)	Have Not Begun to Plan (but intend to do so)	No Plan and No Intention to Develop One
6.4 Do you have a response plan for critical facilities in the tsunami inundation zone?	N = 43	N = 4	N = 8	N = 5	N = 3
Yes	60.5% (26)	50.0% (2)	50.0% (4)	20.0% (1)	33.3% (1)
No	39.5% (17)	50.0% (2)	50.0% (4)	80.0% (4)	66.7% (2)
6.5 Has your organization or jurisdiction abandoned, modified, or relocated an existing critical facility because it was in a tsunami hazard zone?	N = 43	N = 4	N = 8	N = 5	N = 3
Yes	7.0% (3)	25.0% (1)	12.5% (1)	0.0% (0)	33.3% (1)
No (<i>skip to 6.7</i>)	81.4% (35)	75.0% (3)	75.0% (6)	100.0% (5)	33.3% (1)
Don't know (<i>skip to 6.7</i>)	11.6% (5)	0.0% (0)	12.5% (1)	0.0% (0)	33.3% (1)
6.6 Was this critical facility a: (Please select all that apply)	N = 3	N = 1	N = 1	N = 0	N = 1
Fire station(s)	66.7% (2)	100.0% (1)	0.0% (0)		100.0% (1)
Police station(s)	33.3% (1)	0.0% (0)	0.0% (0)		0.0% (0)
Hospital(s) or clinic(s)	0.0% (0)	0.0% (0)	100.0% (1)		0.0% (0)
School(s)	0.0% (0)	100.0% (1)	100.0% (1)		0.0% (0)
Emergency Operations Center(s)	100.0% (3)	0.0% (0)	0.0% (0)		0.0% (0)
Facility housing a lifeline or utility	0.0% (0)	0.0% (0)	0.0% (0)		100.0% (1)
Other	0.0% (0)	0.0% (0)	100.0% (1)		100.0% (1)
6.7 Has your organization or jurisdiction considered the tsunami hazard or mapped inundation zones in other land-use planning decisions?	N = 60	N = 9	N = 15	N = 11	N = 4
Yes	46.7% (28)	33.3% (3)	20.0% (3)	9.1% (1)	50.0% (2)
No (<i>skip to 6.9</i>)	18.3% (11)	22.2% (2)	40.0% (6)	45.5% (5)	0.0% (0)
Don't know (<i>skip to 6.9</i>)	35.0% (21)	44.4% (4)	40.0% (6)	45.5% (5)	50.0% (2)
6.9 Are there areas in which your organization has facilities or your jurisdiction has residents that cannot be rapidly evacuated in a tsunami event?	N = 59	N = 9	N = 15	N = 11	N = 4
Yes	45.8% (27)	44.4% (4)	33.3% (5)	36.4% (4)	50.0% (2)
No (<i>skip to 7.1</i>)	42.4% (25)	33.3% (3)	53.3% (8)	36.4% (4)	25.0% (1)
Don't know (<i>skip to 7.1</i>)	11.9% (7)	22.2% (2)	13.3% (2)	27.3% (3)	25.0% (1)
6.10 Regarding these facilities operated by your organization or residents within your jurisdiction that cannot be evacuated in a timely manner, have you: (Please select all that apply)	N = 27	N = 4	N = 5	N = 3	N = 2
Identified safe areas within the facility for them to remain in place during the	51.9% (14)	50.0% (2)	40.0% (2)	33.3% (1)	50.0% (1)

Survey Items and Response Choices	Have a Completed Plan (and is updated periodically)	Have a Completed Plan (but has not yet been updated)	Have Initiated Planning (but plan not yet complete)	Have Not Begun to Plan (but intend to do so)	No Plan and No Intention to Develop One
tsunami (e.g., higher floors of a building)					
Modified the facility to withstand tsunamis	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Built special structures that serve as evacuation sites for those who can't reach higher ground	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Have not done anything to address the issue of facilities that cannot be evacuated in a timely manner	48.1% (13)	75.0% (3)	80.0% (4)	66.7% (2)	50.0% (1)
PART 7. SIGNALING DEVICES ITEMS					
7.1 Does your organization or jurisdiction have tsunami signaling devices or sirens or used existing signaling devices for tsunami warnings?	N = 59	N = 9	N = 15	N = 11	N = 4
Yes (<i>skip to 7.3</i>)	57.6% (34)	22.2% (2)	20.0% (3)	27.3% (3)	25.0% (1)
No	40.7% (24)	66.7% (6)	73.3% (11)	63.6% (7)	75.0% (3)
Don't know (<i>skip to 7.10</i>)	1.7% (1)	11.1% (1)	6.7% (1)	9.1% (1)	0.0% (0)
7.2 Why has your organization or jurisdiction not deployed tsunami signaling devices or sirens or used existing signaling devices for tsunami warnings? (Please select all that apply) (<i>All responses skip to 7.10</i>)	N = 24	N = 6	N = 11	N = 6	N = 3
Have ordered signaling devices but have not yet deployed them	4.2% (1)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)
Signaling devices are too expensive	29.2% (7)	50.0% (3)	18.2% (2)	50.0% (3)	0.0% (0)
Signaling devices will not be purchased and deployed due to community opposition	12.5% (3)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)
Signaling devices are opposed by environmental or coastal conservancy groups	8.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Other	75.0% (18)	50.0% (3)	72.7% (8)	50.0% (3)	100.0% (3)
7.3 How many signaling devices have been deployed within the boundaries of your organization or jurisdiction?	N = 34	N = 2	N = 3	N = 3	N = 1
1-3	38.2% (13)	0.0% (0)	33.3% (1)	66.7% (2)	0.0% (0)
4-6	14.7% (5)	50.0% (1)	33.3% (1)	0.0% (0)	0.0% (0)
7-10	11.8% (4)	50.0% (1)	0.0% (0)	0.0% (0)	100.0% (1)
11-20	11.8% (4)	0.0% (0)	33.3% (1)	33.3% (1)	0.0% (0)
More than 20	23.5% (8)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
7.4 Do your signaling devices have both voice and audible signal capabilities?	N = 34	N = 2	N = 3	N = 3	N = 1
Yes	64.7% (22)	50.0% (1)	100.0% (3)	0.0% (0)	100.0% (1)
No	35.3% (12)	50.0% (1)	0.0% (0)	100.0% (3)	0.0% (0)

Survey Items and Response Choices	Have a Completed Plan (and is updated periodically)	Have a Completed Plan (but has not yet been updated)	Have Initiated Planning (but plan not yet complete)	Have Not Begun to Plan (but intend to do so)	No Plan and No Intention to Develop One
7.5 Are the tones used for tsunami warning different than tones used for other hazards?	N = 34	N = 2	N = 3	N = 3	N = 1
Yes	52.9% (18)	50.0% (1)	100.0% (3)	33.3% (1)	100.0% (1)
No	47.1% (16)	50.0% (1)	0.0% (0)	66.7% (2)	0.0% (0)
7.6 How often are signaling devices tested by your organization or jurisdiction?	N = 34	N = 2	N = 3	N = 3	N = 1
Weekly	23.5% (8)	50.0% (1)	33.3% (1)	33.3% (1)	0.0% (0)
Monthly	55.9% (19)	0.0% (0)	33.3% (1)	33.3% (1)	0.0% (0)
Bi-Monthly	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Quarterly	5.9% (2)	50.0% (1)	0.0% (0)	33.3% (1)	0.0% (0)
Annually	5.9% (2)	0.0% (0)	0.0% (0)	0.0% (0)	100.0% (1)
Tested but not on a scheduled basis	5.9% (2)	0.0% (0)	33.3% (1)	0.0% (0)	0.0% (0)
Never tested	2.9% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
7.7 Is there a specific day of the week and time of day signaling devices are tested in your organization or jurisdiction?	N = 34	N = 2	N = 3	N = 3	N = 1
Yes	73.5% (25)	50.0% (1)	66.7% (2)	100.0% (3)	0.0% (0)
No (<i>skip to 7.8</i>)	26.5% (9)	50.0% (1)	33.3% (1)	0.0% (0)	100.0% (1)
7.7a Day of testing:	N = 23	N = 1	N = 1	N = 3	N = 0
Sunday	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	
Monday	43.5% (10)	0.0% (0)	0.0% (0)	66.7% (2)	
Tuesday	4.3% (1)	0.0% (0)	0.0% (0)	0.0% (0)	
Wednesday	43.5% (10)	100.0% (1)	100.0% (1)	0.0% (0)	
Thursday	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	
Friday	4.3% (1)	0.0% (0)	0.0% (0)	0.0% (0)	
Saturday	4.3% (1)	0.0% (0)	0.0% (0)	33.3% (1)	
7.7b Time of testing:	N = 23	N = 1	N = 1	N = 3	N = 0
Morning (9 AM-10:59 AM)	21.7% (5)	0.0% (0)	0.0% (0)	0.0% (0)	
Midday (11 AM-12:59 PM)	47.8% (11)	100.0% (1)	100.0% (1)	66.7% (2)	
Early Afternoon (1 PM-2:59 PM)	21.7% (5)	0.0% (0)	0.0% (0)	0.0% (0)	
Late Afternoon (3 PM-5 PM)	8.7% (2)	0.0% (0)	0.0% (0)	33.3% (1)	
7.8 Approximately what percentage of your tsunami vulnerable population is covered by signaling devices?	N = 34	N = 2	N = 3	N = 3	N = 1

Survey Items and Response Choices	Have a Completed Plan (and is updated periodically)	Have a Completed Plan (but has not yet been updated)	Have Initiated Planning (but plan not yet complete)	Have Not Begun to Plan (but intend to do so)	No Plan and No Intention to Develop One
10% or less	5.9% (2)	0.0% (0)	0.0% (0)	33.3% (1)	100.0% (1)
11-20%	5.9% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
21-30%	5.9% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
31-40%	14.7% (5)	50.0% (1)	33.3% (1)	0.0% (0)	0.0% (0)
41-50%	8.8% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
51-60%	8.8% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
61-70%	0.0% (0)	0.0% (0)	33.3% (1)	0.0% (0)	0.0% (0)
71-80%	8.8% (3)	0.0% (0)	33.3% (1)	0.0% (0)	0.0% (0)
81-90%	11.8% (4)	0.0% (0)	0.0% (0)	33.3% (1)	0.0% (0)
91-99%	8.8% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
100% (skip to 7.10)	20.6% (7)	50.0% (1)	0.0% (0)	33.3% (1)	0.0% (0)
7.9 Since you have deployed signaling devices but the coverage is less than 100.0% of the vulnerable population, do you plan to deploy additional devices?					
	N = 27	N = 1	N = 3	N = 2	N = 1
Yes (skip to 7.11)	55.6% (15)	0.0% (0)	100.0% (3)	0.0% (0)	100.0% (1)
No (skip to 7.12)	44.4% (12)	100.0% (1)	0.0% (0)	100.0% (2)	0.0% (0)
7.10 Do you plan to purchase or have already purchased signaling devices that have not yet been deployed?					
	N = 32	N = 8	N = 12	N = 9	N = 3
Yes	9.4% (3)	25.0% (2)	16.7% (2)	11.1% (1)	0.0% (0)
No (skip to 7.12)	78.1% (25)	62.5% (5)	75.0% (9)	66.7% (6)	100.0% (3)
Don't know (skip to 7.12)	12.5% (4)	12.5% (1)	8.3% (1)	22.2% (2)	0.0% (0)
7.11 How long will it be before these signaling devices are deployed?					
	N = 18	N = 2	N = 5	N = 1	N = 1
Within the next 6 months	5.6% (1)	0.0% (0)	20.0% (1)	0.0% (0)	0.0% (0)
6 months to one year	16.7% (3)	50.0% (1)	20.0% (1)	0.0% (0)	0.0% (0)
Over one year	16.7% (3)	0.0% (0)	40.0% (2)	0.0% (0)	0.0% (0)
Uncertain when they will be deployed	61.1% (11)	50.0% (1)	20.0% (1)	100.0% (1)	100.0% (1)
7.12 What other methods besides sirens are used or would be used to alert the public of a tsunami hazard? (Please select all that apply)					
	N = 59	N = 9	N = 15	N = 10	N = 4
NOAA Weather Radios	78.0% (46)	66.7% (6)	53.3% (8)	90.0% (9)	50.0% (2)
Community subsidized NOAA Weather Radio purchase system	16.9% (10)	22.2% (2)	0.0% (0)	20.0% (2)	0.0% (0)
Television audio/video overrides	81.4% (48)	77.8% (7)	40.0% (6)	70.0% (7)	75.0% (3)
Automatic phone dial-down systems (e.g., Reverse 911)	72.9% (43)	66.7% (6)	53.3% (8)	80.0% (8)	75.0% (3)

Survey Items and Response Choices	Have a Completed Plan (and is updated periodically)	Have a Completed Plan (but has not yet been updated)	Have Initiated Planning (but plan not yet complete)	Have Not Begun to Plan (but intend to do so)	No Plan and No Intention to Develop One
Loudspeaker announcements on emergency vehicles (and aircraft, if applicable)	81.4% (48)	77.8% (7)	66.7% (10)	70.0% (7)	0.0% (0)
Community-wide phone tree	13.6% (8)	11.1% (1)	6.7% (1)	40.0% (4)	0.0% (0)
SMS Text Messaging	42.4% (25)	11.1% (1)	20.0% (3)	40.0% (4)	0.0% (0)
Emergency Management Radio	25.4% (15)	33.3% (3)	13.3% (2)	20.0% (2)	25.0% (1)
Marine Band Radio	33.9% (20)	22.2% (2)	13.3% (2)	30.0% (3)	0.0% (0)
No other methods are or would be used	0.0% (0)	0.0% (0)	6.7% (1)	0.0% (0)	0.0% (0)
Other	23.7% (14)	0.0% (0)	6.7% (1)	20.0% (2)	25.0% (1)
PART 8. TSUNAMI HAZARD AND EVACUATION SIGNAGE ITEMS					
8.1 Has your organization or jurisdiction deployed tsunami signs?	N = 59	N = 9	N = 15	N = 11	N = 4
Yes	61.0% (36)	44.4% (4)	40.0% (6)	0.0% (0)	25.0% (1)
No (<i>skip to 8.8</i>)	39.0% (23)	55.6% (5)	60.0% (9)	100.0% (11)	75.0% (3)
8.2a Has your organization or jurisdiction deployed tsunami hazard zone signs?	N = 35	N = 4	N = 6	N = 0	N = 1
Yes	80.0% (28)	75.0% (3)	83.3% (5)		100.0% (1)
No	20.0% (7)	25.0% (1)	16.7% (1)		0.0% (0)
8.2b Has your organization or jurisdiction deployed entering and leaving tsunami hazard zone signs?	N = 36	N = 4	N = 6	N = 0	N = 1
Yes	47.2% (17)	25.0% (1)	66.7% (4)		0.0% (0)
No	52.8% (19)	75.0% (3)	33.3% (2)		100.0% (1)
8.2c Has your organization or jurisdiction deployed tsunami evacuation route signs?	N = 36	N = 4	N = 6	N = 0	N = 1
Yes	83.3% (30)	75.0% (3)	50.0% (3)		100.0% (1)
No	16.7% (6)	25.0% (1)	50.0% (3)		0.0% (0)
8.2d Has your organization or jurisdiction deployed tsunami evacuation site signs?	N = 36	N = 4	N = 6	N = 0	N = 1
Yes	52.8% (19)	50.0% (2)	50.0% (3)		0.0% (0)
No	47.2% (17)	50.0% (2)	50.0% (3)		100.0% (1)
8.2e Has your organization or jurisdiction deployed "In Case of Earthquake Go to High Ground or Inland" signs?	N = 36	N = 4	N = 5	N = 0	N = 1
Yes	61.1% (22)	75.0% (3)	40.0% (2)		100.0% (1)
No	38.9% (14)	25.0% (1)	60.0% (3)		0.0% (0)

Survey Items and Response Choices	Have a Completed Plan (and is updated periodically)	Have a Completed Plan (but has not yet been updated)	Have Initiated Planning (but plan not yet complete)	Have Not Begun to Plan (but intend to do so)	No Plan and No Intention to Develop One
8.3 Has your jurisdiction covered all tsunami vulnerable areas with appropriate signage?	N = 36	N = 4	N = 6	N = 0	N = 1
Yes (<i>skip to 8.5</i>)	75.0% (27)	50.0% (2)	33.3% (2)		0.0% (0)
No	25.0% (9)	50.0% (2)	66.7% (4)		100.0% (1)
8.4 Why has your jurisdiction not deployed signs to all vulnerable areas? (Please select all that apply)	N = 9	N = 2	N = 4	N = 0	N = 1
Inadequate funding to complete deployment	55.6% (5)	100.0% (2)	50.0% (2)		100.0% (1)
Unsure how to order/procure these signs	11.1% (1)	0.0% (0)	0.0% (0)		0.0% (0)
Theft or vandalism	11.1% (1)	50.0% (1)	25.0% (1)		0.0% (0)
Federal, state, or local regulations	0.0% (0)	0.0% (0)	0.0% (0)		0.0% (0)
Opposition by individual residents	11.1% (1)	50.0% (1)	0.0% (0)		0.0% (0)
Opposition by organized entities (e.g., business or community group)	22.2% (2)	50.0% (1)	0.0% (0)		0.0% (0)
Opposition by state departments of transportation	0.0% (0)	0.0% (0)	0.0% (0)		0.0% (0)
Other	33.3% (3)	0.0% (0)	25.0% (1)		0.0% (0)
8.5 Would you say that theft or destruction of tsunami signs in your jurisdiction is a:	N = 36	N = 4	N = 4	N = 0	N = 1
Not at all a problem	38.9% (14)	25.0% (1)	0.0% (0)		100.0% (1)
Minor problem	36.1% (13)	25.0% (1)	75.0% (3)		0.0% (0)
Moderate problem	16.7% (6)	25.0% (1)	25.0% (1)		0.0% (0)
Major problem	8.3% (3)	25.0% (1)	0.0% (0)		0.0% (0)
8.6 How does your organization or jurisdiction decide where to put up signs? (Please select all that apply)	N = 36	N = 4	N = 6	N = 0	N = 1
Tsunami inundation maps	77.8% (28)	100.0% (4)	50.0% (3)		100.0% (1)
Tsunami evacuation maps	61.1% (22)	75.0% (3)	33.3% (2)		0.0% (0)
Public vs. private property	30.6% (11)	50.0% (2)	16.7% (1)		0.0% (0)
Environmental or aesthetic factors	11.1% (4)	25.0% (1)	0.0% (0)		0.0% (0)
Federal, state or local government regulation	38.9% (14)	0.0% (0)	33.3% (2)		0.0% (0)
Other	16.7% (6)	0.0% (0)	0.0% (0)		0.0% (0)
8.7 Does your organization or jurisdiction use any of the following methods to identify tsunami hazard routing? (Please select all that apply) (<i>All responses skip to 9.1</i>)	N = 36	N = 4	N = 6	N = 0	N = 1
Non-standard signage	8.3% (3)	0.0% (0)	16.7% (1)		0.0% (0)
Routing messages painted on roads	5.6% (2)	0.0% (0)	0.0% (0)		0.0% (0)
Routing information painted on sidewalks	0.0% (0)	0.0% (0)	0.0% (0)		0.0% (0)

Survey Items and Response Choices	Have a Completed Plan (and is updated periodically)	Have a Completed Plan (but has not yet been updated)	Have Initiated Planning (but plan not yet complete)	Have Not Begun to Plan (but intend to do so)	No Plan and No Intention to Develop One
No methods used to identify tsunami hazard routing	50.0% (18)	100.0% (4)	50.0% (3)		0.0% (0)
Other	22.2% (8)	0.0% (0)	0.0% (0)		100.0% (1)
8.8 Why has your organization or jurisdiction not deployed tsunami signs? (Please select all that apply)	N = 23	N = 5	N = 9	N = 10	N = 3
Lack of funding for signage	30.4% (7)	20.0% (1)	22.2% (2)	30.0% (3)	0.0% (0)
Local opposition to sign deployment	13.0% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Concerns about theft or vandalism	8.7% (2)	20.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)
Do not consider them needed	30.4% (7)	20.0% (1)	33.3% (3)	20.0% (2)	66.7% (2)
Potential confusion with higher risk hazards (e.g., hurricanes)	21.7% (5)	0.0% (0)	0.0% (0)	10.0% (1)	33.3% (1)
Federal, state or local regulations	4.3% (1)	40.0% (2)	0.0% (0)	10.0% (1)	0.0% (0)
Other	47.8% (11)	40.0% (2)	44.4% (4)	30.0% (3)	0.0% (0)
PART 9. TSUNAMIREADY ITEMS					
9.1 Is your organization or jurisdiction recognized by NOAA's National Weather Service as "TsunamiReady"?	N = 59	N = 9	N = 15	N = 11	N = 4
Yes	42.4% (25)	11.1% (1)	13.3% (2)	0.0% (0)	0.0% (0)
No (<i>skip to 9.6</i>)	57.6% (34)	88.9% (8)	86.7% (13)	100.0% (11)	100.0% (4)
9.2 When did you receive this designation?	N = 25	N = 1	N = 2	N = 0	N = 0
Within the last 6 months (<i>skip to 9.4</i>)	8.0% (2)	0.0% (0)	0.0% (0)		
More than 6 months but less than one year (<i>skip to 9.4</i>)	4.0% (1)	0.0% (0)	0.0% (0)		
One year to three years (<i>skip to 9.4</i>)	32.0% (8)	0.0% (0)	50.0% (1)		
More than 3 years ago (<i>skip to 9.3</i>)	56.0% (14)	100.0% (1)	50.0% (1)		
9.3 How many times has your organization or jurisdiction renewed your TsunamiReady recognition?	N = 12	N = 1	N = 1	N = 0	N = 0
Once	50.0% (6)	100.0% (1)	100.0% (1)		
Twice	33.3% (4)	0.0% (0)	0.0% (0)		
Three times	8.3% (1)	0.0% (0)	0.0% (0)		
More than three times	8.3% (1)	0.0% (0)	0.0% (0)		
9.4 In your efforts to become TsunamiReady, did you encounter any difficulties or challenges?	N = 25	N = 1	N = 2	N = 0	N = 0
Yes	28.0% (7)	0.0% (0)	50.0% (1)		

Survey Items and Response Choices	Have a Completed Plan (and is updated periodically)	Have a Completed Plan (but has not yet been updated)	Have Initiated Planning (but plan not yet complete)	Have Not Begun to Plan (but intend to do so)	No Plan and No Intention to Develop One
No (<i>skip to 9.9</i>)	72.0% (18)	100.0% (1)	50.0% (1)		
9.5 What was the nature of these barriers? (Please select all that apply) (<i>All responses skip to 9.9</i>)	N = 7	N = 0	N = 1	N = 0	N = 0
Convincing decision makers that there was a tsunami hazard that required planning	71.4% (5)		0.0% (0)		
Resource shortfalls that made planning difficult (e.g., personnel, funding, etc.)	85.7% (6)		100.0% (1)		
Meeting specific criteria required by NOAA for TsunamiReady status	28.6% (2)		0.0% (0)		
Other barriers	28.6% (2)		0.0% (0)		
9.6 Is your organization or jurisdiction currently working toward TsunamiReady status?	N = 34	N = 8	N = 13	N = 11	N = 4
Yes (<i>skip to 9.7</i>)	44.1% (15)	62.5% (5)	46.2% (6)	27.3% (3)	0.0% (0)
No	55.9% (19)	37.5% (3)	53.8% (7)	72.7% (8)	100.0% (4)
9.7 When do you expect to complete all requirements and be recognized as TsunamiReady? (<i>All responses skip to 9.9</i>)	N = 15	N = 5	N = 6	N = 3	N = 0
Within the next 6 months	46.7% (7)	20.0% (1)	33.3% (2)	0.0% (0)	
More than 6 months but less than one year	26.7% (4)	40.0% (2)	33.3% (2)	0.0% (0)	
One year to three years	6.7% (1)	20.0% (1)	16.7% (1)	0.0% (0)	
More than 3 years	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	
Not sure when we will be finished	20.0% (3)	20.0% (1)	16.7% (1)	100.0% (3)	
9.8 What is the <u>main</u> reason your organization or jurisdiction is not working toward TsunamiReady status?	N = 19	N = 3	N = 7	N = 7	N = 4
Unfamiliar with the TsunamiReady Program	26.3% (5)	0.0% (0)	28.6% (2)	28.6% (2)	25.0% (1)
Lack of resources for planning	10.5% (2)	33.3% (1)	28.6% (2)	0.0% (0)	0.0% (0)
Lack of support from decision makers to plan for tsunamis	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Low probability that our organization/jurisdiction will be hit by a tsunami	36.8% (7)	33.3% (1)	42.9% (3)	71.4% (5)	50.0% (2)
Have a tsunami plan but not interested in TsunamiReady Program	0.0% (0)	33.3% (1)	0.0% (0)	0.0% (0)	0.0% (0)
Other	26.3% (5)	0.0% (0)	0.0% (0)	0.0% (0)	25.0% (1)

Appendix B. Survey Results by Whether or Not Organization Has or Will Use(d) Tsunami Inundation Maps

Survey respondents were asked, “Has (or will) your organization use(d) tsunami inundation maps in your tsunami planning?” As reported in Table 4.6, of the 101 respondents that answered, 82% chose “yes,” 8% chose “no,” and 10% chose “don’t know.” The table below provides a comparison of the survey responses by whether or not tsunami inundation maps have been or will be used in tsunami planning, excluding the “don’t know” responses.

Survey Items and Response Choices	Has or Will Use(d) Maps	Has or Will Not Use(d) Maps
PART 2. ORGANIZATIONAL DEMOGRAPHICS ITEMS		
2.4 Please select the box below that most closely describes your organization:	N = 79	N = 6
Incorporated Town, Village or Township Government	10.1% (8)	0.0% (0)
Unincorporated Community Government	2.5% (2)	0.0% (0)
Incorporated City or Borough Government	31.6% (25)	50.0% (3)
Tribal Government	3.8% (3)	0.0% (0)
County Government	31.6% (25)	0.0% (0)
Special District	3.8% (3)	0.0% (0)
State Agency	8.9% (7)	50.0% (3)
Federal Agency	1.3% (1)	0.0% (0)
Other	6.3% (5)	0.0% (0)
2.5 Which category below best characterizes the total population of the town, village, city, or county in which your organization is located?	N = 79	N = 7
Under 1,000	3.8% (3)	14.3% (1)
1,000 to 5,000	8.9% (7)	0.0% (0)
5,001 to 10,000	10.1% (8)	14.3% (1)
10,001 to 50,000	21.5% (17)	14.3% (1)
50,001 to 100,000	20.3% (16)	0.0% (0)
100,001 to 500,000	22.8% (18)	14.3% (1)
500,001 to one million	3.8% (3)	14.3% (1)
Over one million but less than 5 million	6.3% (5)	0.0% (0)
5 million or more	1.3% (1)	14.3% (1)
Not applicable (e.g., organization is a harbor or special district)	1.3% (1)	14.3% (1)
2.7 Please identify the organizational representative who is primarily responsible for tsunami planning within your organization. Is this person:	N = 80	N = 7
Emergency Services Coordinator	32.5% (26)	14.3% (1)
Emergency Services Manager	40.0% (32)	0.0% (0)
Police Officer/Sheriff's Deputy	6.3% (5)	14.3% (1)
Fireman/ Fire Services	2.5% (2)	0.0% (0)
Administrator (e.g., CAO, Special District Administrator)	3.8% (3)	0.0% (0)
Elected Official (e.g., mayor, city council, county supervisor)	1.3% (1)	14.3% (1)
Legislative Officer (e.g., Analyst, Aide, etc.)	0.0% (0)	0.0% (0)
Other	13.8% (11)	57.1% (4)
No one is assigned to tsunami planning	0.0% (0)	0.0% (0)
2.8 Whether it is you or someone else, is the person responsible for tsunami planning a:	N = 83	N = 8
Full-time permanent employee	89.2% (74)	75.0% (6)
Part-time employee	8.4% (7)	0.0% (0)
Contract employee	0.0% (0)	0.0% (0)
Other	0.0% (0)	25.0% (2)
No one is assigned to tsunami planning	2.4% (2)	0.0% (0)

Survey Items and Response Choices	Has or Will Use(d) Maps	Has or Will Not Use(d) Maps
2.9 Whether it is you or someone else, approximately what percentage of time does the person responsible for tsunami planning spend on tsunami planning issues and projects?	N = 82	N = 8
90-100%	0.0% (0)	0.0% (0)
75-89%	0.0% (0)	0.0% (0)
50-74%	0.0% (0)	0.0% (0)
25-49%	8.5% (7)	0.0% (0)
10-24%	28.0% (23)	25.0% (2)
Less than 10%	59.8% (49)	75.0% (6)
No one is assigned to tsunami planning	3.7% (3)	0.0% (0)
PART 3. PUBLIC EDUCATION ITEMS		
3.1 Does your organization or jurisdiction provide tsunami information intended to raise tsunami awareness and promote preparedness?	N = 83	N = 8
Yes	87.6% (72)	62.5% (5)
No (<i>skip to 4.1</i>)	13.3% (11)	37.5% (3)
3.2 What target audiences are included in your provision of tsunami education? (Please select all that apply)	N = 72	N = 5
Residents of the community (in general)	94.4% (68)	100.0% (5)
Visitors to the community (e.g., beach visitors, tourists)	70.8% (51)	80.0% (4)
Members of your organization or agency	86.1% (62)	60.0% (3)
Schools (students, teachers, administrators)	69.4% (50)	40.0% (2)
Speakers of other languages	26.4% (19)	0.0% (0)
Seniors and/or persons with disabilities	58.3% (42)	20.0% (1)
Other	11.1% (8)	0.0% (0)
3.3 What methods of disseminating tsunami public information are employed by your organization or jurisdiction? (Please select all that apply)	N = 72	N = 5
Mailings	26.4% (19)	20.0% (1)
Newspaper inserts	20.8% (15)	0.0% (0)
Public meetings, workshops, or seminars	72.2% (52)	80.0% (4)
Literature tables/displays in public buildings	84.7% (61)	60.0% (3)
Published in telephone books	8.3% (6)	20.0% (1)
Beach kiosks or in park visitor centers	25.0% (18)	0.0% (0)
Signs posted in tsunami hazard zones	68.1% (49)	20.0% (1)
Use of schools or school systems	34.7% (25)	40.0% (2)
Other	22.2% (16)	20.0% (1)
3.4 What are the sources of tsunami public education materials disseminated by your organization or jurisdiction? (Please select all that apply)	N = 72	N = 5
State emergency management agency	77.8% (56)	80.0% (4)
Local emergency management agency	69.4% (50)	60.0% (3)
Federal Emergency Management Agency (FEMA)	55.6% (40)	80.0% (4)
Red Cross or other non-governmental organizations active in disaster relief	29.2% (21)	20.0% (1)
National Weather Service or the National Oceanic and Atmospheric Administration (NOAA)	76.4% (55)	80.0% (4)
University or hazard education oriented center	18.1% (13)	0.0% (0)
Other	15.3% (11)	0.0% (0)
3.5 Has your organization or jurisdiction published and disseminated tsunami evacuation route maps that direct residents or visitors to tsunami safe areas?	N = 72	N = 5
Yes	72.2% (52)	20.0% (1)

Survey Items and Response Choices	Has or Will Use(d) Maps	Has or Will Not Use(d) Maps
No	27.8% (20)	80.0% (4)
3.6 Do schools within your jurisdiction's tsunami inundation/hazard zones conduct tsunami evacuation drills?	N = 72	N = 5
Yes	48.6% (35)	0.0% (0)
No	51.4% (37)	100.0% (5)
3.7 In your opinion, what is the one most significant barrier to achieving adequate tsunami awareness and preparedness in your organization or jurisdiction?	N = 71	N = 5
Individual or community apathy	22.5% (16)	0.0% (0)
Insufficient resources	28.2% (20)	20.0% (1)
Infrequency of damaging tsunamis	15.5% (11)	60.0% (3)
Unavailability of high quality education materials	0.0% (0)	0.0% (0)
Low visibility of the tsunami hazard	7.0% (5)	20.0% (1)
Have not encountered any significant barriers	11.3% (8)	0.0% (0)
Other	15.5% (11)	0.0% (0)
PART 4. RESPONSE PLAN ITEMS		
4.1 Has your organization developed an emergency response plan that addresses tsunamis?	N = 83	N = 8
Yes, have a completed plan that is updated periodically	68.7% (57)	37.5% (3)
Yes, have a completed plan but it has not been updated	9.6% (8)	12.5% (1)
Have initiated planning, but plan is not yet complete (<i>skip to 4.3</i>)	13.3% (11)	37.5% (3)
Have not begun to plan but intend to do so (<i>skip to 4.3</i>)	8.4% (7)	12.5% (1)
Have no response plan for tsunamis and do not intend to develop one (<i>skip to 5.1</i>)	0.0% (0)	0.0% (0)
4.2 When was your plan finalized?	N = 65	N = 4
Prior to 1991	0.0% (0)	0.0% (0)
1991 to 2000	10.8% (7)	0.0% (0)
2001 to 2004	15.4% (10)	0.0% (0)
After 2004	73.8% (48)	100.0% (4)
4.3 When was your plan last updated? (<i>All responses skip to 4.5</i>)	N = 65	N = 4
Prior to 1991	0.0% (0)	0.0% (0)
1991 to 2000	0.0% (0)	0.0% (0)
2001 to 2004	0.0% (0)	0.0% (0)
After 2004	87.7% (57)	75.0% (3)
Has not been updated	12.3% (8)	25.0% (1)
4.4 When do you anticipate completion and approval of the plan?	N = 18	N = 4
Within the next 6 months	16.7% (3)	0.0% (0)
6 months to 1 year	16.7% (3)	75.0% (3)
More than a year	22.2% (4)	0.0% (0)
Uncertain when we will have a finalized and approved plan	44.4% (8)	25.0% (1)
4.5 The tsunami response plan was or will be developed by:	N = 82	N = 8
Emergency planners within my organization	42.7% (35)	37.5% (3)
Private consultants outside my organization	2.4% (2)	0.0% (0)
Some combination of internal and outside personnel	50.0% (41)	62.5% (5)
Other	4.9% (4)	0.0% (0)
4.6 Based upon what type of information from the Pacific Tsunami Warning Center or the West Coast and Alaska Tsunami Warning Center does or will your plan be activated? (Please select all that apply)	N = 81	N = 8

Survey Items and Response Choices	Has or Will Use(d) Maps	Has or Will Not Use(d) Maps
Warning only	21.0% (17)	50.0% (4)
Advisory only	6.2% (5)	0.0% (0)
Watch only	11.1% (9)	0.0% (0)
Warning and advisory	11.1% (9)	0.0% (0)
Warning and watch	1.2% (1)	0.0% (0)
Advisory and watch	1.2% (1)	0.0% (0)
Warning, advisory, and watch	46.9% (38)	50.0% (4)
Other criteria	1.2% (1)	0.0% (0)
4.8 Why is your organization not using tsunami inundation maps? (Please select all that apply) (All responses skip to 4.10)		
	N = 0	N = 8
Not anticipating inundation in populated areas		25.0% (2)
Maps not currently available for area in which my organization or jurisdiction is located		50.0% (4)
Maps are not needed for planning purposes		12.5% (1)
In the process of developing tsunami inundation maps		37.5% (3)
Using evacuation maps developed without tsunami inundation maps		25.0% (2)
4.9 What is, or will be, the source of those maps? (Please select all that apply)		
	N = 82	N = 0
Pacific Marine Environmental Laboratory (PMEL-NOAA)	14.6% (12)	
A state agency (e.g., state office of emergency management, state geological survey, etc.)	70.7% (58)	
University-based research center or university faculty	39.0% (32)	
Private consultant or non-university based research center	6.1% (5)	
Other	15.9% (13)	
Don't know	6.1% (5)	
4.10 Please indicate if your plan addresses (or will address) the following elements: (Please select all that apply)		
	N = 82	N = 7
A plan activation trigger (e.g., notification from the Pacific or West Coast and Alaska Tsunami Warning Center of a Warning, Advisory or Watch for your area)	90.2% (74)	100.0% (7)
24/7 warning point procedures to receive and disseminate tsunami alerts	84.1% (69)	42.9% (3)
Emergency Operation Center Activation (with staffing levels)	85.4% (70)	71.4% (5)
Roles and responsibilities for multiple organizational personnel	81.7% (67)	100.0% (7)
Roles and responsibilities for local volunteer organizations active in disasters	56.1% (46)	42.9% (3)
Provisions for coordination with other levels of government and private sector entities	74.4% (61)	71.4% (5)
Clearly identified evacuation routes and assembly areas for evacuees	75.6% (62)	100.0% (7)
Provisions for evacuation of special populations (e.g., persons with disabilities, non-English speaking persons, visitors, etc.)	51.2% (42)	42.9% (3)
Vertical evacuation procedures for communities with no high ground	25.6% (21)	42.9% (3)
Activation of sirens and/or signaling devices	58.5% (48)	71.4% (5)
Shelter and mass care for evacuees	56.1% (46)	71.4% (5)
Methods of providing emergency period instructions to residents and visitors	63.4% (52)	85.7% (6)
Provisions for notification and emergency period instructions for commercial and recreational boating communities	34.1% (28)	28.6% (2)
Search and rescue and the timing of intervention	51.2% (42)	42.9% (3)
Provisions for damage assessment after the tsunami danger has passed	56.1% (46)	28.6% (2)
Criteria and procedures for issuing an "all clear" after a destructive tsunami	63.4% (52)	71.4% (5)
Procedures for "standing down" after initiating response for a non-destructive tsunami	63.4% (52)	71.4% (5)
Provisions for periodic drills and exercises	51.2% (42)	57.1% (4)
4.11 From what tsunami warning center does your organization or jurisdiction receive		
	N = 78	N = 7

Survey Items and Response Choices	Has or Will Use(d) Maps	Has or Will Not Use(d) Maps
tsunami information?		
Pacific Tsunami Warning Center in Eva Beach, Hawaii	10.3% (8)	14.3% (1)
West Coast and Alaska Tsunami Warning Center, Palmer, Alaska	80.0% (63)	85.7% (6)
Other source	9.0% (7)	0.0% (0)
4.12 How does your organization or jurisdiction receive tsunami messages from the appropriate Tsunami Warning Center? (Please select all that apply)	N = 81	N = 7
NOAA Weather Radio	74.1% (60)	42.9% (3)
Emergency Manager's Weather Information Network	29.6% (24)	14.3% (1)
State telecomm systems	55.6% (45)	42.9% (3)
Phone call down tree from another agency	45.7% (37)	14.3% (1)
National Warning System (NAWAS – national or state-side)	58.0% (47)	71.4% (5)
Direct link to Local Weather Forecast Office	32.1% (26)	42.9% (3)
NOAA Weather Wire	21.0% (17)	28.6% (2)
NOAA Port	7.4% (6)	0.0% (0)
Aeronautical Fixed Telecommunication Network (AFTN)	1.2% (1)	0.0% (0)
US Coast Guard Radio	9.9% (8)	14.3% (1)
Directly from Tsunami Warning Center (TWC) via monitored email, FAX, or text messaging	51.9% (42)	42.9% (3)
Other	11.1% (9)	14.3% (1)
PART 5. EXERCISES AND TRAINING ITEMS		
5.1 Does your organization or jurisdiction conduct exercises to test your tsunami plan?	N = 81	N = 7
Yes	50.6% (41)	28.6% (2)
No (<i>skip to 5.7</i>)	49.4% (40)	71.4% (5)
5.2 Do these exercises test: (Please select all that apply)	N = 41	N = 2
Response plan in general	85.4% (35)	50.0% (1)
Ability to evacuate part or all of your organization or community in tsunami inundation zones	51.2% (21)	0.0% (0)
Siren function	61.0% (25)	0.0% (0)
Emergency Alert System ability to deliver a warning	65.9% (27)	50.0% (1)
Other	9.8% (4)	0.0% (0)
5.3 Have these response exercises mainly tested your ability to: (Please select all that apply)	N = 41	N = 2
Respond to a warning issued by the Pacific or West Coast and Alaska Tsunami Warning Center	92.7% (38)	100.0% (2)
Respond to an actual tsunami impact	61.0% (25)	0.0% (0)
Recover from a damaging tsunami impact	19.5% (8)	0.0% (0)
Other	4.9% (2)	0.0% (0)
5.4 Have your response exercises been: (Please select all types of exercises done)	N = 40	N = 2
Tabletop exercises (e.g., discussion exercises, low stress to clarify roles and responsibilities)	92.5% (37)	50.0% (1)
Functional exercises (e.g., performance exercises, sequence of messages, evaluate plans and Standard Operating Procedures (SOPs))	77.5% (31)	0.0% (0)
Full scale exercises (e.g., field event with Emergency Operations Center (EOC) activation, deployment, comprehensive)	45.0% (18)	0.0% (0)
5.5 Who has facilitated the exercises held? (Please select all that apply)	N = 40	N = 2
Internal emergency management personnel	95.0% (38)	50.0% (1)
External emergency management personnel (e.g., state or federal partners)	60.0% (24)	0.0% (0)
Outside consultants	22.5% (9)	50.0% (1)

Survey Items and Response Choices	Has or Will Use(d) Maps	Has or Will Not Use(d) Maps
Other	7.5% (3)	0.0% (0)
5.6 As a result of conducting these exercises, have any of the following occurred? (Please select all that apply)	N = 40	N = 1
Plans have been updated or modified	85.0% (34)	0.0% (0)
Staff has become more familiar with roles	95.0% (38)	100.0% (1)
Equipment has been tested	65.0% (26)	0.0% (0)
New procedures have been implemented	57.5% (23)	0.0% (0)
Other	2.5% (1)	0.0% (0)
5.7 Has tsunami planning staff within your organization received training in tsunami planning or in issues related to tsunami?	N = 80	N = 7
Yes	76.3% (61)	0.0% (0)
No (<i>skip to 6.1</i>)	23.8% (19)	100.0% (7)
5.8 Has this training included: (Please select all that apply)	N = 61	N = 0
Tsunami science (e.g., seminar on how tsunamis occur, regional hazards, history of tsunami events, etc.)	88.5% (54)	
Social science contributions (e.g., information on how to make warnings more effective)	52.5% (32)	
Tsunami modeling or mapping	77.0% (47)	
Planning considerations specific to tsunamis	82.0% (50)	
Tsunami warning protocol	83.6% (51)	
Other	4.9% (3)	
PART 6. TSUNAMI HAZARD MITIGATION ITEMS		
6.1 Has your organization or jurisdiction developed a hazard mitigation plan that addresses tsunamis?	N = 80	N = 6
Yes, have a completed hazard mitigation plan that addresses tsunamis	60.0% (48)	16.7% (1)
Have initiated planning, but plan is not yet complete	16.3% (13)	16.7% (1)
Have not begun to plan, but intend to do so	12.5% (10)	33.3% (2)
Have no hazard mitigation plan for tsunamis and do not plan to develop one	11.3% (9)	33.3% (2)
6.2 Does your organization or jurisdiction have critical facilities that are in the tsunami inundation zone?	N = 80	N = 7
Yes	71.3% (57)	14.3% (1)
No (<i>skip to 6.7</i>)	25.0% (20)	28.6% (2)
Don't know (<i>skip to 6.7</i>)	3.8% (3)	57.1% (4)
6.3 Please identify the type of critical facilities located in the tsunami inundation zone: (Please select all that apply)	N = 56	N = 1
Fire station(s)	62.5% (35)	100.0% (1)
Police station(s)	50.0% (28)	100.0% (1)
Hospital(s) or clinic(s)	16.1% (9)	0.0% (0)
School(s)	58.9% (33)	100.0% (1)
Emergency Operations Center(s)	19.6% (11)	0.0% (0)
Facility housing a lifeline or utility	55.4% (31)	100.0% (1)
Other	37.5% (21)	0.0% (0)
6.4 Do you have a response plan for critical facilities in the tsunami inundation zone?	N = 57	N = 1
Yes	56.1% (32)	0.0% (0)
No	43.9% (25)	100.0% (1)
6.5 Has your organization or jurisdiction abandoned, modified, or relocated an existing	N = 57	N = 1

Survey Items and Response Choices	Has or Will Use(d) Maps	Has or Will Not Use(d) Maps
critical facility because it was in a tsunami hazard zone?		
Yes	7.0% (4)	0.0% (0)
No (<i>skip to 6.7</i>)	82.5% (47)	100.0% (1)
Don't know (<i>skip to 6.7</i>)	10.5% (6)	0.0% (0)
6.6 Was this critical facility a: (Please select all that apply)	N = 4	N = 0
Fire station(s)	75.0% (3)	
Police station(s)	25.0% (1)	
Hospital(s) or clinic(s)	25.0% (1)	
School(s)	50.0% (2)	
Emergency Operations Center(s)	50.0% (2)	
Facility housing a lifeline or utility	0.0% (0)	
Other	25.0% (1)	
6.7 Has your organization or jurisdiction considered the tsunami hazard or mapped inundation zones in other land-use planning decisions?	N = 80	N = 7
Yes	42.5% (34)	14.3% (1)
No (<i>skip to 6.9</i>)	25.0% (20)	28.6% (2)
Don't know (<i>skip to 6.9</i>)	32.5% (26)	57.1% (4)
6.9 Are there areas in which your organization has facilities or your jurisdiction has residents that cannot be rapidly evacuated in a tsunami event?	N = 79	N = 7
Yes	46.8% (37)	28.6% (2)
No (<i>skip to 7.1</i>)	43.0% (34)	42.9% (3)
Don't know (<i>skip to 7.1</i>)	10.1% (8)	28.6% (2)
6.10 Regarding these facilities operated by your organization or residents within your jurisdiction that cannot be evacuated in a timely manner, have you: (Please select all that apply)	N = 36	N = 2
Identified safe areas within the facility for them to remain in place during the tsunami (e.g., higher floors of a building)	50.0% (18)	50.0% (1)
Modified the facility to withstand tsunamis	0.0% (0)	0.0% (0)
Built special structures that serve as evacuation sites for those who can't reach higher ground	0.0% (0)	0.0% (0)
Have not done anything to address the issue of facilities that cannot be evacuated in a timely manner	52.8% (19)	100.0% (2)
PART 7. SIGNALING DEVICES ITEMS		
7.1 Does your organization or jurisdiction have tsunami signaling devices or sirens or used existing signaling devices for tsunami warnings?	N = 79	N = 7
Yes (<i>skip to 7.3</i>)	46.8% (37)	28.6% (2)
No	50.6% (40)	57.1% (4)
Don't know (<i>skip to 7.10</i>)	2.5% (2)	14.3% (1)
7.2 Why has your organization or jurisdiction not deployed tsunami signaling devices or sirens or used existing signaling devices for tsunami warnings? (Please select all that apply) (<i>All responses skip to 7.10</i>)	N = 39	N = 4
Have ordered signaling devices but have not yet deployed them	5.1% (2)	0.0% (0)
Signaling devices are too expensive	30.8% (12)	25.0% (1)
Signaling devices will not be purchased and deployed due to community opposition	7.7% (3)	25.0% (1)
Signaling devices are opposed by environmental or coastal conservancy groups	5.1% (2)	0.0% (0)
Other	71.8% (28)	75.0% (3)

Survey Items and Response Choices	Has or Will Use(d) Maps	Has or Will Not Use(d) Maps
7.3 How many signaling devices have been deployed within the boundaries of your organization or jurisdiction?	N = 37	N = 2
1-3	37.8% (14)	50.0% (1)
4-6	18.9% (7)	0.0% (0)
7-10	10.8% (4)	0.0% (0)
11-20	16.2% (6)	0.0% (0)
More than 20	16.2% (6)	50.0% (1)
7.4 Do your signaling devices have both voice and audible signal capabilities?	N = 37	N = 2
Yes	62.2% (23)	50.0% (1)
No	37.8% (14)	50.0% (1)
7.5 Are the tones used for tsunami warning different than tones used for other hazards?	N = 37	N = 2
Yes	56.8% (21)	50.0% (1)
No	43.2% (16)	50.0% (1)
7.6 How often are signaling devices tested by your organization or jurisdiction?	N = 37	N = 2
Weekly	24.3% (9)	100.0% (2)
Monthly	54.1% (20)	0.0% (0)
Bi-Monthly	0.0% (0)	0.0% (0)
Quarterly	10.8% (4)	0.0% (0)
Annually	2.7% (1)	0.0% (0)
Tested but not on a scheduled basis	5.4% (2)	0.0% (0)
Never tested	2.7% (1)	0.0% (0)
7.7 Is there a specific day of the week and time of day signaling devices are tested in your organization or jurisdiction?	N = 37	N = 2
Yes	75.7% (28)	100.0% (2)
No (<i>skip to 7.8</i>)	24.3% (9)	0.0% (0)
7.7a Day of testing:	N = 25	N = 2
Sunday	0.0% (0)	0.0% (0)
Monday	44.0% (11)	50.0% (1)
Tuesday	0.0% (0)	50.0% (1)
Wednesday	44.0% (11)	0.0% (0)
Thursday	0.0% (0)	0.0% (0)
Friday	4.0% (1)	0.0% (0)
Saturday	8.0% (2)	0.0% (0)
7.7b Time of testing:	N = 26	N = 1
Morning (9 AM-10:59 AM)	15.4% (4)	0.0% (0)
Midday (11 AM-12:59 PM)	53.8% (14)	100.0% (1)
Early Afternoon (1 PM-2:59 PM)	19.2% (5)	0.0% (0)
Late Afternoon (3 PM-5 PM)	11.5% (3)	0.0% (0)
7.8 Approximately what percentage of your tsunami vulnerable population is covered by signaling devices?	N = 37	N = 2
10% or less	8.1% (3)	0.0% (0)
11-20%	2.7% (1)	0.0% (0)
21-30%	5.4% (2)	0.0% (0)
31-40%	16.2% (6)	0.0% (0)
41-50%	8.1% (3)	0.0% (0)
51-60%	8.1% (3)	0.0% (0)

Survey Items and Response Choices	Has or Will Use(d) Maps	Has or Will Not Use(d) Maps
61-70%	2.7% (1)	0.0% (0)
71-80%	10.8% (4)	0.0% (0)
81-90%	13.5% (5)	0.0% (0)
91-99%	5.4% (2)	0.0% (0)
100% (<i>skip to 7.10</i>)	18.9% (7)	100.0% (2)
7.9 Since you have deployed signaling devices but the coverage is less than 100.0% of the vulnerable population, do you plan to deploy additional devices?		
	N = 30	N = 0
Yes (<i>skip to 7.11</i>)	53.3% (16)	
No (<i>skip to 7.12</i>)	46.7% (14)	
7.10 Do you plan to purchase or have already purchased signaling devices that have not yet been deployed?		
	N = 49	N = 7
Yes	12.2% (6)	14.3% (1)
No (<i>skip to 7.12</i>)	75.5% (37)	71.4% (5)
Don't know (<i>skip to 7.12</i>)	12.2% (6)	14.3% (1)
7.11 How long will it be before these signaling devices are deployed?		
	N = 22	N = 1
Within the next 6 months	9.1% (2)	0.0% (0)
6 months to one year	22.7% (5)	0.0% (0)
Over one year	22.7% (5)	0.0% (0)
Uncertain when they will be deployed	45.5% (10)	100.0% (1)
7.12 What other methods besides sirens are used or would be used to alert the public of a tsunami hazard? (Please select all that apply)		
	N = 78	N = 7
NOAA Weather Radios	76.9% (60)	71.4% (5)
Community subsidized NOAA Weather Radio purchase system	15.4% (12)	14.3% (1)
Television audio/video overrides	74.4% (58)	57.1% (4)
Automatic phone dial-down systems (e.g., Reverse 911)	71.8% (56)	71.4% (5)
Loudspeaker announcements on emergency vehicles (and aircraft, if applicable)	74.4% (58)	100.0% (7)
Community-wide phone tree	12.8% (10)	28.6% (2)
SMS Text Messaging	35.9% (28)	57.1% (4)
Emergency Management Radio	24.4% (19)	28.6% (2)
Marine Band Radio	30.8% (24)	28.6% (2)
No other methods are or would be used	0.0% (0)	14.3% (1)
Other	20.5% (16)	0.0% (0)
PART 8. TSUNAMI HAZARD AND EVACUATION SIGNAGE ITEMS		
8.1 Has your organization or jurisdiction deployed tsunami signs?		
	N = 79	N = 7
Yes	57.0% (45)	14.3% (1)
No (<i>skip to 8.8</i>)	43.0% (34)	85.7% (6)
8.2a Has your organization or jurisdiction deployed tsunami hazard zone signs?		
	N = 44	N = 1
Yes	81.8% (36)	0.0% (0)
No	18.2% (8)	100.0% (1)
8.2b Has your organization or jurisdiction deployed entering and leaving tsunami hazard zone signs?		
	N = 45	N = 1
Yes	48.9% (22)	0.0% (0)
No	51.1% (23)	100.0% (1)
8.2c Has your organization or jurisdiction deployed tsunami evacuation route signs?		
	N = 45	N = 1
Yes	77.8% (35)	100.0% (1)
No	22.2% (10)	0.0% (0)

Survey Items and Response Choices	Has or Will Use(d) Maps	Has or Will Not Use(d) Maps
8.2d Has your organization or jurisdiction deployed tsunami evacuation site signs?	N = 45	N = 1
Yes	53.3% (24)	0.0% (0)
No	46.7% (21)	100.0% (1)
8.2e Has your organization or jurisdiction deployed "In Case of Earthquake Go to High Ground or Inland" signs?	N = 44	N = 1
Yes	61.4% (27)	0.0% (0)
No	38.6% (17)	100.0% (1)
8.3 Has your jurisdiction covered all tsunami vulnerable areas with appropriate signage?	N = 45	N = 1
Yes (<i>skip to 8.5</i>)	68.9% (31)	0.0% (0)
No	31.1% (14)	100.0% (1)
8.4 Why has your jurisdiction not deployed signs to all vulnerable areas? (Please select all that apply)	N = 14	N = 1
Inadequate funding to complete deployment	64.3% (9)	0.0% (0)
Unsure how to order/procure these signs	7.1% (1)	0.0% (0)
Theft or vandalism	21.4% (3)	0.0% (0)
Federal, state, or local regulations	0.0% (0)	0.0% (0)
Opposition by individual residents	14.3% (2)	0.0% (0)
Opposition by organized entities (e.g., business or community group)	21.4% (3)	0.0% (0)
Opposition by state departments of transportation	0.0% (0)	0.0% (0)
Other	21.4% (3)	100.0% (1)
8.5 Would you say that theft or destruction of tsunami signs in your jurisdiction is a:	N = 43	N = 1
Not at all a problem	34.9% (15)	0.0% (0)
Minor problem	37.2% (16)	100.0% (1)
Moderate problem	18.6% (8)	0.0% (0)
Major problem	9.3% (4)	0.0% (0)
8.6 How does your organization or jurisdiction decide where to put up signs? (Please select all that apply)	N = 45	N = 1
Tsunami inundation maps	77.8% (35)	0.0% (0)
Tsunami evacuation maps	60.0% (27)	0.0% (0)
Public vs. private property	31.1% (14)	0.0% (0)
Environmental or aesthetic factors	11.1% (5)	0.0% (0)
Federal, state or local government regulation	33.3% (15)	100.0% (1)
Other	13.3% (6)	0.0% (0)
8.7 Does your organization or jurisdiction use any of the following methods to identify tsunami hazard routing? (Please select all that apply) (<i>All responses skip to 9.1</i>)	N = 45	N = 1
Non-standard signage	8.9% (4)	0.0% (0)
Routing messages painted on roads	4.4% (2)	0.0% (0)
Routing information painted on sidewalks	0.0% (0)	0.0% (0)
No methods used to identify tsunami hazard routing	55.6% (25)	0.0% (0)
Other	17.8% (8)	0.0% (0)
8.8 Why has your organization or jurisdiction not deployed tsunami signs? (Please select all that apply)	N = 33	N = 6
Lack of funding for signage	18.2% (6)	50.0% (3)
Local opposition to sign deployment	9.1% (3)	0.0% (0)
Concerns about theft or vandalism	9.1% (3)	0.0% (0)

Survey Items and Response Choices	Has or Will Use(d) Maps	Has or Will Not Use(d) Maps
Do not consider them needed	27.3% (9)	33.3% (2)
Potential confusion with higher risk hazards (e.g., hurricanes)	9.1% (3)	16.7% (1)
Federal, state or local regulations	9.1% (3)	16.7% (1)
Other	51.5% (17)	16.7% (1)
PART 9. TSUNAMIREADY ITEMS		
9.1 Is your organization or jurisdiction recognized by NOAA's National Weather Service as "TsunamiReady"?	N = 79	N = 7
Yes	34.2% (27)	14.3% (1)
No (<i>skip to 9.6</i>)	65.8% (52)	85.7% (6)
9.2 When did you receive this designation?	N = 27	N = 1
Within the last 6 months (<i>skip to 9.4</i>)	7.4% (2)	0.0% (0)
More than 6 months but less than one year (<i>skip to 9.4</i>)	3.7% (1)	0.0% (0)
One year to three years (<i>skip to 9.4</i>)	33.3% (9)	0.0% (0)
More than 3 years ago (<i>skip to 9.3</i>)	55.6% (15)	100.0% (1)
9.3 How many times has your organization or jurisdiction renewed your TsunamiReady recognition?	N = 13	N = 1
Once	53.8% (7)	100.0% (1)
Twice	30.8% (4)	0.0% (0)
Three times	7.7% (1)	0.0% (0)
More than three times	7.7% (1)	0.0% (0)
9.4 In your efforts to become TsunamiReady, did you encounter any difficulties or challenges?	N = 27	N = 1
Yes	29.6% (8)	0.0% (0)
No (<i>skip to 9.9</i>)	70.4% (19)	100.0% (1)
9.5 What was the nature of these barriers? (Please select all that apply) (<i>All responses skip to 9.9</i>)	N = 8	N = 0
Convincing decision makers that there was a tsunami hazard that required planning	62.5% (5)	
Resource shortfalls that made planning difficult (e.g., personnel, funding, etc.)	87.5% (7)	
Meeting specific criteria required by NOAA for TsunamiReady status	25.0% (2)	
Other barriers	25.0% (2)	
9.6 Is your organization or jurisdiction currently working toward TsunamiReady status?	N = 52	N = 6
Yes (<i>skip to 9.7</i>)	48.1% (25)	33.3% (2)
No	51.9% (27)	66.7% (4)
9.7 When do you expect to complete all requirements and be recognized as TsunamiReady? (<i>All responses skip to 9.9</i>)	N = 25	N = 2
Within the next 6 months	40.0% (10)	0.0% (0)
More than 6 months but less than one year	28.0% (7)	50.0% (1)
One year to three years	12.0% (3)	0.0% (0)
More than 3 years	0.0% (0)	0.0% (0)
Not sure when we will be finished	20.0% (5)	50.0% (1)
9.8 What is the <u>main</u> reason your organization or jurisdiction is not working toward TsunamiReady status?	N = 26	N = 4
Unfamiliar with the TsunamiReady Program	23.1% (6)	25.0% (1)
Lack of resources for planning	19.2% (5)	0.0% (0)
Lack of support from decision makers to plan for tsunamis	0.0% (0)	0.0% (0)

Survey Items and Response Choices	Has or Will Use(d) Maps	Has or Will Not Use(d) Maps
Low probability that our organization/jurisdiction will be hit by a tsunami	34.6% (9)	75.0% (3)
Have a tsunami plan but not interested in TsunamiReady Program	3.8% (1)	0.0% (0)
Other	19.2% (5)	0.0% (0)

Appendix C. Survey Results by Whether or Not Organization Sponsors Tsunami-related Education Activities

Survey respondents were asked, “Does your organization or jurisdiction provide tsunami information intended to raise tsunami awareness and promote preparedness?” Eighty-two percent (n = 88) of respondents answered “yes” and 19 percent (n = 20) answered “no” (Table 3.1). (Please note that respondents who answered “no” to this question skipped the rest of the section.) The table below provides a comparison of the survey responses for these two groups of respondents.

Survey Items and Response Choices	Provides Tsunami Education	Does Not Provide Tsunami Education
PART 2. ORGANIZATIONAL DEMOGRAPHICS ITEMS		
2.4 Please select the box below that most closely describes your organization:	N = 84	N = 17
Incorporated Town, Village or Township Government	10.7% (9)	0.0% (0)
Unincorporated Community Government	1.2% (1)	5.9% (1)
Incorporated City or Borough Government	32.1% (27)	64.7% (11)
Tribal Government	3.6% (3)	0.0% (0)
County Government	28.6% (24)	11.8% (2)
Special District	2.4% (2)	5.9% (1)
State Agency	13.1% (11)	11.8% (2)
Federal Agency	1.2% (1)	0.0% (0)
Other	7.1% (6)	0.0% (0)
2.5 Which category below best characterizes the total population of the town, village, city, or county in which your organization is located?	N = 85	N = 17
Under 1,000	4.7% (4)	11.8% (2)
1,000 to 5,000	10.6% (9)	5.9% (1)
5,001 to 10,000	11.8% (10)	11.8% (2)
10,001 to 50,000	18.8% (16)	23.5% (4)
50,001 to 100,000	20.0% (17)	5.9% (1)
100,001 to 500,000	20.0% (17)	17.6% (3)
500,001 to one million	5.9% (5)	5.9% (1)
Over one million but less than 5 million	3.5% (3)	11.8% (2)
5 million or more	2.4% (2)	0.0% (0)
Not applicable (e.g., organization is a harbor or special district)	2.4% (2)	5.9% (1)
2.7 Please identify the organizational representative who is primarily responsible for tsunami planning within your organization. Is this person:	N = 85	N = 18
Emergency Services Coordinator	31.8% (27)	33.3% (6)
Emergency Services Manager	35.3% (30)	27.8% (5)
Police Officer/Sheriff’s Deputy	5.9% (5)	5.6% (1)
Fireman/ Fire Services	2.4% (2)	11.1% (2)
Administrator (e.g., CAO, Special District Administrator)	3.5% (3)	5.6% (1)
Elected Official (e.g., mayor, city council, county supervisor)	1.2% (1)	5.6% (1)
Legislative Officer (e.g., Analyst, Aide, etc.)	0.0% (0)	0.0% (0)
Other	20.0% (17)	11.1% (2)
No one is assigned to tsunami planning	0.0% (0)	0.0% (0)
2.8 Whether it is you or someone else, is the person responsible for tsunami planning a:	N = 88	N = 20
Full-time permanent employee	88.6% (78)	80.0% (16)
Part-time employee	6.8% (6)	10.0% (2)
Contract employee	0.0% (0)	0.0% (0)
Other	1.1% (1)	5.0% (1)

Survey Items and Response Choices	Provides Tsunami Education	Does Not Provide Tsunami Education
No one is assigned to tsunami planning	3.4% (3)	5.0% (1)
2.9 Whether it is you or someone else, approximately what percentage of time does the person responsible for tsunami planning spend on tsunami planning issues and projects?		
	N = 88	N = 19
90-100%	0.0% (0)	0.0% (0)
75-89%	0.0% (0)	0.0% (0)
50-74%	0.0% (0)	0.0% (0)
25-49%	9.1% (8)	0.0% (0)
10-24%	25.0% (22)	15.8% (3)
Less than 10%	62.5% (55)	63.2% (12)
No one is assigned to tsunami planning	3.4% (3)	21.1% (4)
PART 3. PUBLIC EDUCATION ITEMS		
3.2 What target audiences are included in your provision of tsunami education? (Please select all that apply)		
	N = 88	N = 0
Residents of the community (in general)	90.9% (80)	
Visitors to the community (e.g., beach visitors, tourists)	67.0% (59)	
Members of your organization or agency	79.5% (70)	
Schools (students, teachers, administrators)	63.6% (56)	
Speakers of other languages	23.9% (21)	
Seniors and/or persons with disabilities	51.1% (45)	
Other	12.5% (11)	
3.3 What methods of disseminating tsunami public information are employed by your organization or jurisdiction? (Please select all that apply)		
	N = 87	N = 0
Mailings	26.4% (23)	
Newspaper inserts	17.2% (15)	
Public meetings, workshops, or seminars	73.6% (64)	
Literature tables/displays in public buildings	78.2% (68)	
Published in telephone books	8.0% (7)	
Beach kiosks or in park visitor centers	20.7% (18)	
Signs posted in tsunami hazard zones	58.6% (51)	
Use of schools or school systems	32.2% (28)	
Other	23.0% (20)	
3.4 What are the sources of tsunami public education materials disseminated by your organization or jurisdiction? (Please select all that apply)		
	N = 87	N = 0
State emergency management agency	74.7% (65)	
Local emergency management agency	65.5% (57)	
Federal Emergency Management Agency (FEMA)	54.0% (47)	
Red Cross or other non-governmental organizations active in disaster relief	26.4% (23)	
National Weather Service or the National Oceanic and Atmospheric Administration (NOAA)	74.7% (65)	
University or hazard education oriented center	17.2% (15)	
Other	13.8% (12)	
3.5 Has your organization or jurisdiction published and disseminated tsunami evacuation route maps that direct residents or visitors to tsunami safe areas?		
	N = 86	N = 0
Yes	64.0% (55)	
No	36.0% (31)	
3.6 Do schools within your jurisdiction's tsunami inundation/hazard zones conduct tsunami evacuation drills?		
	N = 86	N = 0

Survey Items and Response Choices	Provides Tsunami Education	Does Not Provide Tsunami Education
Yes	41.9% (36)	
No	58.1% (50)	
3.7 In your opinion, what is the one most significant barrier to achieving adequate tsunami awareness and preparedness in your organization or jurisdiction?		
	N = 85	N = 0
Individual or community apathy	20.0% (17)	
Insufficient resources	25.9% (22)	
Infrequency of damaging tsunamis	22.4% (19)	
Unavailability of high quality education materials	0.0% (0)	
Low visibility of the tsunami hazard	7.1% (6)	
Have not encountered any significant barriers	10.6% (9)	
Other	14.1% (12)	
PART 4. RESPONSE PLAN ITEMS		
4.1 Has your organization developed an emergency response plan that addresses tsunamis?		
	N = 86	N = 19
Yes, have a completed plan that is updated periodically	69.8% (60)	21.1% (4)
Yes, have a completed plan but it has not been updated	7.0% (6)	15.8% (3)
Have initiated planning, but plan is not yet complete (<i>skip to 4.3</i>)	14.0% (12)	26.3% (5)
Have not begun to plan but intend to do so (<i>skip to 4.3</i>)	5.8% (5)	31.6% (6)
Have no response plan for tsunamis and do not intend to develop one (<i>skip to 5.1</i>)	3.5% (3)	5.3% (1)
4.2 When was your plan finalized?		
	N = 66	N = 7
Prior to 1991	0.0% (0)	0.0% (0)
1991 to 2000	10.6% (7)	0.0% (0)
2001 to 2004	13.6% (9)	14.3% (1)
After 2004	75.8% (50)	85.7% (6)
4.3 When was your plan last updated? (<i>All responses skip to 4.5</i>)		
	N = 66	N = 7
Prior to 1991	0.0% (0)	0.0% (0)
1991 to 2000	0.0% (0)	0.0% (0)
2001 to 2004	0.0% (0)	0.0% (0)
After 2004	90.9% (60)	57.1% (4)
Has not been updated	9.1% (6)	42.9% (3)
4.4 When do you anticipate completion and approval of the plan?		
	N = 17	N = 11
Within the next 6 months	17.6% (3)	9.1% (1)
6 months to 1 year	41.2% (7)	0.0% (0)
More than a year	17.6% (3)	9.1% (1)
Uncertain when we will have a finalized and approved plan	23.5% (4)	81.8% (9)
4.5 The tsunami response plan was or will be developed by:		
	N = 83	N = 17
Emergency planners within my organization	41.0% (34)	41.2% (7)
Private consultants outside my organization	1.2% (1)	5.9% (1)
Some combination of internal and outside personnel	53.0% (44)	47.1% (8)
Other	4.8% (4)	5.9% (1)
4.6 Based upon what type of information from the Pacific Tsunami Warning Center or the West Coast and Alaska Tsunami Warning Center does or will your plan be activated? (Please select all that apply)		
	N = 81	N = 17
Warning only	16.0% (13)	47.2% (8)
Advisory only	74% (6)	0.0% (0)
Watch only	11.1% (9)	5.9% (1)

Survey Items and Response Choices	Provides Tsunami Education	Does Not Provide Tsunami Education
Warning and Advisory	11.1% (9)	5.9% (1)
Warning and Watch	1.2% (1)	5.9% (1)
Advisory and Watch	1.2% (1)	0.0% (0)
Warning, Advisory, and Watch	48.1% (39)	35.3% (6)
Other criteria	3.7% (3)	0.0% (0)
4.7 Has (or will) your organization use(d) tsunami inundation maps in your tsunami planning?		
	N = 83	N = 18
Yes (<i>skip to 4.9</i>)	86.7% (72)	61.1% (11)
No	6.0% (5)	16.7% (3)
Don't know (<i>skip to 4.10</i>)	7.2% (6)	22.2% (4)
4.8 Why is your organization not using tsunami inundation maps? (Please select all that apply) (All responses skip to 4.10)		
	N = 5	N = 3
Not anticipating inundation in populated areas	20.0% (1)	33.3% (1)
Maps not currently available for area in which my organization or jurisdiction is located	80.0% (4)	0.0% (0)
Maps are not needed for planning purposes	20.0% (1)	0.0% (0)
In the process of developing tsunami inundation maps	20.0% (1)	66.7% (2)
Using evacuation maps developed without tsunami inundation maps	40.0% (2)	0.0% (0)
4.9 What is, or will be, the source of those maps? (Please select all that apply)		
	N = 72	N = 10
Pacific Marine Environmental Laboratory (PMEL-NOAA)	15.3% (11)	10.0% (1)
A state agency (e.g., state office of emergency management, state geological survey, etc.)	73.6% (53)	50.0% (5)
University-based research center or university faculty	40.3% (29)	30.0% (3)
Private consultant or non-university based research center	5.6% (4)	10.0% (1)
Other	16.7% (12)	10.0% (1)
Don't know	4.2% (3)	20.0% (2)
4.10 Please indicate if your plan addresses (or will address) the following elements: (Please select all that apply)		
	N = 81	N = 17
A plan activation trigger (e.g., notification from the Pacific or West Coast and Alaska Tsunami Warning Center of a Warning, Advisory or Watch for your area)	87.7% (71)	88.2% (15)
24/7 warning point procedures to receive and disseminate tsunami alerts	80.2% (65)	58.8% (10)
Emergency Operation Center Activation (with staffing levels)	85.2% (69)	82.4% (14)
Roles and responsibilities for multiple organizational personnel	81.5% (66)	88.2% (15)
Roles and responsibilities for local volunteer organizations active in disasters	54.3% (44)	64.7% (11)
Provisions for coordination with other levels of government and private sector entities	71.6% (58)	76.5% (13)
Clearly identified evacuation routes and assembly areas for evacuees	77.8% (63)	82.4% (14)
Provisions for evacuation of special populations (e.g., persons with disabilities, non-English speaking persons, visitors, etc.)	53.1% (43)	47.1% (8)
Vertical evacuation procedures for communities with no high ground	25.9% (21)	23.5% (4)
Activation of sirens and/or signaling devices	65.4% (53)	23.5% (4)
Shelter and mass care for evacuees	59.3% (48)	52.9% (9)
Methods of providing emergency period instructions to residents and visitors	66.7% (54)	52.9% (9)
Provisions for notification and emergency period instructions for commercial and recreational boating communities	32.1% (26)	35.3% (6)
Search and rescue and the timing of intervention	50.6% (41)	35.3% (6)
Provisions for damage assessment after the tsunami danger has passed	59.3% (48)	29.4% (5)
Criteria and procedures for issuing an "all clear" after a destructive tsunami	61.7% (50)	58.8% (10)
Procedures for "standing down" after initiating response for a non-destructive	66.7% (54)	52.9% (9)

Survey Items and Response Choices	Provides Tsunami Education	Does Not Provide Tsunami Education
tsunami		
Provisions for periodic drills and exercises	50.6% (41)	35.3% (6)
4.11 From what tsunami warning center does your organization or jurisdiction receive tsunami information?		
	N = 79	N = 13
Pacific Tsunami Warning Center in Eva Beach, Hawaii	11.4% (9)	7.7% (1)
West Coast and Alaska Tsunami Warning Center, Palmer, Alaska	75.9% (60)	92.3% (12)
Other source	12.7% (10)	0.0% (0)
4.12 How does your organization or jurisdiction receive tsunami messages from the appropriate Tsunami Warning Center? (Please select all that apply)		
	N = 80	N = 16
NOAA Weather Radio	71.3% (57)	62.5% (10)
Emergency Manager's Weather Information Network	27.5% (22)	25.0% (4)
State telecomm systems	57.5% (46)	31.3% (5)
Phone call down tree from another agency	42.5% (34)	43.8% (7)
National Warning System (NAWAS – national or state-side)	61.3% (49)	37.5% (6)
Direct link to Local Weather Forecast Office	33.8% (27)	37.5% (6)
NOAA Weather Wire	22.5% (18)	12.5% (2)
NOAA Port	7.5% (6)	0.0% (0)
Aeronautical Fixed Telecommunication Network (AFTN)	1.3% (1)	0.0% (0)
US Coast Guard Radio	10.0% (8)	12.5% (2)
Directly from Tsunami Warning Center (TWC) via monitored email, FAX, or text messaging	55.0% (44)	12.5% (2)
Other	11.3% (9)	6.3% (1)
PART 5. EXERCISES AND TRAINING ITEMS		
5.1 Does your organization or jurisdiction conduct exercises to test your tsunami plan?		
	N = 83	N = 17
Yes	51.8% (43)	5.9% (1)
No (<i>skip to 5.7</i>)	48.2% (40)	94.1% (16)
5.2 Do these exercises test: (Please select all that apply)		
	N = 43	N = 1
Response plan in general	83.7% (36)	100.0% (1)
Ability to evacuate part or all of your organization or community in tsunami inundation zones	51.2% (22)	0.0% (0)
Siren function	58.1% (25)	0.0% (0)
Emergency Alert System ability to deliver a warning	67.4% (29)	0.0% (0)
Other	9.3% (4)	0.0% (0)
5.3 Have these response exercises mainly tested your ability to: (Please select all that apply)		
	N = 43	N = 1
Respond to a warning issued by the Pacific or West Coast and Alaska Tsunami Warning Center	93.0% (40)	100.0% (1)
Respond to an actual tsunami impact	60.5% (26)	0.0% (0)
Recover from a damaging tsunami impact	20.9% (9)	0.0% (0)
Other	4.7% (2)	0.0% (0)
5.4 Have your response exercises been: (Please select all types of exercises done)		
	N = 42	N = 1
Tabletop exercises (e.g., discussion exercises, low stress to clarify roles and responsibilities)	90.5% (38)	100.0% (1)
Functional exercises (e.g., performance exercises, sequence of messages, evaluate plans and Standard Operating Procedures (SOPs))	73.8% (31)	0.0% (0)
Full scale exercises (e.g., field event with Emergency Operations Center (EOC) activation, deployment, comprehensive)	42.9% (18)	0.0% (0)

Survey Items and Response Choices	Provides Tsunami Education	Does Not Provide Tsunami Education
5.5 Who has facilitated the exercises held? (Please select all that apply)	N = 42	N = 1
Internal emergency management personnel	95.2% (40)	0.0% (0)
External emergency management personnel (e.g., state or federal partners)	57.1% (24)	0.0% (0)
Outside consultants	21.4% (9)	100.0% (1)
Other	7.1% (3)	0.0% (0)
5.6 As a result of conducting these exercises, have any of the following occurred? (Please select all that apply)	N = 42	N = 0
Plans have been updated or modified	83.3% (35)	
Staff has become more familiar with roles	95.2% (40)	
Equipment has been tested	61.9% (26)	
New procedures have been implemented	57.1% (24)	
Other	2.4% (1)	
5.7 Has tsunami planning staff within your organization received training in tsunami planning or in issues related to tsunami?	N = 82	N = 17
Yes	74.4% (61)	23.5% (4)
No (<i>skip to 6.1</i>)	25.6% (21)	76.5 (13)
5.8 Has this training included: (Please select all that apply)	N = 61	N = 4
Tsunami science (e.g., seminar on how tsunamis occur, regional hazards, history of tsunami events, etc.)	90.2% (55)	75.0% (3)
Social science contributions (e.g., information on how to make warnings more effective)	54.1% (33)	75.0% (3)
Tsunami modeling or mapping	73.8% (45)	100.0% (4)
Planning considerations specific to tsunamis	82.0% (50)	75.0% (3)
Tsunami warning protocol	80.3% (49)	75.0% (3)
Other	4.9% (3)	0.0% (0)
PART 6. TSUNAMI HAZARD MITIGATION ITEMS		
6.1 Has your organization or jurisdiction developed a hazard mitigation plan that addresses tsunamis?	N = 81	N = 17
Yes, have a completed hazard mitigation plan that addresses tsunamis	60.5% (49)	23.5% (4)
Have initiated planning, but plan is not yet complete	17.3% (14)	11.8% (2)
Have not begun to plan, but intend to do so	13.6% (11)	29.4% (5)
Have no hazard mitigation plan for tsunamis and do not plan to develop one	8.6% (7)	35.3% (6)
6.2 Does your organization or jurisdiction have critical facilities that are in the tsunami inundation zone?	N = 82	N = 17
Yes	68.3% (56)	41.2% (7)
No (<i>skip to 6.7</i>)	25.6% (21)	29.4% (5)
Don't know (<i>skip to 6.7</i>)	6.1% (5)	29.4% (5)
6.3 Please identify the type of critical facilities located in the tsunami inundation zone: (Please select all that apply)	N = 56	N = 6
Fire station(s)	62.5% (35)	100.0% (6)
Police station(s)	53.6% (30)	50.0% (3)
Hospital(s) or clinic(s)	19.6% (11)	16.7% (1)
School(s)	58.9% (33)	66.7% (4)
Emergency Operations Center(s)	19.6% (11)	16.7% (1)
Facility housing a lifeline or utility	60.7% (34)	50.0% (3)
Other	35.7% (20)	33.3% (2)

Survey Items and Response Choices	Provides Tsunami Education	Does Not Provide Tsunami Education
6.4 Do you have a response plan for critical facilities in the tsunami inundation zone?	N = 56	N = 7
Yes	57.1% (32)	28.6% (2)
No	42.9% (24)	71.4% (5)
6.5 Has your organization or jurisdiction abandoned, modified, or relocated an existing critical facility because it was in a tsunami hazard zone?	N = 56	N = 7
Yes	10.7% (6)	0.0% (0)
No (<i>skip to 6.7</i>)	76.8% (43)	100.0% (7)
Don't know (<i>skip to 6.7</i>)	12.5% (7)	0.0% (0)
6.6 Was this critical facility a: (Please select all that apply)	N = 6	N = 0
Fire station(s)	66.7% (4)	
Police station(s)	16.7% (1)	
Hospital(s) or clinic(s)	16.7% (1)	
School(s)	33.3% (2)	
Emergency Operations Center(s)	50.0% (3)	
Facility housing a lifeline or utility	16.7% (1)	
Other	33.3% (2)	
6.7 Has your organization or jurisdiction considered the tsunami hazard or mapped inundation zones in other land-use planning decisions?	N = 82	N = 17
Yes	40.2% (33)	23.5% (4)
No (<i>skip to 6.9</i>)	22.0% (18)	35.3% (6)
Don't know (<i>skip to 6.9</i>)	37.8% (31)	41.2% (7)
6.9 Are there areas in which your organization has facilities or your jurisdiction has residents that cannot be rapidly evacuated in a tsunami event?	N = 81	N = 17
Yes	45.7% (37)	29.4% (5)
No (<i>skip to 7.1</i>)	43.2% (35)	35.3% (6)
Don't know (<i>skip to 7.1</i>)	11.1% (9)	35.3% (6)
6.10 Regarding these facilities operated by your organization or residents within your jurisdiction that cannot be evacuated in a timely manner, have you: (Please select all that apply)	N = 37	N = 4
Identified safe areas within the facility for them to remain in place during the tsunami (e.g., higher floors of a building)	54.1% (20)	0.0% (0)
Modified the facility to withstand tsunamis	0.0% (0)	0.0% (0)
Built special structures that serve as evacuation sites for those who can't reach higher ground	0.0% (0)	0.0% (0)
Have not done anything to address the issue of facilities that cannot be evacuated in a timely manner	51.4% (19)	100.0% (4)
PART 7. SIGNALING DEVICES ITEMS		
7.1 Does your organization or jurisdiction have tsunami signaling devices or sirens or used existing signaling devices for tsunami warnings?	N = 81	N = 17
Yes (<i>skip to 7.3</i>)	50.6% (41)	11.8% (2)
No	46.9% (38)	76.5% (13)
Don't know (<i>skip to 7.10</i>)	2.5% (2)	11.8% (2)
7.2 Why has your organization or jurisdiction not deployed tsunami signaling devices or sirens or used existing signaling devices for tsunami warnings? (Please select all that apply) (<i>All responses skip to 7.10</i>)	N = 38	N = 12
Have ordered signaling devices but have not yet deployed them	5.3% (2)	0.0% (0)

Survey Items and Response Choices	Provides Tsunami Education	Does Not Provide Tsunami Education
Signaling devices are too expensive	34.2% (13)	16.7% (2)
Signaling devices will not be purchased and deployed due to community opposition	10.5% (4)	0.0% (0)
Signaling devices are opposed by environmental or coastal conservancy groups	5.3% (2)	0.0% (0)
Other	68.4% (26)	75.0% (9)
7.3 How many signaling devices have been deployed within the boundaries of your organization or jurisdiction?		
	N = 41	N = 2
1-3	34.1% (14)	100.0% (2)
4-6	17.1% (7)	0.0% (0)
7-10	14.6% (6)	0.0% (0)
11-20	14.6% (6)	0.0% (0)
More than 20	19.5% (8)	0.0% (0)
7.4 Do your signaling devices have both voice and audible signal capabilities?		
	N = 41	N = 2
Yes	65.9% (27)	0.0% (0)
No	34.1% (14)	100.0% (2)
7.5 Are the tones used for tsunami warning different than tones used for other hazards?		
	N = 41	N = 2
Yes	53.7% (22)	100.0% (2)
No	46.3% (19)	0.0% (0)
7.6 How often are signaling devices tested by your organization or jurisdiction?		
	N = 41	N = 2
Weekly	24.4% (10)	50.0% (1)
Monthly	51.2% (21)	0.0% (0)
Bi-Monthly	0.0% (0)	0.0% (0)
Quarterly	9.8% (4)	0.0% (0)
Annually	7.3% (3)	0.0% (0)
Tested but not on a scheduled basis	4.9% (2)	50.0% (1)
Never tested	2.4% (1)	0.0% (0)
7.7 Is there a specific day of the week and time of day signaling devices are tested in your organization or jurisdiction?		
	N = 41	N = 2
Yes	73.2% (30)	50.0% (1)
No (<i>skip to 7.8</i>)	26.8% (11)	50.0% (1)
7.7a Day of testing:		
	N = 27	N = 1
Sunday	0.0% (0)	0.0% (0)
Monday	40.7% (11)	100.0% (1)
Tuesday	3.7% (1)	0.0% (0)
Wednesday	44.4 (12)	0.0% (0)
Thursday	0.0% (0)	0.0% (0)
Friday	3.7% (1)	0.0% (0)
Saturday	7.4% (2)	0.0% (0)
7.7b Time of testing:		
	N = 27	N = 1
Morning (9 AM-10:59 AM)	18.5% (5)	0.0% (0)
Midday (11 AM-12:59 PM)	51.9% (14)	100.0% (1)
Early Afternoon (1 PM-2:59 PM)	18.5% (5)	0.0% (0)
Late Afternoon (3 PM-5 PM)	11.1% (3)	0.0% (0)
7.8 Approximately what percentage of your tsunami vulnerable population is covered by signaling devices?		
	N = 41	N = 2

Survey Items and Response Choices	Provides Tsunami Education	Does Not Provide Tsunami Education
10% or less	9.8% (4)	0.0% (0)
11-20%	4.9% (2)	0.0% (0)
21-30%	4.9% (2)	0.0% (0)
31-40%	17.1% (7)	0.0% (0)
41-50%	7.3% (3)	0.0% (0)
51-60%	7.3% (3)	0.0% (0)
61-70%	2.4% (1)	0.0% (0)
71-80%	9.8% (4)	0.0% (0)
81-90%	12.2% (5)	0.0% (0)
91-99%	7.3% (3)	0.0% (0)
100% (skip to 7.10)	17.1% (7)	100.0% (2)
7.9 Since you have deployed signaling devices but the coverage is less than 100.0% of the vulnerable population, do you plan to deploy additional devices?		
	N = 34	N = 0
Yes (skip to 7.11)	55.9% (19)	
No (skip to 7.12)	44.1% (15)	
7.10 Do you plan to purchase or have already purchased signaling devices that have not yet been deployed?		
	N = 47	N = 17
Yes	12.8% (6)	11.8% (2)
No (skip to 7.12)	78.7% (37)	64.7% (11)
Don't know (skip to 7.12)	8.5% (4)	23.5% (4)
7.11 How long will it be before these signaling devices are deployed?		
	N = 25	N = 2
Within the next 6 months	8.0% (2)	0.0% (0)
6 months to one year	20.0% (5)	0.0% (0)
Over one year	20.0% (5)	0.0% (0)
Uncertain when they will be deployed	52.0% (13)	100.0% (2)
7.12 What other methods besides sirens are used or would be used to alert the public of a tsunami hazard? (Please select all that apply)		
	N = 81	N = 16
NOAA Weather Radios	79.0% (64)	43.8% (7)
Community subsidized NOAA Weather Radio purchase system	16.0% (13)	6.3% (1)
Television audio/video overrides	76.5% (62)	56.3% (9)
Automatic phone dial-down systems (e.g., Reverse 911)	70.4% (57)	68.8% (11)
Loudspeaker announcements on emergency vehicles (and aircraft, if applicable)	77.8% (63)	56.3% (9)
Community-wide phone tree	13.6% (11)	18.8% (3)
SMS Text Messaging	35.8% (29)	25.0% (4)
Emergency Management Radio	23.5% (19)	25.0% (4)
Marine Band Radio	29.6% (24)	18.8% (3)
No other methods are or would be used	1.2% (1)	0.0% (0)
Other	19.8% (16)	12.5% (2)
PART 8. TSUNAMI HAZARD AND EVACUATION SIGNAGE ITEMS		
8.1 Has your organization or jurisdiction deployed tsunami signs?		
	N = 81	N = 17
Yes	58.0% (47)	0.0% (0)
No (skip to 8.8)	42.0% (34)	100.0% (17)
8.2a Has your organization or jurisdiction deployed tsunami hazard zone signs?		
	N = 46	N = 0
Yes	80.4% (37)	
No	19.6% (9)	
8.2b Has your organization or jurisdiction deployed entering and leaving tsunami		
	N = 47	N = 0

Survey Items and Response Choices	Provides Tsunami Education	Does Not Provide Tsunami Education
hazard zone signs?		
Yes	46.8% (22)	
No	53.2% (25)	
8.2c Has your organization or jurisdiction deployed tsunami evacuation route signs?	N = 47	N = 0
Yes	78.7% (37)	
No	21.3% (10)	
8.2d Has your organization or jurisdiction deployed tsunami evacuation site signs?	N = 47	N = 0
Yes	51.1% (24)	
No	48.9% (23)	
8.2e Has your organization or jurisdiction deployed "In Case of Earthquake Go to High Ground or Inland" signs?	N = 46	N = 0
Yes	60.9% (28)	
No	39.1% (18)	
8.3 Has your jurisdiction covered all tsunami vulnerable areas with appropriate signage?	N = 47	N = 0
Yes (<i>skip to 8.5</i>)	66.0% (31)	
No	34.0% (16)	
8.4 Why has your jurisdiction not deployed signs to all vulnerable areas? (Please select all that apply)	N = 16	N = 0
Inadequate funding to complete deployment	62.5% (10)	
Unsure how to order/procure these signs	6.3% (1)	
Theft or vandalism	18.8% (3)	
Federal, state, or local regulations	0.0% (0)	
Opposition by individual residents	12.5% (2)	
Opposition by organized entities (e.g., business or community group)	18.8% (3)	
Opposition by state departments of transportation	0.0% (0)	
Other	25.0% (4)	
8.5 Would you say that theft or destruction of tsunami signs in your jurisdiction is a:	N = 45	N = 0
Not at all a problem	35.6% (16)	
Minor problem	37.8% (17)	
Moderate problem	17.8% (8)	
Major problem	8.9% (4)	
8.6 How does your organization or jurisdiction decide where to put up signs? (Please select all that apply)	N = 47	N = 0
Tsunami inundation maps	76.6% (36)	
Tsunami evacuation maps	57.4% (27)	
Public vs. private property	29.8% (14)	
Environmental or aesthetic factors	10.6% (5)	
Federal, state or local government regulation	34.0% (16)	
Other	12.8% (6)	
8.7 Does your organization or jurisdiction use any of the following methods to identify tsunami hazard routing? (Please select all that apply) (<i>All responses skip to 9.1</i>)	N = 47	N = 0
Non-standard signage	8.5% (4)	
Routing messages painted on roads	4.3% (2)	
Routing information painted on sidewalks	0.0% (0)	

Survey Items and Response Choices	Provides Tsunami Education	Does Not Provide Tsunami Education
No methods used to identify tsunami hazard routing	53.2% (25)	
Other	19.1% (9)	
8.8 Why has your organization or jurisdiction not deployed tsunami signs? (Please select all that apply)		
	N = 34	N = 16
Lack of funding for signage	29.4% (10)	18.8% (3)
Local opposition to sign deployment	8.8% (3)	0.0% (0)
Concerns about theft or vandalism	8.8% (3)	0.0% (0)
Do not consider them needed	26.5% (9)	37.5% (6)
Potential confusion with higher risk hazards (e.g., hurricanes)	20.6% (7)	0.0% (0)
Federal, state or local regulations	8.8% (3)	6.3% (1)
Other	41.2% (14)	37.5% (6)
PART 9. TSUNAMIREADY ITEMS		
9.1 Is your organization or jurisdiction recognized by NOAA's National Weather Service as "TsunamiReady"?		
	N = 81	N = 17
Yes	34.6% (28)	0.0% (0)
No (<i>skip to 9.6</i>)	65.4% (53)	100.0% (17)
9.2 When did you receive this designation?		
	N = 28	N = 0
Within the last 6 months (<i>skip to 9.4</i>)	7.1% (2)	
More than 6 months but less than one year (<i>skip to 9.4</i>)	3.6% (1)	
One year to three years (<i>skip to 9.4</i>)	32.1% (9)	
More than 3 years ago (<i>skip to 9.3</i>)	57.1% (16)	
9.3 How many times has your organization or jurisdiction renewed your TsunamiReady recognition?		
	N = 14	N = 0
Once	57.1% (8)	
Twice	28.6% (4)	
Three times	7.1% (1)	
More than three times	7.1% (1)	
9.4 In your efforts to become TsunamiReady, did you encounter any difficulties or challenges?		
	N = 28	N = 0
Yes	28.6% (8)	
No (<i>skip to 9.9</i>)	71.4% (20)	
9.5 What was the nature of these barriers? (Please select all that apply) (<i>All responses skip to 9.9</i>)		
	N = 8	N = 0
Convincing decision makers that there was a tsunami hazard that required planning	62.5% (5)	
Resource shortfalls that made planning difficult (e.g., personnel, funding, etc.)	87.5% (7)	
Meeting specific criteria required by NOAA for TsunamiReady status	25.0% (2)	
Other barriers	25.0% (2)	
9.6 Is your organization or jurisdiction currently working toward TsunamiReady status?		
	N = 53	N = 17
Yes (<i>skip to 9.7</i>)	43.4% (23)	35.3% (6)
No	56.6% (30)	64.7% (11)
9.7 When do you expect to complete all requirements and be recognized as TsunamiReady? (<i>All responses skip to 9.9</i>)		
	N = 23	N = 6
Within the next 6 months	43.5% (10)	0.0% (0)
More than 6 months but less than one year	30.4% (7)	16.7% (1)

Survey Items and Response Choices	Provides Tsunami Education	Does Not Provide Tsunami Education
One year to three years	4.3% (1)	33.3% (2)
More than 3 years	0.0% (0)	0.0% (0)
Not sure when we will be finished	21.7% (5)	50.0% (3)
9.8 What is the <u>main</u> reason your organization or jurisdiction is not working toward TsunamiReady status?		
	N = 30	N = 10
Unfamiliar with the TsunamiReady Program	23.3% (7)	30.0% (3)
Lack of resources for planning	13.3% (4)	10.0% (1)
Lack of support from decision makers to plan for tsunamis	0.0% (0)	0.0% (0)
Low probability that our organization/jurisdiction will be hit by a tsunami	40.0% (12)	60.0% (6)
Have a tsunami plan but not interested in TsunamiReady Program	3.3% (1)	0.0% (0)
Other	20.0% (6)	0.0% (0)

Appendix D. Survey Results by Whether or Not Organization Conducts Exercises to Test Their Tsunami Plan

Respondents were asked, “Does your organization or jurisdiction conduct exercises to test your tsunami plan? Of the 100 respondents that answered, 44 percent chose “yes” and the remaining 56 percent chose “no” (Table 5.1). The table below provides a comparison of the survey responses for these two groups of respondents.

Survey Items and Response Choices	Conducts Exercises	Does not Conduct Exercises
PART 2. ORGANIZATIONAL DEMOGRAPHICS ITEMS		
2.4 Please select the box below that most closely describes your organization:	N = 43	N = 52
Incorporated Town, Village or Township Government	9.3% (4)	7.7% (4)
Unincorporated Community Government	2.3% (1)	1.9% (1)
Incorporated City or Borough Government	25.6% (11)	46.2% (24)
Tribal Government	7.0% (3)	0.0% (0)
County Government	37.2% (16)	17.3% (9)
Special District	0.0% (0)	5.8% (3)
State Agency	9.3% (4)	15.4% (8)
Federal Agency	2.3% (1)	0.0% (0)
Other	7.0% (3)	5.8% (3)
2.5 Which category below best characterizes the total population of the town, village, city, or county in which your organization is located?	N = 44	N = 52
Under 1,000	4.5% (2)	7.7% (4)
1,000 to 5,000	9.1% (4)	9.6% (5)
5,001 to 10,000	11.4% (5)	7.7% (4)
10,001 to 50,000	20.5% (9)	19.2% (10)
50,001 to 100,000	20.5% (9)	15.4% (8)
100,001 to 500,000	25.0% (11)	17.3% (9)
500,001 to one million	0.0% (0)	11.5% (6)
Over one million but less than 5 million	4.5% (2)	5.8% (3)
5 million or more	2.3% (1)	1.9% (1)
Not applicable (e.g., organization is a harbor or special district)	2.3% (1)	3.8% (2)
2.7 Please identify the organizational representative who is primarily responsible for tsunami planning within your organization. Is this person:	N = 44	N = 53
Emergency Services Coordinator	38.6% (17)	28.3% (15)
Emergency Services Manager	36.4% (16)	34.0% (18)
Police Officer/Sheriff's Deputy	4.5% (2)	7.5% (4)
Fireman/ Fire Services	0.0% (0)	3.8% (2)
Administrator (e.g., CAO, Special District Administrator)	2.3% (1)	3.8% (2)
Elected Official (e.g., mayor, city council, county supervisor)	2.3% (1)	1.9% (1)
Legislative Officer (e.g., Analyst, Aide, etc.)	0.0% (0)	0.0% (0)
Other	15.9% (7)	20.8% (11)
No one is assigned to tsunami planning	0.0% (0)	0.0% (0)
2.8 Whether it is you or someone else, is the person responsible for tsunami planning a:	N = 44	N = 56
Full-time permanent employee	84.1% (37)	89.3% (50)
Part-time employee	11.4% (5)	3.6% (2)
Contract employee	0.0% (0)	0.0% (0)
Other	2.3% (1)	1.8% (1)
No one is assigned to tsunami planning	2.3% (1)	5.4% (3)

Survey Items and Response Choices	Conducts Exercises	Does not Conduct Exercises
2.9 Whether it is you or someone else, approximately what percentage of time does the person responsible for tsunami planning spend on tsunami planning issues and projects?	N = 44	N = 55
90-100%	0.0% (0)	0.0% (0)
75-89%	0.0% (0)	0.0% (0)
50-74%	0.0% (0)	0.0% (0)
25-49%	11.4% (5)	5.5% (3)
10-24%	45.5% (20)	9.1% (5)
Less than 10%	40.9% (18)	74.5% (41)
No one is assigned to tsunami planning	2.3% (1)	10.9% (6)
PART 3. PUBLIC EDUCATION ITEMS		
3.1 Does your organization or jurisdiction provide tsunami information intended to raise tsunami awareness and promote preparedness?	N = 44	N = 56
Yes	97.7% (43)	71.4% (40)
No (<i>skip to 4.1</i>)	2.3% (1)	28.6% (16)
3.2 What target audiences are included in your provision of tsunami education? (Please select all that apply)	N = 43	N = 40
Residents of the community (in general)	97.7% (42)	85.0% (34)
Visitors to the community (e.g., beach visitors, tourists)	86.0% (37)	50.0% (20)
Members of your organization or agency	93.0% (40)	72.5% (29)
Schools (students, teachers, administrators)	81.4% (35)	47.5% (19)
Speakers of other languages	30.2% (13)	17.5% (7)
Seniors and/or persons with disabilities	74.4% (32)	30.0% (12)
Other	16.3% (7)	10.0% (4)
3.3 What methods of disseminating tsunami public information are employed by your organization or jurisdiction? (Please select all that apply)	N = 43	N = 40
Mailings	27.9% (12)	27.5% (11)
Newspaper inserts	27.9% (12)	5.0% (2)
Public meetings, workshops, or seminars	83.7% (36)	65.0% (26)
Literature tables/displays in public buildings	90.7% (39)	70.0% (28)
Published in telephone books	11.6% (5)	5.0% (2)
Beach kiosks or in park visitor centers	30.2% (13)	12.5% (5)
Signs posted in tsunami hazard zones	74.4% (32)	42.5% (17)
Use of schools or school systems	46.5% (20)	17.5% (7)
Other	25.6% (11)	22.5% (9)
3.4 What are the sources of tsunami public education materials disseminated by your organization or jurisdiction? (Please select all that apply)	N = 43	N = 40
State emergency management agency	81.4% (35)	67.5% (27)
Local emergency management agency	74.4% (32)	60.0% (24)
Federal Emergency Management Agency (FEMA)	62.8% (27)	45.0% (18)
Red Cross or other non-governmental organizations active in disaster relief	34.9% (15)	20.0% (8)
National Weather Service or the National Oceanic and Atmospheric Administration (NOAA)	76.7% (33)	72.5% (29)
University or hazard education oriented center	25.6% (11)	10.0% (4)
Other	16.3% (7)	12.5% (5)
3.5 Has your organization or jurisdiction published and disseminated tsunami evacuation route maps that direct residents or visitors to tsunami safe areas?	N = 43	N = 40

Survey Items and Response Choices	Conducts Exercises	Does not Conduct Exercises
Yes	83.7% (36)	42.5% (17)
No	16.3% (7)	57.5% (23)
3.6 Do schools within your jurisdiction's tsunami inundation/hazard zones conduct tsunami evacuation drills?		
	N = 43	N = 40
Yes	62.8% (27)	20.0% (8)
No	37.2% (16)	80.0% (32)
3.7 In your opinion, what is the one most significant barrier to achieving adequate tsunami awareness and preparedness in your organization or jurisdiction?		
	N = 43	N = 39
Individual or community apathy	25.6% (11)	15.4% (6)
Insufficient resources	27.9% (12)	23.1% (9)
Infrequency of damaging tsunamis	20.9% (9)	25.6% (10)
Unavailability of high quality education materials	0.0% (0)	0.0% (0)
Low visibility of the tsunami hazard	4.7% (2)	7.7% (3)
Have not encountered any significant barriers	9.3% (4)	10.3% (4)
Other	11.6% (5)	17.9% (7)
PART 4. RESPONSE PLAN ITEMS		
4.1 Has your organization developed an emergency response plan that addresses tsunamis?		
	N = 44	N = 56
Yes, have a completed plan that is updated periodically	86.4% (38)	41.1% (23)
Yes, have a completed plan but it has not been updated	9.1% (4)	8.9% (5)
Have initiated planning, but plan is not yet complete (<i>skip to 4.3</i>)	4.5% (2)	23.2% (13)
Have not begun to plan but intend to do so (<i>skip to 4.3</i>)	0.0% (0)	19.6% (11)
Have no response plan for tsunamis and do not intend to develop one (<i>skip to 5.1</i>)	0.0% (0)	7.1% (4)
4.2 When was your plan finalized?		
	N = 42	N = 28
Prior to 1991	0.0% (0)	0.0% (0)
1991 to 2000	14.3% (6)	0.0% (0)
2001 to 2004	19.0% (8)	7.1% (2)
After 2004	66.7% (28)	92.9% (26)
4.3 When was your plan last updated? (<i>All responses skip to 4.5</i>)		
	N = 42	N = 28
Prior to 1991	0.0% (0)	0.0% (0)
1991 to 2000	0.0% (0)	0.0% (0)
2001 to 2004	0.0% (0)	0.0% (0)
After 2004	90.5% (38)	82.1% (23)
Has not been updated	9.5% (4)	17.9% (5)
4.4 When do you anticipate completion and approval of the plan?		
	N = 2	N = 24
Within the next 6 months	0.0% (0)	12.5% (3)
6 months to 1 year	50.0% (1)	25.0% (6)
More than a year	50.0% (1)	12.5% (3)
Uncertain when we will have a finalized and approved plan	0.0% (0)	50.0% (12)
4.5 The tsunami response plan was or will be developed by:		
	N = 44	N = 51
Emergency planners within my organization	40.9% (18)	43.1% (22)
Private consultants outside my organization	2.3% (1)	2.0% (1)
Some combination of internal and outside personnel	50.0% (22)	52.9% (27)
Other	6.8% (3)	2.0% (1)
4.6 Based upon what type of information from the Pacific Tsunami Warning Center or		
	N = 43	N = 50

Survey Items and Response Choices	Conducts Exercises	Does not Conduct Exercises
the West Coast and Alaska Tsunami Warning Center does or will your plan be activated? (Please select all that apply)		
Warning only	7.0% (3)	36.0% (18)
Advisory only	11.6% (5)	2.0% (1)
Watch only	11.6% (5)	8.0% (4)
Warning and advisory	11.6% (5)	10.0% (5)
Warning and watch	2.3% (1)	2.0% (1)
Advisory and watch	0.0% (0)	2.0% (1)
Warning, advisory, and watch	55.8% (24)	34.0% (17)
Other criteria	0.0% (0)	6.0% (3)
4.7 Has (or will) your organization use(d) tsunami inundation maps in your tsunami planning?		
	N = 44	N = 52
Yes (<i>skip to 4.9</i>)	93.2% (41)	76.9% (40)
No	4.5% (2)	9.6% (5)
Don't know (<i>skip to 4.10</i>)	2.3% (1)	13.5% (7)
4.8 Why is your organization not using tsunami inundation maps? (Please select all that apply) (All responses skip to 4.10)		
	N = 2	N = 5
Not anticipating inundation in populated areas	0.0% (0)	40.0% (2)
Maps not currently available for area in which my organization or jurisdiction is located	50.0% (1)	40.0% (2)
Maps are not needed for planning purposes	0.0% (0)	20.0% (1)
In the process of developing tsunami inundation maps	50.0% (1)	40.0% (2)
Using evacuation maps developed without tsunami inundation maps	0.0% (0)	40.0% (2)
4.9 What is, or will be, the source of those maps? (Please select all that apply)		
	N = 41	N = 39
Pacific Marine Environmental Laboratory (PMEL-NOAA)	14.6% (6)	15.4% (6)
A state agency (e.g., state office of emergency management, state geological survey, etc.)	68.3% (28)	74.4% (29)
University-based research center or university faculty	48.8% (20)	30.8% (12)
Private consultant or non-university based research center	4.9% (2)	7.7% (3)
Other	14.6% (6)	17.9% (7)
Don't know	2.4% (1)	7.7% (3)
4.10 Please indicate if your plan addresses (or will address) the following elements: (Please select all that apply)		
	N = 44	N = 52
A plan activation trigger (e.g., notification from the Pacific or West Coast and Alaska Tsunami Warning Center of a Warning, Advisory or Watch for your area)	90.9% (40)	88.5% (46)
24/7 warning point procedures to receive and disseminate tsunami alerts	88.6% (39)	69.2% (36)
Emergency Operation Center Activation (with staffing levels)	90.9% (40)	82.7% (43)
Roles and responsibilities for multiple organizational personnel	86.4% (38)	82.7% (43)
Roles and responsibilities for local volunteer organizations active in disasters	59.1% (26)	55.8% (29)
Provisions for coordination with other levels of government and private sector entities	79.5% (35)	69.2% (36)
Clearly identified evacuation routes and assembly areas for evacuees	79.5% (35)	80.8% (42)
Provisions for evacuation of special populations (e.g., persons with disabilities, non-English speaking persons, visitors, etc.)	56.8% (25)	50.0% (26)
Vertical evacuation procedures for communities with no high ground	36.4% (16)	17.3% (9)
Activation of sirens and/or signaling devices	70.5% (31)	50.0% (26)
Shelter and mass care for evacuees	61.4% (27)	57.7% (30)
Methods of providing emergency period instructions to residents and visitors	70.5% (31)	61.5% (32)
Provisions for notification and emergency period instructions for commercial and	34.1% (15)	32.7% (17)

Survey Items and Response Choices	Conducts Exercises	Does not Conduct Exercises
recreational boating communities		
Search and rescue and the timing of intervention	59.1% (26)	40.4% (21)
Provisions for damage assessment after the tsunami danger has passed	70.5% (31)	42.3% (22)
Criteria and procedures for issuing an "all clear" after a destructive tsunami	75.0% (33)	51.9% (27)
Procedures for "standing down" after initiating response for a non-destructive tsunami	75.0% (33)	57.7% (30)
Provisions for periodic drills and exercises	59.1% (26)	40.4% (21)
4.11 From what tsunami warning center does your organization or jurisdiction receive tsunami information?		
	N = 43	N = 49
Pacific Tsunami Warning Center in Eva Beach, Hawaii	16.3% (7)	6.1% (3)
West Coast and Alaska Tsunami Warning Center, Palmer, Alaska	72.1% (31)	83.7% (41)
Other source	11.6% (5)	10.2% (5)
4.12 How does your organization or jurisdiction receive tsunami messages from the appropriate Tsunami Warning Center? (Please select all that apply)		
	N = 44	N = 52
NOAA Weather Radio	79.5% (35)	61.5% (32)
Emergency Manager's Weather Information Network	27.3% (12)	26.9% (14)
State telecomm systems	61.4% (27)	46.2% (24)
Phone call down tree from another agency	47.7% (21)	38.5% (20)
National Warning System (NAWAS – national or state-side)	68.2% (30)	48.1% (25)
Direct link to Local Weather Forecast Office	40.9% (18)	28.8% (15)
NOAA Weather Wire	27.3% (12)	15.4% (8)
NOAA Port	9.1% (4)	3.8% (2)
Aeronautical Fixed Telecommunication Network (AFTN)	2.3% (1)	0.0% (0)
US Coast Guard Radio	11.4% (5)	9.6% (5)
Directly from Tsunami Warning Center (TWC) via monitored email, FAX, or text messaging	68.2% (30)	30.8% (16)
Other	9.1% (4)	11.5% (6)
PART 5. EXERCISES AND TRAINING ITEMS		
5.2 Do these exercises test: (Please select all that apply)		
	N = 44	N = 0
Response plan in general	84.1% (37)	
Ability to evacuate part or all of your organization or community in tsunami inundation zones	50.0% (22)	
Siren function	56.8% (25)	
Emergency Alert System ability to deliver a warning	65.9% (29)	
Other	9.1% (4)	
5.3 Have these response exercises mainly tested your ability to: (Please select all that apply)		
	N = 44	N = 0
Respond to a warning issued by the Pacific or West Coast and Alaska Tsunami Warning Center	93.2% (41)	
Respond to an actual tsunami impact	59.1% (26)	
Recover from a damaging tsunami impact	20.5% (9)	
Other	4.5% (2)	
5.4 Have your response exercises been: (Please select all types of exercises done)		
	N = 43	N = 0
Tabletop exercises (e.g., discussion exercises, low stress to clarify roles and responsibilities)	90.7% (39)	
Functional exercises (e.g., performance exercises, sequence of messages, evaluate plans and Standard Operating Procedures (SOPs))	72.1% (31)	
Full scale exercises (e.g., field event with Emergency Operations Center (EOC))	41.9% (18)	

Survey Items and Response Choices	Conducts Exercises	Does not Conduct Exercises
activation, deployment, comprehensive)		
5.5 Who has facilitated the exercises held? (Please select all that apply)	N = 43	N = 0
Internal emergency management personnel	93.0% (40)	
External emergency management personnel (e.g., state or federal partners)	55.8% (24)	
Outside consultants	23.3% (10)	
Other	7.0% (3)	
5.6 As a result of conducting these exercises, have any of the following occurred? (Please select all that apply)	N = 42	N = 0
Plans have been updated or modified	83.3% (35)	
Staff has become more familiar with roles	95.2% (40)	
Equipment has been tested	61.9% (26)	
New procedures have been implemented	57.1% (24)	
Other	2.4% (1)	
5.7 Has tsunami planning staff within your organization received training in tsunami planning or in issues related to tsunami?	N = 43	N = 56
Yes	83.7% (36)	51.8% (29)
No (<i>skip to 6.1</i>)	16.3% (7)	48.2% (27)
5.8 Has this training included: (Please select all that apply)	N = 36	N = 29
Tsunami science (e.g., seminar on how tsunamis occur, regional hazards, history of tsunami events, etc.)	83.3% (30)	96.6% (28)
Social science contributions (e.g., information on how to make warnings more effective)	36.1% (13)	79.3% (23)
Tsunami modeling or mapping	72.2% (26)	79.3% (23)
Planning considerations specific to tsunamis	86.1% (31)	75.9% (22)
Tsunami warning protocol	83.3% (30)	75.9% (22)
Other	8.3% (3)	0.0% (0)
PART 6. TSUNAMI HAZARD MITIGATION ITEMS		
6.1 Has your organization or jurisdiction developed a hazard mitigation plan that addresses tsunamis?	N = 43	N = 55
Yes, have a completed hazard mitigation plan that addresses tsunamis	72.1% (31)	40.0% (22)
Have initiated planning, but plan is not yet complete	9.3% (4)	21.8% (12)
Have not begun to plan, but intend to do so	9.3% (4)	21.8% (12)
Have no hazard mitigation plan for tsunamis and do not plan to develop one	9.3% (4)	16.4% (9)
6.2 Does your organization or jurisdiction have critical facilities that are in the tsunami inundation zone?	N = 43	N = 56
Yes	79.1% (34)	51.8% (29)
No (<i>skip to 6.7</i>)	18.6% (8)	32.1% (18)
Don't know (<i>skip to 6.7</i>)	2.3% (1)	16.1% (9)
6.3 Please identify the type of critical facilities located in the tsunami inundation zone: (Please select all that apply)	N = 34	N = 28
Fire station(s)	67.6% (23)	64.3% (18)
Police station(s)	52.9% (18)	53.6% (15)
Hospital(s) or clinic(s)	20.6% (7)	17.9% (5)
School(s)	73.5% (25)	42.9% (12)
Emergency Operations Center(s)	26.5% (9)	10.7% (3)
Facility housing a lifeline or utility	70.6% (24)	46.4% (13)

Survey Items and Response Choices	Conducts Exercises	Does not Conduct Exercises
Other	38.2% (13)	32.1% (9)
6.4 Do you have a response plan for critical facilities in the tsunami inundation zone?	N = 34	N = 29
Yes	61.8% (21)	44.8% (13)
No	38.2% (13)	55.2% (16)
6.5 Has your organization or jurisdiction abandoned, modified, or relocated an existing critical facility because it was in a tsunami hazard zone?	N = 34	N = 29
Yes	8.8% (3)	10.3% (3)
No (<i>skip to 6.7</i>)	82.4% (28)	75.9% (22)
Don't know (<i>skip to 6.7</i>)	8.8% (3)	13.8% (4)
6.6 Was this critical facility a: (Please select all that apply)	N = 3	N = 3
Fire station(s)	100% (3)	33.3% (1)
Police station(s)	33.3% (1)	0.0% (0)
Hospital(s) or clinic(s)	0.0% (0)	33.3% (1)
School(s)	33.3% (1)	33.3% (1)
Emergency Operations Center(s)	66.7% (2)	33.3% (1)
Facility housing a lifeline or utility	0.0% (0)	33.3% (1)
Other	0.0% (0)	66.7% (2)
6.7 Has your organization or jurisdiction considered the tsunami hazard or mapped inundation zones in other land-use planning decisions?	N = 43	N = 56
Yes	53.5% (23)	25.0% (14)
No (<i>skip to 6.9</i>)	11.6% (5)	33.9% (19)
Don't know (<i>skip to 6.9</i>)	34.9% (15)	41.1% (23)
6.9 Are there areas in which your organization has facilities or your jurisdiction has residents that cannot be rapidly evacuated in a tsunami event?	N = 42	N = 56
Yes	54.8% (23)	33.9% (19)
No (<i>skip to 7.1</i>)	38.1% (16)	44.6% (25)
Don't know (<i>skip to 7.1</i>)	7.1% (3)	21.4% (12)
6.10 Regarding these facilities operated by your organization or residents within your jurisdiction that cannot be evacuated in a timely manner, have you: (Please select all that apply)	N = 23	N = 18
Identified safe areas within the facility for them to remain in place during the tsunami (e.g., higher floors of a building)	47.8% (11)	50.0% (9)
Modified the facility to withstand tsunamis	0.0% (0)	0.0% (0)
Built special structures that serve as evacuation sites for those who can't reach higher ground	0.0% (0)	0.0% (0)
Have not done anything to address the issue of facilities that cannot be evacuated in a timely manner	56.5% (13)	55.6% (10)
PART 7. SIGNALING DEVICES ITEMS		
7.1 Does your organization or jurisdiction have tsunami signaling devices or sirens or used existing signaling devices for tsunami warnings?	N = 42	N = 56
Yes (<i>skip to 7.3</i>)	61.9% (26)	30.4% (17)
No	35.7% (15)	64.3% (36)
Don't know (<i>skip to 7.10</i>)	2.4% (1)	5.4% (3)
7.2 Why has your organization or jurisdiction not deployed tsunami signaling devices or sirens or used existing signaling devices for tsunami warnings? (Please select all	N = 15	N = 35

Survey Items and Response Choices	Conducts Exercises	Does not Conduct Exercises
that apply) (<i>All responses skip to 7.10</i>)		
Have ordered signaling devices but have not yet deployed them	13.3% (2)	0.0% (0)
Signaling devices are too expensive	20.0% (3)	34.3% (12)
Signaling devices will not be purchased and deployed due to community opposition	13.3% (2)	5.7% (2)
Signaling devices are opposed by environmental or coastal conservancy groups	6.7% (1)	2.9% (1)
Other	66.7% (10)	71.4% (25)
7.3 How many signaling devices have been deployed within the boundaries of your organization or jurisdiction?	N = 26	N = 17
1-3	30.8% (8)	47.1% (8)
4-6	15.4% (4)	17.6% (3)
7-10	15.4% (4)	11.8% (2)
11-20	15.4% (4)	11.8% (2)
More than 20	23.1% (6)	11.8% (2)
7.4 Do your signaling devices have both voice and audible signal capabilities?	N = 26	N = 17
Yes	65.4% (17)	58.8% (10)
No	34.6% (9)	41.2% (7)
7.5 Are the tones used for tsunami warning different than tones used for other hazards?	N = 26	N = 17
Yes	53.8% (14)	58.8% (10)
No	46.2% (12)	41.2% (7)
7.6 How often are signaling devices tested by your organization or jurisdiction?	N = 26	N = 17
Weekly	30.8% (8)	17.6% (3)
Monthly	61.5% (16)	29.4% (5)
Bi-Monthly	0.0% (0)	0.0% (0)
Quarterly	3.8% (1)	17.6% (3)
Annually	3.8% (1)	11.8% (2)
Tested but not on a scheduled basis	0.0% (0)	17.6% (3)
Never tested	0.0% (0)	5.9% (1)
7.7 Is there a specific day of the week and time of day signaling devices are tested in your organization or jurisdiction?	N = 26	N = 17
Yes	88.5% (23)	47.1% (8)
No (<i>skip to 7.8</i>)	11.5% (3)	52.9% (9)
7.7a Day of testing:	N = 21	N = 7
Sunday	0.0% (0)	0.0% (0)
Monday	47.6% (10)	28.6% (2)
Tuesday	0.0% (0)	14.3% (1)
Wednesday	42.9% (9)	42.9% (3)
Thursday	0.0% (0)	0.0% (0)
Friday	4.8% (1)	0.0% (0)
Saturday	4.8% (1)	14.3% (1)
7.7b Time of testing:	N = 22	N = 6
Morning (9 AM-10:59 AM)	18.2% (4)	16.7% (1)
Midday (11 AM-12:59 PM)	54.5% (12)	50.0% (3)
Early Afternoon (1 PM-2:59 PM)	18.2% (4)	16.7% (1)
Late Afternoon (3 PM-5 PM)	9.1% (2)	16.7% (1)

Survey Items and Response Choices	Conducts Exercises	Does not Conduct Exercises
7.8 Approximately what percentage of your tsunami vulnerable population is covered by signaling devices?	N = 26	N = 17
10% or less	3.8% (1)	17.6% (3)
11-20%	3.8% (1)	5.9% (1)
21-30%	7.7% (2)	0.0% (0)
31-40%	23.1% (6)	5.9% (1)
41-50%	7.7% (2)	5.9% (1)
51-60%	7.7% (2)	5.9% (1)
61-70%	0.0% (0)	5.9% (1)
71-80%	11.5% (3)	5.9% (1)
81-90%	11.5% (3)	11.8% (2)
91-99%	7.7% (2)	5.9% (1)
100% (<i>skip to 7.10</i>)	15.4% (4)	29.4% (5)
7.9 Since you have deployed signaling devices but the coverage is less than 100.0% of the vulnerable population, do you plan to deploy additional devices?	N = 22	N = 12
Yes (<i>skip to 7.11</i>)	59.1% (13)	50.0% (6)
No (<i>skip to 7.12</i>)	40.9% (9)	50.0% (6)
7.10 Do you plan to purchase or have already purchased signaling devices that have not yet been deployed?	N = 20	N = 44
Yes	30.0% (6)	4.5% (2)
No (<i>skip to 7.12</i>)	65.0% (13)	79.5% (35)
Don't know (<i>skip to 7.12</i>)	5.0% (1)	15.9% (7)
7.11 How long will it be before these signaling devices are deployed?	N = 19	N = 8
Within the next 6 months	5.3% (1)	12.5% (1)
6 months to one year	26.3% (5)	0.0% (0)
Over one year	15.8% (3)	25.0% (2)
Uncertain when they will be deployed	52.6% (10)	62.5% (5)
7.12 What other methods besides sirens are used or would be used to alert the public of a tsunami hazard? (Please select all that apply)	N = 42	N = 55
NOAA Weather Radios	90.5% (38)	60.0% (33)
Community subsidized NOAA Weather Radio purchase system	23.8% (10)	7.3% (4)
Television audio/video overrides	78.6% (33)	69.1% (38)
Automatic phone dial-down systems (e.g., Reverse 911)	71.4% (30)	69.1% (38)
Loudspeaker announcements on emergency vehicles (and aircraft, if applicable)	81.0% (34)	69.1% (38)
Community-wide phone tree	14.3% (6)	14.5% (8)
SMS Text Messaging	40.5% (17)	29.1% (16)
Emergency Management Radio	26.2% (11)	21.8% (12)
Marine Band Radio	38.1% (16)	20.0% (11)
No other methods are or would be used	0.0% (0)	1.8% (1)
Other	23.8% (10)	14.5% (8)
PART 8. TSUNAMI HAZARD AND EVACUATION SIGNAGE ITEMS		
8.1 Has your organization or jurisdiction deployed tsunami signs?	N = 42	N = 56
Yes	76.2% (32)	26.8% (15)
No (<i>skip to 8.8</i>)	23.8% (10)	73.2% (41)
8.2 Has your organization or jurisdiction deployed tsunami hazard zone signs?	N = 32	N = 14
Yes	81.3% (26)	78.6% (11)

Survey Items and Response Choices	Conducts Exercises	Does not Conduct Exercises
No	18.8% (6)	21.4% (3)
8.3 Has your organization or jurisdiction deployed entering and leaving tsunami hazard zone signs?	N = 32	N = 15
Yes	46.9% (15)	46.7% (7)
No	53.1% (17)	53.3% (8)
8.4 Has your organization or jurisdiction deployed tsunami evacuation route signs?	N = 32	N = 15
Yes	81.3% (26)	73.3% (11)
No	18.8% (6)	26.7% (4)
8.5 Has your organization or jurisdiction deployed tsunami evacuation site signs?	N = 32	N = 15
Yes	53.1% (17)	46.7% (7)
No	46.9% (15)	53.3% (8)
8.6 Has your organization or jurisdiction deployed "In Case of Earthquake Go to High Ground or Inland" signs?	N = 32	N = 14
Yes	59.4% (19)	64.3% (9)
No	40.6% (13)	35.7% (5)
8.7 Has your jurisdiction covered all tsunami vulnerable areas with appropriate signage?	N = 32	N = 15
Yes (<i>skip to 8.9</i>)	68.8% (22)	60.0% (9)
No	31.3% (10)	40.0% (6)
8.8 Why has your jurisdiction not deployed signs to all vulnerable areas? (Please select all that apply)	N = 10	N = 6
Inadequate funding to complete deployment	60.0% (6)	66.7% (4)
Unsure how to order/procure these signs	10.0% (1)	0.0% (0)
Theft or vandalism	30.0% (3)	0.0% (0)
Federal, state, or local regulations	0.0% (0)	0.0% (0)
Opposition by individual residents	20.0% (2)	0.0% (0)
Opposition by organized entities (e.g., business or community group)	20.0% (2)	16.7% (1)
Opposition by state departments of transportation	0.0% (0)	0.0% (0)
Other	40.0% (4)	0.0% (0)
8.9 Would you say that theft or destruction of tsunami signs in your jurisdiction is a:	N = 32	N = 13
Not at all a problem	37.5% (12)	30.8% (4)
Minor problem	31.3% (10)	53.8% (7)
Moderate problem	18.8% (6)	15.4% (2)
Major problem	12.5% (4)	0.0% (0)
8.10 How does your organization or jurisdiction decide where to put up signs? (Please select all that apply)	N = 32	N = 15
Tsunami inundation maps	81.3% (26)	66.7% (10)
Tsunami evacuation maps	65.6% (21)	40.0% (6)
Public vs. private property	31.3% (10)	26.7% (4)
Environmental or aesthetic factors	6.3% (2)	20.0% (3)
Federal, state or local government regulation	43.8% (14)	13.3% (2)
Other	6.3% (2)	26.7% (4)
8.11 Does your organization or jurisdiction use any of the following methods to identify tsunami hazard routing? (Please select all that apply) (<i>All responses skip to 9.1</i>)	N = 32	N = 15

Survey Items and Response Choices	Conducts Exercises	Does not Conduct Exercises
Non-standard signage	6.3% (2)	13.3% (2)
Routing messages painted on roads	6.3% (2)	0.0% (0)
Routing information painted on sidewalks	0.0% (0)	0.0% (0)
No methods used to identify tsunami hazard routing	50.0% (16)	60.0% (9)
Other	21.9% (7)	13.3% (2)
8.12 Why has your organization or jurisdiction not deployed tsunami signs? (Please select all that apply)		
	N = 10	N = 40
Lack of funding for signage	20.0% (2)	27.5% (11)
Local opposition to sign deployment	10.0% (1)	5.0% (2)
Concerns about theft or vandalism	20.0% (2)	2.5% (1)
Do not consider them needed	20.0% (2)	32.5% (13)
Potential confusion with higher risk hazards (e.g., hurricanes)	30.0% (3)	10.0% (4)
Federal, state or local regulations	10.0% (1)	7.5% (3)
Other	50.0% (5)	37.5% (15)
PART 9. TSUNAMIREADY ITEMS		
9.1 Is your organization or jurisdiction recognized by NOAA's National Weather Service as "TsunamiReady"?		
	N = 42	N = 56
Yes	50.0% (21)	12.5% (7)
No (<i>skip to 9.6</i>)	50.0% (21)	87.5% (49)
9.2 When did you receive this designation?		
	N = 21	N = 7
Within the last 6 months (<i>skip to 9.4</i>)	9.5% (2)	0.0% (0)
More than 6 months but less than one year (<i>skip to 9.4</i>)	4.8% (1)	0.0% (0)
One year to three years (<i>skip to 9.4</i>)	33.3% (7)	28.6% (2)
More than 3 years ago (<i>skip to 9.3</i>)	52.4% (11)	71.4% (5)
9.3 How many times has your organization or jurisdiction renewed your TsunamiReady recognition?		
	N = 11	N = 3
Once	45.5% (5)	100.0% (3)
Twice	36.4% (4)	0.0% (0)
Three times	9.1% (1)	0.0% (0)
More than three times	9.1% (1)	0.0% (0)
9.4 In your efforts to become TsunamiReady, did you encounter any difficulties or challenges?		
	N = 21	N = 7
Yes	19.0% (4)	57.1% (4)
No (<i>skip to 9.9</i>)	81.0% (17)	42.9% (3)
9.5 What was the nature of these barriers? (Please select all that apply) (<i>All responses skip to 9.9</i>)		
	N = 4	N = 4
Convincing decision makers that there was a tsunami hazard that required planning	50.0% (2)	75.0% (3)
Resource shortfalls that made planning difficult (e.g., personnel, funding, etc.)	75.0% (3)	100.0% (4)
Meeting specific criteria required by NOAA for TsunamiReady status	50.0% (2)	0.0% (0)
Other barriers	25.0% (1)	25.0% (1)
9.6 Is your organization or jurisdiction currently working toward TsunamiReady status?		
	N = 21	N = 49
Yes (<i>skip to 9.7</i>)	61.9% (13)	32.7% (16)
No	38.1% (8)	67.3% (33)
9.7 When do you expect to complete all requirements and be recognized as		
	N = 13	N = 16

Survey Items and Response Choices	Conducts Exercises	Does not Conduct Exercises
TsunamiReady? <i>(All responses skip to 9.9)</i>		
Within the next 6 months	46.2% (6)	25.0% (4)
More than 6 months but less than one year	46.2% (6)	12.5% (2)
One year to three years	0.0% (0)	18.8% (3)
More than 3 years	0.0% (0)	0.0% (0)
Not sure when we will be finished	7.7% (1)	43.8% (7)
9.8 What is the <u>main</u> reason your organization or jurisdiction is not working toward TsunamiReady status?	N = 8	N = 32
Unfamiliar with the TsunamiReady Program	12.5% (1)	28.1% (9)
Lack of resources for planning	25.0% (2)	9.4% (3)
Lack of support from decision makers to plan for tsunamis	0.0% (0)	0.0% (0)
Low probability that our organization/jurisdiction will be hit by a tsunami	25.0% (2)	50.0% (16)
Have a tsunami plan but not interested in TsunamiReady Program	0.0% (0)	3.1% (1)
Other	37.5% (3)	9.4% (3)

Appendix E. Survey Results by Whether or Not Organization Has/Uses Tsunami Signaling Devices

Survey respondents were asked, “Does your organization or jurisdiction have tsunami signaling devices or sirens or used existing signaling devices for tsunami warnings?” Of the 98 respondents who answered, forty-four percent selected “yes,” 52 percent selected “no,” and 4 percent indicated that they “don’t know” (Table 7.1). The table below provides a comparison of the survey responses by whether or not organizations have/use signaling devices, excluding the “don’t know” responses.

Survey Items and Response Choices	Has/Uses Signaling Devices	Does Not Have/Use Signaling Devices
PART 2. ORGANIZATIONAL DEMOGRAPHICS ITEMS		
2.4 Please select the box below that most closely describes your organization:	N = 42	N = 47
Incorporated Town, Village or Township Government	11.9% (5)	6.4% (3)
Unincorporated Community Government	4.8% (2)	0.0% (0)
Incorporated City or Borough Government	26.2% (11)	46.8% (22)
Tribal Government	7.1% (3)	0.0% (0)
County Government	31.0% (13)	23.4% (11)
Special District	0.0% (0)	6.4% (3)
State Agency	11.9% (5)	8.5% (4)
Federal Agency	0.0% (0)	2.1% (1)
Other	7.1% (3)	6.4% (3)
2.5 Which category below best characterizes the total population of the town, village, city, or county in which your organization is located?	N = 42	N = 48
Under 1,000	9.5% (4)	4.2% (2)
1,000 to 5,000	14.3% (6)	6.3% (3)
5,001 to 10,000	11.9% (5)	8.3% (4)
10,001 to 50,000	19.0% (8)	18.8% (9)
50,001 to 100,000	14.3% (6)	20.8% (10)
100,001 to 500,000	19.0% (8)	25.0% (12)
500,001 to one million	2.4% (1)	8.3% (4)
Over one million but less than 5 million	4.8% (2)	4.2% (2)
5 million or more	2.4% (1)	2.1% (1)
Not applicable (e.g., organization is a harbor or special district)	2.4% (1)	2.1% (1)
2.7 Please identify the organizational representative who is primarily responsible for tsunami planning within your organization. Is this person:	N = 42	N = 49
Emergency Services Coordinator	19.0% (8)	40.8% (20)
Emergency Services Manager	45.2% (19)	28.6% (14)
Police Officer/Sheriff's Deputy	7.1% (3)	6.1% (3)
Fireman/ Fire Services	0.0% (0)	4.1% (2)
Administrator (e.g., CAO, Special District Administrator)	4.8% (2)	2.0% (1)
Elected Official (e.g., mayor, city council, county supervisor)	2.4% (1)	2.0% (1)
Legislative Officer (e.g., Analyst, Aide, etc.)	0.0% (0)	0.0% (0)
Other	21.4% (9)	16.3% (8)
No one is assigned to tsunami planning	0.0% (0)	0.0% (0)
2.8 Whether it is you or someone else, is the person responsible for tsunami planning a:	N = 43	N = 51
Full-time permanent employee	90.7% (39)	84.3% (43)
Part-time employee	4.7% (2)	9.8% (5)
Contract employee	0.0% (0)	0.0% (0)

Survey Items and Response Choices	Has/Uses Signaling Devices	Does Not Have/Use Signaling Devices
Other	2.3% (1)	2.0% (1)
No one is assigned to tsunami planning	2.3% (1)	3.9% (2)
2.9 Whether it is you or someone else, approximately what percentage of time does the person responsible for tsunami planning spend on tsunami planning issues and projects?		
	N = 43	N = 50
90-100%	0.0% (0)	0.0% (0)
75-89%	0.0% (0)	0.0% (0)
50-74%	0.0% (0)	0.0% (0)
25-49%	11.6% (5)	6.0% (3)
10-24%	27.9% (12)	22.0% (11)
Less than 10%	58.1% (25)	62.0% (31)
No one is assigned to tsunami planning	2.3% (1)	10.0% (5)
PART 3. PUBLIC EDUCATION ITEMS		
3.1 Does your organization or jurisdiction provide tsunami information intended to raise tsunami awareness and promote preparedness?		
	N = 43	N = 51
Yes	95.3% (41)	74.5% (38)
No (<i>skip to 4.1</i>)	4.7% (2)	25.5% (13)
3.2 What target audiences are included in your provision of tsunami education? (Please select all that apply)		
	N = 41	N = 38
Residents of the community (in general)	95.1% (39)	89.5% (34)
Visitors to the community (e.g., beach visitors, tourists)	65.9% (27)	73.7% (28)
Members of your organization or agency	90.2% (37)	78.9% (30)
Schools (students, teachers, administrators)	70.7% (29)	65.8% (25)
Speakers of other languages	17.1% (7)	34.2% (13)
Seniors and/or persons with disabilities	65.9% (27)	44.7% (17)
Other	17.1% (7)	7.9% (3)
3.3 What methods of disseminating tsunami public information are employed by your organization or jurisdiction? (Please select all that apply)		
	N = 41	N = 38
Mailings	36.6% (15)	21.1% (8)
Newspaper inserts	22.0% (9)	13.2% (5)
Public meetings, workshops, or seminars	78.0% (32)	73.7% (28)
Literature tables/displays in public buildings	87.8% (36)	73.7% (28)
Published in telephone books	14.6% (6)	2.6% (1)
Beach kiosks or in park visitor centers	19.5% (8)	23.7% (9)
Signs posted in tsunami hazard zones	63.4% (26)	55.3% (21)
Use of schools or school systems	41.5% (17)	26.3% (10)
Other	17.1% (7)	31.6% (12)
3.4 What are the sources of tsunami public education materials disseminated by your organization or jurisdiction? (Please select all that apply)		
	N = 41	N = 38
State emergency management agency	80.5% (33)	71.1% (27)
Local emergency management agency	70.7% (29)	71.1% (27)
Federal Emergency Management Agency (FEMA)	61.0% (25)	50.0% (19)
Red Cross or other non-governmental organizations active in disaster relief	41.5% (17)	15.8% (6)
National Weather Service or the National Oceanic and Atmospheric Administration (NOAA)	73.2% (30)	76.3% (29)
University or hazard education oriented center	29.3% (12)	7.9% (3)
Other	12.2% (5)	15.8% (6)

Survey Items and Response Choices	Has/Uses Signaling Devices	Does Not Have/Use Signaling Devices
3.5 Has your organization or jurisdiction published and disseminated tsunami evacuation route maps that direct residents or visitors to tsunami safe areas?	N = 41	N = 38
Yes	78.0% (32)	50.0% (19)
No	22.0% (9)	50.0% (19)
3.6 Do schools within your jurisdiction's tsunami inundation/hazard zones conduct tsunami evacuation drills?	N = 41	N = 38
Yes	63.4% (26)	23.7% (9)
No	36.6% (15)	76.3% (29)
3.7 In your opinion, what is the one most significant barrier to achieving adequate tsunami awareness and preparedness in your organization or jurisdiction?	N = 40	N = 38
Individual or community apathy	30.0% (12)	13.2% (5)
Insufficient resources	22.5% (9)	28.9% (11)
Infrequency of damaging tsunamis	25.0% (10)	21.1% (8)
Unavailability of high quality education materials	0.0% (0)	0.0% (0)
Low visibility of the tsunami hazard	5.0% (2)	5.3% (2)
Have not encountered any significant barriers	7.5% (3)	10.5% (4)
Other	10.0% (4)	21.1% (8)
PART 4. RESPONSE PLAN ITEMS		
4.1 Has your organization developed an emergency response plan that addresses tsunamis?	N = 43	N = 51
Yes, have a completed plan that is updated periodically	79.1% (34)	47.1% (24)
Yes, have a completed plan but it has not been updated	4.7% (2)	11.8% (6)
Have initiated planning, but plan is not yet complete (<i>skip to 4.3</i>)	7.0% (3)	21.6% (11)
Have not begun to plan but intend to do so (<i>skip to 4.3</i>)	7.0% (3)	13.7% (7)
Have no response plan for tsunamis and do not intend to develop one (<i>skip to 5.1</i>)	2.3% (1)	5.9% (3)
4.2 When was your plan finalized?	N = 36	N = 30
Prior to 1991	0.0% (0)	0.0% (0)
1991 to 2000	16.7% (6)	0.0% (0)
2001 to 2004	19.4% (7)	6.7% (2)
After 2004	63.9% (23)	93.3% (28)
4.3 When was your plan last updated? (<i>All responses skip to 4.5</i>)	N = 36	N = 30
Prior to 1991	0.0% (0)	0.0% (0)
1991 to 2000	0.0% (0)	0.0% (0)
2001 to 2004	0.0% (0)	0.0% (0)
After 2004	94.4% (34)	80.0% (24)
Has not been updated	5.6% (2)	20.0% (6)
4.4 When do you anticipate completion and approval of the plan?	N = 6	N = 18
Within the next 6 months	16.7% (1)	11.1% (2)
6 months to 1 year	33.3% (2)	27.8% (5)
More than a year	16.7% (1)	16.7% (3)
Uncertain when we will have a finalized and approved plan	33.3% (2)	44.4% (8)
4.5 The tsunami response plan was or will be developed by:	N = 42	N = 47
Emergency planners within my organization	45.2% (19)	40.4% (19)
Private consultants outside my organization	2.4% (1)	2.1% (1)

Survey Items and Response Choices	Has/Uses Signaling Devices	Does Not Have/Use Signaling Devices
Some combination of internal and outside personnel	52.4% (22)	48.9% (23)
Other	0.0% (0)	8.5% (4)
4.6 Based upon what type of information from the Pacific Tsunami Warning Center or the West Coast and Alaska Tsunami Warning Center does or will your plan be activated? (Please select all that apply)		
	N = 41	N = 47
Warning only	12.2% (5)	29.8% (14)
Advisory only	7.3% (3)	6.4% (3)
Watch only	12.2% (5)	8.5% (4)
Warning and advisory	12.2% (5)	10.6% (5)
Warning and watch	2.4% (1)	2.1% (1)
Advisory and watch	2.4% (1)	0.0% (0)
Warning, advisory, and watch	48.8% (20)	40.4% (19)
Other criteria	2.4% (1)	2.1% (1)
4.7 Has (or will) your organization use(d) tsunami inundation maps in your tsunami planning?		
	N = 42	N = 48
Yes (<i>skip to 4.9</i>)	88.1% (37)	83.3% (40)
No	4.8% (2)	8.3% (4)
Don't know (<i>skip to 4.10</i>)	7.1% (3)	8.3% (4)
4.8 Why is your organization not using tsunami inundation maps? (Please select all that apply) (<i>All responses skip to 4.10</i>)		
	N = 2	N = 4
Not anticipating inundation in populated areas	50.0% (1)	25.0% (1)
Maps not currently available for area in which my organization or jurisdiction is located	50.0% (1)	50.0% (2)
Maps are not needed for planning purposes	0.0% (0)	25.0% (1)
In the process of developing tsunami inundation maps	50.0% (1)	25.0% (1)
Using evacuation maps developed without tsunami inundation maps	50.0% (1)	25.0% (1)
4.9 What is, or will be, the source of those maps? (Please select all that apply)		
	N = 37	N = 39
Pacific Marine Environmental Laboratory (PMEL-NOAA)	16.2% (6)	12.8% (5)
A state agency (e.g., state office of emergency management, state geological survey, etc.)	64.9% (24)	82.1% (32)
University-based research center or university faculty	45.9% (17)	38.5% (15)
Private consultant or non-university based research center	5.4% (2)	7.7% (3)
Other	24.3% (9)	10.3% (4)
Don't know	2.7% (1)	2.6% (1)
4.10 Please indicate if your plan addresses (or will address) the following elements: (Please select all that apply)		
	N = 42	N = 48
A plan activation trigger (e.g., notification from the Pacific or West Coast and Alaska Tsunami Warning Center of a Warning, Advisory or Watch for your area)	88.1% (37)	91.7% (44)
24/7 warning point procedures to receive and disseminate tsunami alerts	83.3% (35)	72.9% (35)
Emergency Operation Center Activation (with staffing levels)	90.5% (38)	81.3% (39)
Roles and responsibilities for multiple organizational personnel	88.1% (37)	83.3% (40)
Roles and responsibilities for local volunteer organizations active in disasters	57.1% (24)	56.3% (27)
Provisions for coordination with other levels of government and private sector entities	71.4% (30)	77.1% (37)
Clearly identified evacuation routes and assembly areas for evacuees	81.0% (34)	85.4% (41)
Provisions for evacuation of special populations (e.g., persons with disabilities, non-English speaking persons, visitors, etc.)	45.2% (19)	60.4% (29)

Survey Items and Response Choices	Has/Uses Signaling Devices	Does Not Have/Use Signaling Devices
Vertical evacuation procedures for communities with no high ground	33.3% (14)	18.8% (9)
Activation of sirens and/or signaling devices	92.9% (39)	31.3% (15)
Shelter and mass care for evacuees	64.3% (27)	56.3% (27)
Methods of providing emergency period instructions to residents and visitors	73.8% (31)	60.4% (29)
Provisions for notification and emergency period instructions for commercial and recreational boating communities	31.0% (13)	35.4% (17)
Search and rescue and the timing of intervention	52.4% (22)	45.8% (22)
Provisions for damage assessment after the tsunami danger has passed	61.9% (26)	50.0% (24)
Criteria and procedures for issuing an "all clear" after a destructive tsunami	61.9% (26)	62.5% (30)
Procedures for "standing down" after initiating response for a non-destructive tsunami	73.8% (31)	60.4% (29)
Provisions for periodic drills and exercises	57.1% (24)	43.8% (21)
4.11 From what tsunami warning center does your organization or jurisdiction receive tsunami information?		
	N = 41	N = 45
Pacific Tsunami Warning Center in Eva Beach, Hawaii	9.8% (4)	11.1% (5)
West Coast and Alaska Tsunami Warning Center, Palmer, Alaska	82.9% (34)	77.8% (35)
Other source	7.3% (3)	11.1% (5)
4.12 How does your organization or jurisdiction receive tsunami messages from the appropriate Tsunami Warning Center? (Please select all that apply)		
	N = 42	N = 48
NOAA Weather Radio	78.6% (33)	62.5% (30)
Emergency Manager's Weather Information Network	26.2% (11)	31.3% (15)
State telecomm systems	59.5% (25)	50.0% (24)
Phone call down tree from another agency	35.7% (15)	47.9% (23)
National Warning System (NAWAS – national or state-side)	61.9% (26)	52.1% (25)
Direct link to Local Weather Forecast Office	35.7% (15)	31.3% (15)
NOAA Weather Wire	26.2% (11)	10.4% (5)
NOAA Port	9.5% (4)	4.2% (2)
Aeronautical Fixed Telecommunication Network (AFTN)	2.4% (1)	0.0% (0)
US Coast Guard Radio	14.3% (6)	8.3% (4)
Directly from Tsunami Warning Center (TWC) via monitored email, FAX, or text messaging	69.0% (29)	33.3% (16)
Other	9.5% (4)	12.5% (6)
PART 5. EXERCISES AND TRAINING ITEMS		
5.1 Does your organization or jurisdiction conduct exercises to test your tsunami plan?		
	N = 43	N = 51
Yes	60.5% (26)	29.4% (15)
No (<i>skip to 5.7</i>)	39.5% (17)	70.6% (36)
5.2 Do these exercises test: (Please select all that apply)		
	N = 26	N = 15
Response plan in general	80.8% (21)	86.7% (13)
Ability to evacuate part or all of your organization or community in tsunami inundation zones	53.8% (14)	40.0% (6)
Siren function	88.5% (23)	6.7% (1)
Emergency Alert System ability to deliver a warning	76.9% (20)	53.3% (8)
Other	15.4% (4)	0.0% (0)
5.3 Have these response exercises mainly tested your ability to: (Please select all that apply)		
	N = 26	N = 15
Respond to a warning issued by the Pacific or West Coast and Alaska Tsunami Warning Center	100.0% (26)	93.3% (14)

Survey Items and Response Choices	Has/Uses Signaling Devices	Does Not Have/Use Signaling Devices
Respond to an actual tsunami impact	69.2% (18)	46.7% (7)
Recover from a damaging tsunami impact	26.9% (7)	13.3% (2)
Other	0.0% (0)	13.3% (2)
5.4 Have your response exercises been: (Please select all types of exercises done)		
	N = 26	N = 15
Tabletop exercises (e.g., discussion exercises, low stress to clarify roles and responsibilities)	92.3% (24)	86.7% (13)
Functional exercises (e.g., performance exercises, sequence of messages, evaluate plans and Standard Operating Procedures (SOPs))	76.9% (20)	73.3% (11)
Full scale exercises (e.g., field event with Emergency Operations Center (EOC) activation, deployment, comprehensive)	50.0% (13)	33.3% (5)
5.5 Who has facilitated the exercises held? (Please select all that apply)		
	N = 26	N = 15
Internal emergency management personnel	96.2% (25)	93.3% (14)
External emergency management personnel (e.g., state or federal partners)	61.5% (16)	53.3% (8)
Outside consultants	19.2% (5)	26.7% (4)
Other	7.7% (2)	6.7% (1)
5.6 As a result of conducting these exercises, have any of the following occurred? (Please select all that apply)		
	N = 26	N = 15
Plans have been updated or modified	88.5% (23)	73.3% (11)
Staff has become more familiar with roles	96.2% (25)	100.0% (15)
Equipment has been tested	76.9% (20)	40.0% (6)
New procedures have been implemented	61.5% (16)	53.3% (8)
Other	3.8% (1)	0.0% (0)
5.7 Has tsunami planning staff within your organization received training in tsunami planning or in issues related to tsunami?		
	N = 43	N = 51
Yes	72.1% (31)	62.7% (32)
No (<i>skip to 6.1</i>)	27.9% (12)	37.3% (19)
5.8 Has this training included: (Please select all that apply)		
	N = 31	N = 32
Tsunami science (e.g., seminar on how tsunamis occur, regional hazards, history of tsunami events, etc.)	96.8% (30)	84.4% (27)
Social science contributions (e.g., information on how to make warnings more effective)	48.4% (15)	65.6% (21)
Tsunami modeling or mapping	71.0% (22)	84.4% (27)
Planning considerations specific to tsunamis	90.3% (28)	75.0% (24)
Tsunami warning protocol	87.1% (27)	71.9% (23)
Other	0.0% (0)	9.4% (3)
PART 6. TSUNAMI HAZARD MITIGATION ITEMS		
6.1 Has your organization or jurisdiction developed a hazard mitigation plan that addresses tsunamis?		
	N = 42	N = 51
Yes, have a completed hazard mitigation plan that addresses tsunamis	61.9% (26)	51.0% (26)
Have initiated planning, but plan is not yet complete	14.3% (6)	19.6% (10)
Have not begun to plan, but intend to do so	19.0% (8)	9.8% (5)
Have no hazard mitigation plan for tsunamis and do not plan to develop one	4.8% (2)	19.6% (10)
6.2 Does your organization or jurisdiction have critical facilities that are in the tsunami inundation zone?		
	N = 43	N = 51
Yes	76.7% (33)	56.9% (29)

Survey Items and Response Choices	Has/Uses Signaling Devices	Does Not Have/Use Signaling Devices
No (<i>skip to 6.7</i>)	16.3% (7)	35.3% (18)
Don't know (<i>skip to 6.7</i>)	7.0% (3)	7.8% (4)
6.3 Please identify the type of critical facilities located in the tsunami inundation zone: (Please select all that apply)		
	N = 33	N = 28
Fire station(s)	75.8% (25)	53.6% (15)
Police station(s)	57.6% (19)	46.4% (13)
Hospital(s) or clinic(s)	27.3% (9)	10.7% (3)
School(s)	72.7% (24)	42.9% (12)
Emergency Operations Center(s)	24.2% (8)	14.3% (4)
Facility housing a lifeline or utility	60.6% (20)	60.7% (17)
Other	33.3% (11)	39.3% (11)
6.4 Do you have a response plan for critical facilities in the tsunami inundation zone?		
	N = 33	N = 29
Yes	54.5% (18)	51.7% (15)
No	45.5% (15)	48.3% (14)
6.5 Has your organization or jurisdiction abandoned, modified, or relocated an existing critical facility because it was in a tsunami hazard zone?		
	N = 33	N = 29
Yes	9.1% (3)	10.3% (3)
No (<i>skip to 6.7</i>)	75.8% (25)	82.8% (24)
Don't know (<i>skip to 6.7</i>)	15.2% (5)	6.9% (2)
6.6 Was this critical facility a: (Please select all that apply)		
	N = 3	N = 3
Fire station(s)	33.3% (1)	100.0% (3)
Police station(s)	0.0% (0)	33.3% (1)
Hospital(s) or clinic(s)	33.3% (1)	0.0% (0)
School(s)	66.7% (2)	0.0% (0)
Emergency Operations Center(s)	33.3% (1)	66.7% (2)
Facility housing a lifeline or utility	0.0% (0)	33.3% (1)
Other	33.3% (1)	33.3% (1)
6.7 Has your organization or jurisdiction considered the tsunami hazard or mapped inundation zones in other land-use planning decisions?		
	N = 43	N = 51
Yes	51.2% (22)	25.5% (13)
No (<i>skip to 6.9</i>)	16.3% (7)	33.3% (17)
Don't know (<i>skip to 6.9</i>)	32.6% (14)	41.2% (21)
6.9 Are there areas in which your organization has facilities or your jurisdiction has residents that cannot be rapidly evacuated in a tsunami event?		
	N = 43	N = 51
Yes	48.8% (21)	41.2% (21)
No (<i>skip to 7.1</i>)	34.9% (15)	51.0% (26)
Don't know (<i>skip to 7.1</i>)	16.3% (7)	7.8% (4)
6.10 Regarding these facilities operated by your organization or residents within your jurisdiction that cannot be evacuated in a timely manner, have you: (Please select all that apply)		
	N = 21	N = 20
Identified safe areas within the facility for them to remain in place during the tsunami (e.g., higher floors of a building)	42.9% (9)	55.0% (11)
Modified the facility to withstand tsunamis	0.0% (0)	0.0% (0)
Built special structures that serve as evacuation sites for those who can't reach higher ground	0.0% (0)	0.0% (0)

Survey Items and Response Choices	Has/Uses Signaling Devices	Does Not Have/Use Signaling Devices
Have not done anything to address the issue of facilities that cannot be evacuated in a timely manner	57.1% (12)	55.0% (11)
PART 7. SIGNALING DEVICES ITEMS		
7.2 Why has your organization or jurisdiction not deployed tsunami signaling devices or sirens or used existing signaling devices for tsunami warnings? (Please select all that apply) (All responses skip to 7.10)	N = 0	N = 50
Have ordered signaling devices but have not yet deployed them		4.0% (2)
Signaling devices are too expensive		30.0% (15)
Signaling devices will not be purchased and deployed due to community opposition		8.0% (4)
Signaling devices are opposed by environmental or coastal conservancy groups		4.0% (2)
Other		70.0% (35)
7.3 How many signaling devices have been deployed within the boundaries of your organization or jurisdiction?	N = 43	N = 0
1-3	37.2% (16)	
4-6	16.3% (7)	
7-10	14.0% (6)	
11-20	14.0% (6)	
More than 20	18.6% (8)	
7.4 Do your signaling devices have both voice and audible signal capabilities?	N = 43	N = 0
Yes	62.8% (27)	
No	37.2% (16)	
7.5 Are the tones used for tsunami warning different than tones used for other hazards?	N = 43	N = 0
Yes	55.8% (24)	
No	44.2% (19)	
7.6 How often are signaling devices tested by your organization or jurisdiction?	N = 43	N = 0
Weekly	25.6% (11)	
Monthly	48.8% (21)	
Bi-Monthly	0.0% (0)	
Quarterly	9.3% (4)	
Annually	7.0% (3)	
Tested but not on a scheduled basis	7.0% (3)	
Never tested	2.3% (1)	
7.7 Is there a specific day of the week and time of day signaling devices are tested in your organization or jurisdiction?	N = 43	N = 0
Yes	72.1% (31)	
No (skip to 7.8)	27.9% (12)	
7.7a Day of testing:	N = 28	N = 0
Sunday	0.0% (0)	
Monday	42.9% (12)	
Tuesday	3.6% (1)	
Wednesday	42.9% (12)	
Thursday	0.0% (0)	
Friday	3.6% (1)	

Survey Items and Response Choices	Has/Uses Signaling Devices	Does Not Have/Use Signaling Devices
Saturday	7.1% (2)	
7.7b Time of testing:	N = 28	N = 0
Morning (9 AM-10:59 AM)	17.9% (5)	
Midday (11 AM-12:59 PM)	53.6% (15)	
Early Afternoon (1 PM-2:59 PM)	17.9% (5)	
Late Afternoon (3 PM-5 PM)	10.7% (3)	
7.8 Approximately what percentage of your tsunami vulnerable population is covered by signaling devices?	N = 43	N = 0
10% or less	9.3% (4)	
11-20%	4.7% (2)	
21-30%	4.7% (2)	
31-40%	16.3% (7)	
41-50%	7.0% (3)	
51-60%	7.0% (3)	
61-70%	2.3% (1)	
71-80%	9.3% (4)	
81-90%	11.6% (5)	
91-99%	7.0% (3)	
100% (skip to 7.10)	20.9% (9)	
7.9 Since you have deployed signaling devices but the coverage is less than 100.0% of the vulnerable population, do you plan to deploy additional devices?	N = 34	N = 0
Yes (skip to 7.11)	55.9% (19)	
No (skip to 7.12)	44.1% (15)	
7.10 Do you plan to purchase or have already purchased signaling devices that have not yet been deployed?	N = 9	N = 51
Yes	0.0% (0)	15.7% (8)
No (skip to 7.12)	100.0% (9)	76.5% (39)
Don't know (skip to 7.12)	0.0% (0)	7.8% (4)
7.11 How long will it be before these signaling devices are deployed?	N = 19	N = 8
Within the next 6 months	10.5% (2)	0.0% (0)
6 months to one year	15.8% (3)	25.0% (2)
Over one year	21.1% (4)	12.5% (1)
Uncertain when they will be deployed	52.6% (10)	62.5% (5)
7.12 What other methods besides sirens are used or would be used to alert the public of a tsunami hazard? (Please select all that apply)	N = 43	N = 50
NOAA Weather Radios	83.7% (36)	64.0% (32)
Community subsidized NOAA Weather Radio purchase system	18.6% (8)	10.0% (5)
Television audio/video overrides	79.1% (34)	70.0% (35)
Automatic phone dial-down systems (e.g., Reverse 911)	65.1% (28)	74.0% (37)
Loudspeaker announcements on emergency vehicles (and aircraft, if applicable)	81.4% (35)	68.0% (34)
Community-wide phone tree	18.6% (8)	12.0% (6)
SMS Text Messaging	32.6% (14)	38.0% (19)
Emergency Management Radio	23.3% (10)	24.0% (12)
Marine Band Radio	37.2% (16)	22.0% (11)
No other methods are or would be used	0.0% (0)	2.0% (1)
Other	20.9% (9)	18.0% (9)

Survey Items and Response Choices	Has/Uses Signaling Devices	Does Not Have/Use Signaling Devices
PART 8. TSUNAMI HAZARD AND EVACUATION SIGNAGE ITEMS		
8.1 Has your organization or jurisdiction deployed tsunami signs?	N = 43	N = 51
Yes	67.4% (29)	33.3% (17)
No (<i>skip to 8.8</i>)	32.6% (14)	66.7% (34)
8.2a Has your organization or jurisdiction deployed tsunami hazard zone signs?	N = 28	N = 17
Yes	82.1% (23)	76.5% (13)
No	17.9% (5)	23.5% (4)
8.2b Has your organization or jurisdiction deployed entering and leaving tsunami hazard zone signs?	N = 29	N = 17
Yes	48.3% (14)	47.1% (8)
No	51.7% (15)	52.9% (9)
8.2c Has your organization or jurisdiction deployed tsunami evacuation route signs?	N = 29	N = 17
Yes	89.7% (26)	64.7% (11)
No	10.3% (3)	35.3% (6)
8.2d Has your organization or jurisdiction deployed tsunami evacuation site signs?	N = 29	N = 17
Yes	65.5% (19)	29.4% (5)
No	34.5% (10)	70.6% (12)
8.2e Has your organization or jurisdiction deployed "In Case of Earthquake Go to High Ground or Inland" signs?	N = 29	N = 17
Yes	75.9% (22)	35.3% (6)
No	24.1% (7)	64.7% (11)
8.3 Has your jurisdiction covered all tsunami vulnerable areas with appropriate signage?	N = 29	N = 17
Yes (<i>skip to 8.5</i>)	75.9% (22)	52.9% (9)
No	24.1% (7)	47.1% (8)
8.4 Why has your jurisdiction not deployed signs to all vulnerable areas? (Please select all that apply)	N = 7	N = 8
Inadequate funding to complete deployment	85.7% (6)	50.0% (4)
Unsure how to order/procure these signs	14.3% (1)	0.0% (0)
Theft or vandalism	0.0% (0)	37.5% (3)
Federal, state, or local regulations	0.0% (0)	0.0% (0)
Opposition by individual residents	14.3% (1)	12.5% (1)
Opposition by organized entities (e.g., business or community group)	14.3% (1)	25.0% (2)
Opposition by state departments of transportation	0.0% (0)	0.0% (0)
Other	14.3% (1)	37.5% (3)
8.5 Would you say that theft or destruction of tsunami signs in your jurisdiction is a:	N = 29	N = 16
Not at all a problem	37.9% (11)	31.3% (5)
Minor problem	37.9% (11)	37.5% (6)
Moderate problem	17.2% (5)	18.8% (3)
Major problem	6.9% (2)	12.5% (2)
8.6 How does your organization or jurisdiction decide where to put up signs? (Please select all that apply)	N = 29	N = 17

Survey Items and Response Choices	Has/Uses Signaling Devices	Does Not Have/Use Signaling Devices
Tsunami inundation maps	82.8% (24)	70.6% (12)
Tsunami evacuation maps	72.4% (21)	35.3% (6)
Public vs. private property	31.0% (9)	29.4% (5)
Environmental or aesthetic factors	10.3% (3)	11.8% (2)
Federal, state or local government regulation	31.0% (9)	41.2% (7)
Other	3.4% (1)	29.4% (5)
8.7 Does your organization or jurisdiction use any of the following methods to identify tsunami hazard routing? (Please select all that apply) (All responses skip to 9.1)		
	N = 29	N = 17
Non-standard signage	13.8% (4)	0.0% (0)
Routing messages painted on roads	3.4% (1)	5.9% (1)
Routing information painted on sidewalks	0.0% (0)	0.0% (0)
No methods used to identify tsunami hazard routing	48.3% (14)	64.7% (11)
Other	20.7% (6)	17.6% (3)
8.8 Why has your organization or jurisdiction not deployed tsunami signs? (Please select all that apply)		
	N = 14	N = 33
Lack of funding for signage	50.0% (7)	15.2% (5)
Local opposition to sign deployment	14.3% (2)	3.0% (1)
Concerns about theft or vandalism	14.3% (2)	3.0% (1)
Do not consider them needed	21.4% (3)	36.4% (12)
Potential confusion with higher risk hazards (e.g., hurricanes)	42.9% (6)	3.0% (1)
Federal, state or local regulations	7.1% (1)	9.1% (3)
Other	21.4% (3)	45.5% (15)
PART 9. TSUNAMIREADY ITEMS		
9.1 Is your organization or jurisdiction recognized by NOAA's National Weather Service as "TsunamiReady"?		
	N = 43	N = 51
Yes	48.8% (21)	13.7% (7)
No (skip to 9.6)	51.2% (22)	86.3% (44)
9.2 When did you receive this designation?		
	N = 21	N = 7
Within the last 6 months (skip to 9.4)	4.8% (1)	14.3% (1)
More than 6 months but less than one year (skip to 9.4)	4.8% (1)	0.0% (0)
One year to three years (skip to 9.4)	38.1% (8)	14.3% (1)
More than 3 years ago (skip to 9.3)	52.4% (11)	71.4% (5)
9.3 How many times has your organization or jurisdiction renewed your TsunamiReady recognition?		
	N = 11	N = 3
Once	54.5% (6)	66.7% (2)
Twice	27.3% (3)	33.3% (1)
Three times	9.1% (1)	0.0% (0)
More than three times	9.1% (1)	0.0% (0)
9.4 In your efforts to become TsunamiReady, did you encounter any difficulties or challenges?		
	N = 21	N = 7
Yes	28.6% (6)	28.6% (2)
No (skip to 9.9)	71.4% (15)	71.4% (5)
9.5 What was the nature of these barriers? (Please select all that apply) (All responses skip to 9.9)		
	N = 6	N = 2
Convincing decision makers that there was a tsunami hazard that required	50.0% (3)	100.0% (2)

Survey Items and Response Choices	Has/Uses Signaling Devices	Does Not Have/Use Signaling Devices
planning		
Resource shortfalls that made planning difficult (e.g., personnel, funding, etc.)	83.3% (5)	100.0% (2)
Meeting specific criteria required by NOAA for TsunamiReady status	33.3% (2)	0.0% (0)
Other barriers	33.3% (2)	0.0% (0)
9.6 Is your organization or jurisdiction currently working toward TsunamiReady status?	N = 22	N = 44
Yes (<i>skip to 9.7</i>)	36.4% (8)	40.9% (18)
No	63.6% (14)	59.1% (26)
9.7 When do you expect to complete all requirements and be recognized as TsunamiReady? (<i>All responses skip to 9.9</i>)	N = 8	N = 18
Within the next 6 months	37.5% (3)	38.9% (7)
More than 6 months but less than one year	37.5% (3)	22.2% (4)
One year to three years	0.0% (0)	16.7% (3)
More than 3 years	0.0% (0)	0.0% (0)
Not sure when we will be finished	25.0% (2)	22.2% (4)
9.8 What is the <u>main</u> reason your organization or jurisdiction is not working toward TsunamiReady status?	N = 14	N = 25
Unfamiliar with the TsunamiReady Program	21.4% (3)	24.0% (6)
Lack of resources for planning	14.3% (2)	12.0% (3)
Lack of support from decision makers to plan for tsunamis	0.0% (0)	0.0% (0)
Low probability that our organization/jurisdiction will be hit by a tsunami	50.0% (7)	44.0% (11)
Have a tsunami plan but not interested in TsunamiReady Program	0.0% (0)	4.0% (1)
Other	14.3% (2)	16.0% (4)

Appendix F. Survey Results by Whether or Not Organization is Recognized by NOAA’s National Weather Service as TsunamiReady

Twenty-nine percent (n = 28) of respondents reported that their organization or jurisdiction has been recognized by NOAA’s National Weather Service as “TsunamiReady,” while the remaining 71 percent (n = 70) of respondents reported that their organization or jurisdiction has not received this recognition (Table 9.1). The table below provides a comparison of the survey responses for these two groups of respondents.

Survey Items and Response Choices	Recognized as “TsunamiReady”	Not Recognized as “TsunamiReady”
PART 2. ORGANIZATIONAL DEMOGRAPHICS ITEMS		
2.4 Please select the box below that most closely describes your organization:	N = 27	N = 66
Incorporated Town, Village or Township Government	7.4% (2)	9.1% (6)
Unincorporated Community Government	3.7% (1)	1.5% (1)
Incorporated City or Borough Government	29.6% (8)	39.4% (26)
Tribal Government	7.4% (2)	1.5% (1)
County Government	37.0% (10)	21.2% (14)
Special District	0.0% (0)	4.5% (3)
State Agency	7.4% (2)	15.2% (10)
Federal Agency	0.0% (0)	1.5% (1)
Other	7.4% (2)	6.1% (4)
<hr/>		
2.5 Which category below best characterizes the total population of the town, village, city, or county in which your organization is located?	N = 28	N = 66
Under 1,000	3.6% (1)	7.6% (5)
1,000 to 5,000	10.7% (3)	9.1% (6)
5,001 to 10,000	10.7% (3)	9.1% (6)
10,001 to 50,000	21.4% (6)	16.7% (11)
50,001 to 100,000	28.6% (8)	13.6% (9)
100,001 to 500,000	17.9% (5)	22.7% (15)
500,001 to one million	0.0% (0)	9.1% (6)
Over one million but less than 5 million	3.6% (1)	6.1% (4)
5 million or more	3.6% (1)	1.5% (1)
Not applicable (e.g., organization is a harbor or special district)	0.0% (0)	4.5% (3)
<hr/>		
2.7 Please identify the organizational representative who is primarily responsible for tsunami planning within your organization. Is this person:	N = 28	N = 67
Emergency Services Coordinator	21.4% (6)	35.8% (24)
Emergency Services Manager	46.4% (13)	31.3% (21)
Police Officer/Sheriff’s Deputy	10.7% (3)	4.5% (3)
Fireman/ Fire Services	0.0% (0)	3.0% (2)
Administrator (e.g., CAO, Special District Administrator)	0.0% (0)	4.5% (3)
Elected Official (e.g., mayor, city council, county supervisor)	3.6% (1)	1.5% (1)
Legislative Officer (e.g., Analyst, Aide, etc.)	0.0% (0)	0.0% (0)
Other	17.9% (5)	19.4% (13)
No one is assigned to tsunami planning	0.0% (0)	0.0% (0)
<hr/>		
2.8 Whether it is you or someone else, is the person responsible for tsunami planning a:	N = 28	N = 70
Full-time permanent employee	89.3% (25)	85.7% (60)
Part-time employee	7.1% (2)	7.1% (5)
Contract employee	0.0% (0)	0.0% (0)
Other	3.6% (1)	1.4% (1)
No one is assigned to tsunami planning	0.0% (0)	5.7% (4)

Survey Items and Response Choices	Recognized as "TsunamiReady"	Not Recognized as "TsunamiReady"
2.9 Whether it is you or someone else, approximately what percentage of time does the person responsible for tsunami planning spend on tsunami planning issues and projects?	N = 28	N = 69
90-100%	0.0% (0)	0.0% (0)
75-89%	0.0% (0)	0.0% (0)
50-74%	0.0% (0)	0.0% (0)
25-49%	3.6% (1)	10.1% (7)
10-24%	39.3% (11)	18.8% (13)
Less than 10%	57.1% (16)	60.9% (42)
No one is assigned to tsunami planning	0.0% (0)	10.1% (7)
PART 3. PUBLIC EDUCATION ITEMS		
3.1 Does your organization or jurisdiction provide tsunami information intended to raise tsunami awareness and promote preparedness?	N = 28	N = 70
Yes	100.0% (28)	75.7% (53)
No (<i>skip to 4.1</i>)	0.0% (0)	24.3% (17)
3.2 What target audiences are included in your provision of tsunami education? (Please select all that apply)	N = 28	N = 53
Residents of the community (in general)	100.0% (28)	86.8% (46)
Visitors to the community (e.g., beach visitors, tourists)	78.6% (22)	64.2% (34)
Members of your organization or agency	96.4% (27)	77.4% (41)
Schools (students, teachers, administrators)	78.6% (22)	60.4% (32)
Speakers of other languages	25.0% (7)	24.5% (13)
Seniors and/or persons with disabilities	71.4% (20)	45.3% (24)
Other	21.4% (6)	9.4% (5)
3.3 What methods of disseminating tsunami public information are employed by your organization or jurisdiction? (Please select all that apply)	N = 28	N = 53
Mailings	25.0% (7)	30.2% (16)
Newspaper inserts	28.6% (8)	11.3% (6)
Public meetings, workshops, or seminars	78.6% (22)	73.6% (39)
Literature tables/displays in public buildings	92.9% (26)	73.6% (39)
Published in telephone books	17.9% (5)	3.8% (2)
Beach kiosks or in park visitor centers	28.6% (8)	18.9% (10)
Signs posted in tsunami hazard zones	89.3% (25)	43.4% (23)
Use of schools or school systems	42.9% (12)	28.3% (15)
Other	21.4% (6)	24.5% (13)
3.4 What are the sources of tsunami public education materials disseminated by your organization or jurisdiction? (Please select all that apply)	N = 28	N = 53
State emergency management agency	78.6% (22)	73.6% (39)
Local emergency management agency	75.0% (21)	66.0% (35)
Federal Emergency Management Agency (FEMA)	60.7% (17)	52.8% (28)
Red Cross or other non-governmental organizations active in disaster relief	32.1% (9)	26.4% (14)
National Weather Service or the National Oceanic and Atmospheric Administration (NOAA)	75.0% (21)	73.6% (39)
University or hazard education oriented center	25.0% (7)	15.1% (8)
Other	14.3% (4)	15.1% (8)
3.5 Has your organization or jurisdiction published and disseminated tsunami evacuation route maps that direct residents or visitors to tsunami safe areas?	N = 28	N = 53
Yes	82.1% (23)	52.8% (28)

Survey Items and Response Choices	Recognized as "TsunamiReady"	Not Recognized as "TsunamiReady"
No	17.9% (5)	47.2% (25)
3.6 Do schools within your jurisdiction's tsunami inundation/hazard zones conduct tsunami evacuation drills?		
	N = 28	N = 53
Yes	60.7% (17)	34.0% (18)
No	39.3% (11)	66.0% (35)
3.7 In your opinion, what is the one most significant barrier to achieving adequate tsunami awareness and preparedness in your organization or jurisdiction?		
	N = 27	N = 53
Individual or community apathy	37.0% (10)	13.2% (7)
Insufficient resources	22.2% (6)	28.3% (15)
Infrequency of damaging tsunamis	11.1% (3)	30.2% (16)
Unavailability of high quality education materials	0.0% (0)	0.0% (0)
Low visibility of the tsunami hazard	3.7% (1)	5.7% (3)
Have not encountered any significant barriers	7.4% (2)	9.4% (5)
Other	18.5% (5)	13.2% (7)
PART 4. RESPONSE PLAN ITEMS		
4.1 Has your organization developed an emergency response plan that addresses tsunamis?		
	N = 28	N = 70
Yes, have a completed plan that is updated periodically	89.3% (25)	48.6% (34)
Yes, have a completed plan but it has not been updated	3.6% (1)	11.4% (8)
Have initiated planning, but plan is not yet complete (<i>skip to 4.3</i>)	7.1% (2)	18.6% (13)
Have not begun to plan but intend to do so (<i>skip to 4.3</i>)	0.0% (0)	15.7% (11)
Have no response plan for tsunamis and do not intend to develop one (<i>skip to 5.1</i>)	0.0% (0)	5.7% (4)
4.2 When was your plan finalized?		
	N = 26	N = 42
Prior to 1991	0.0% (0)	0.0% (0)
1991 to 2000	15.4% (4)	4.8% (2)
2001 to 2004	26.9% (7)	4.8% (2)
After 2004	57.7% (15)	90.5% (38)
4.3 When was your plan last updated? (<i>All responses skip to 4.5</i>)		
	N = 26	N = 42
Prior to 1991	0.0% (0)	0.0% (0)
1991 to 2000	0.0% (0)	0.0% (0)
2001 to 2004	0.0% (0)	0.0% (0)
After 2004	96.2% (25)	81.0% (34)
Has not been updated	3.8% (1)	19.0% (8)
4.4 When do you anticipate completion and approval of the plan?		
	N = 2	N = 24
Within the next 6 months	0.0% (0)	12.5% (3)
6 months to 1 year	100.0% (2)	20.8% (5)
More than a year	0.0% (0)	16.7% (4)
Uncertain when we will have a finalized and approved plan	0.0% (0)	50.0% (12)
4.5 The tsunami response plan was or will be developed by:		
	N = 28	N = 65
Emergency planners within my organization	43.9% (12)	41.5% (27)
Private consultants outside my organization	3.6% (1)	1.5% (1)
Some combination of internal and outside personnel	50.0% (14)	52.3% (34)
Other	3.6% (1)	4.6% (3)
4.6 Based upon what type of information from the Pacific Tsunami Warning Center or the West Coast and Alaska Tsunami Warning Center does or will your plan be		
	N = 27	N = 65

Survey Items and Response Choices	Recognized as "TsunamiReady"	Not Recognized as "TsunamiReady"
activated? (Please select all that apply)		
Warning only	11.1% (3)	27.7% (18)
Advisory only	11.1% (3)	4.6% (3)
Watch only	14.8% (4)	7.7% (5)
Warning and Advisory	7.4% (2)	12.3% (8)
Warning and Watch	0.0% (0)	3.1% (2)
Advisory and Watch	3.7% (1)	0.0% (0)
Warning, Advisory, and Watch	51.9% (14)	40.0% (26)
Other criteria	0.0% (0)	4.6% (3)
4.7 Has (or will) your organization use(d) tsunami inundation maps in your tsunami planning?	N = 28	N =66
Yes (<i>skip to 4.9</i>)	96.4% (27)	78.8% (52)
No	3.6% (1)	9.1% (6)
Don't know (<i>skip to 4.10</i>)	0.0% (0)	12.1% (8)
4.8 Why is your organization not using tsunami inundation maps? (Please select all that apply) (<i>All responses skip to 4.10</i>)	N = 1	N =6
Not anticipating inundation in populated areas	0.0% (0)	33.3% (2)
Maps not currently available for area in which my organization or jurisdiction is located	100.0% (1)	33.3% (2)
Maps are not needed for planning purposes	0.0% (0)	16.7% (1)
In the process of developing tsunami inundation maps	0.0% (0)	50.0% (3)
Using evacuation maps developed without tsunami inundation maps	0.0% (0)	33.3% (2)
4.9 What is, or will be, the source of those maps? (Please select all that apply)	N = 27	N =51
Pacific Marine Environmental Laboratory (PMEL-NOAA)	11.1% (3)	15.7% (8)
A state agency (e.g., state office of emergency management, state geological survey, etc.)	70.4% (19)	72.5% (37)
University-based research center or university faculty	40.7% (11)	41.2% (21)
Private consultant or non-university based research center	7.4% (2)	5.9% (3)
Other	18.5% (5)	15.7% (8)
Don't know	0.0% (0)	7.8% (4)
4.10 Please indicate if your plan addresses (or will address) the following elements: (Please select all that apply)	N = 28	N =66
A plan activation trigger (e.g., notification from the Pacific or West Coast and Alaska Tsunami Warning Center of a Warning, Advisory or Watch for your area)	92.9% (26)	87.9% (58)
24/7 warning point procedures to receive and disseminate tsunami alerts	85.7% (24)	74.2% (49)
Emergency Operation Center Activation (with staffing levels)	92.9% (26)	83.3% (55)
Roles and responsibilities for multiple organizational personnel	89.3% (25)	83.3% (55)
Roles and responsibilities for local volunteer organizations active in disasters	53.6% (15)	59.1% (39)
Provisions for coordination with other levels of government and private sector entities	71.4% (20)	75.8% (50)
Clearly identified evacuation routes and assembly areas for evacuees	89.3% (25)	78.8% (52)
Provisions for evacuation of special populations (e.g., persons with disabilities, non-English speaking persons, visitors, etc.)	39.3% (11)	59.1% (39)
Vertical evacuation procedures for communities with no high ground	39.3% (11)	21.2% (14)
Activation of sirens and/or signaling devices	85.7% (24)	48.5% (32)
Shelter and mass care for evacuees	64.3% (18)	57.6% (38)
Methods of providing emergency period instructions to residents and visitors	67.9% (19)	66.7% (44)
Provisions for notification and emergency period instructions for commercial and recreational boating communities	32.1% (9)	34.8% (23)

Survey Items and Response Choices	Recognized as "TsunamiReady"	Not Recognized as "TsunamiReady"
Search and rescue and the timing of intervention	53.6% (15)	47.0% (31)
Provisions for damage assessment after the tsunami danger has passed	60.7% (17)	53.0% (35)
Criteria and procedures for issuing an "all clear" after a destructive tsunami	78.6% (22)	56.1% (37)
Procedures for "standing down" after initiating response for a non-destructive tsunami	78.6% (22)	60.6% (40)
Provisions for periodic drills and exercises	60.7% (17)	45.5% (30)
4.11 From what tsunami warning center does your organization or jurisdiction receive tsunami information?		
	N = 28	N =62
Pacific Tsunami Warning Center in Eva Beach, Hawaii	17.9% (5)	8.1% (5)
West Coast and Alaska Tsunami Warning Center, Palmer, Alaska	75.0% (21)	82.3% (51)
Other source	7.1% (2)	9.7% (6)
4.12 How does your organization or jurisdiction receive tsunami messages from the appropriate Tsunami Warning Center? (Please select all that apply)		
	N = 28	N =66
NOAA Weather Radio	85.7% (24)	62.1% (41)
Emergency Manager's Weather Information Network	28.6% (8)	27.3% (18)
State telecomm systems	57.1% (16)	51.5% (34)
Phone call down tree from another agency	42.9% (12)	40.9% (27)
National Warning System (NAWAS – national or state-side)	78.6% (22)	48.5% (32)
Direct link to Local Weather Forecast Office	32.1% (9)	36.4% (24)
NOAA Weather Wire	25.0% (7)	16.7% (11)
NOAA Port	3.6% (1)	7.6% (5)
Aeronautical Fixed Telecommunication Network (AFTN)	0.0% (0)	1.5% (1)
US Coast Guard Radio	10.7% (3)	10.6% (7)
Directly from Tsunami Warning Center (TWC) via monitored email, FAX, or text messaging	75.0% (21)	37.9% (25)
Other	14.3% (4)	9.1% (6)
PART 5. EXERCISES AND TRAINING ITEMS		
5.1 Does your organization or jurisdiction conduct exercises to test your tsunami plan?		
	N = 28	N =70
Yes	75.0% (21)	30.0% (21)
No (<i>skip to 5.7</i>)	25.0% (7)	70.0% (49)
5.2 Do these exercises test: (Please select all that apply)		
	N = 21	N = 21
Response plan in general	71.4% (15)	95.2% (20)
Ability to evacuate part or all of your organization or community in tsunami inundation zones	38.1% (8)	57.1% (12)
Siren function	76.2% (16)	38.1% (8)
Emergency Alert System ability to deliver a warning	76.2% (16)	57.1% (12)
Other	19.0% (4)	0.0% (0)
5.3 Have these response exercises mainly tested your ability to: (Please select all that apply)		
	N = 21	N = 21
Respond to a warning issued by the Pacific or West Coast and Alaska Tsunami Warning Center	100.0% (21)	95.2% (20)
Respond to an actual tsunami impact	61.9% (13)	57.1% (12)
Recover from a damaging tsunami impact	19.0% (4)	23.8% (5)
Other	0.0% (0)	9.5% (2)
5.4 Have your response exercises been: (Please select all types of exercises done)		
	N = 21	N = 21
Tabletop exercises (e.g., discussion exercises, low stress to clarify roles and responsibilities)	95.2% (20)	85.7% (18)

Survey Items and Response Choices	Recognized as "TsunamiReady"	Not Recognized as "TsunamiReady"
Functional exercises (e.g., performance exercises, sequence of messages, evaluate plans and Standard Operating Procedures (SOPs))	76.2% (16)	71.4% (15)
Full scale exercises (e.g., field event with Emergency Operations Center (EOC) activation, deployment, comprehensive)	52.4% (11)	33.3% (7)
5.5 Who has facilitated the exercises held? (Please select all that apply)		
	N = 21	N = 21
Internal emergency management personnel	95.2% (20)	90.5% (19)
External emergency management personnel (e.g., state or federal partners)	57.1% (12)	57.1% (12)
Outside consultants	23.8% (5)	23.8% (5)
Other	9.5% (2)	4.8% (1)
5.6 As a result of conducting these exercises, have any of the following occurred? (Please select all that apply)		
	N = 21	N = 20
Plans have been updated or modified	85.7% (18)	80.0% (16)
Staff has become more familiar with roles	100.0% (21)	95.0% (19)
Equipment has been tested	71.4% (15)	55.0% (11)
New procedures have been implemented	57.1% (12)	60.0% (12)
Other	0.0% (0)	5.0% (1)
5.7 Has tsunami planning staff within your organization received training in tsunami planning or in issues related to tsunami?		
	N = 28	N = 70
Yes	82.1% (23)	58.6% (41)
No (<i>skip to 6.1</i>)	17.9% (5)	41.4% (29)
5.8 Has this training included: (Please select all that apply)		
	N = 23	N = 41
Tsunami science (e.g., seminar on how tsunamis occur, regional hazards, history of tsunami events, etc.)	91.3% (21)	90.2% (37)
Social science contributions (e.g., information on how to make warnings more effective)	43.5% (10)	63.4% (26)
Tsunami modeling or mapping	73.9% (17)	78.0% (32)
Planning considerations specific to tsunamis	82.6% (19)	80.5% (33)
Tsunami warning protocol	87.0% (20)	75.6% (31)
Other	0.0% (0)	7.3% (3)
PART 6. TSUNAMI HAZARD MITIGATION ITEMS		
6.1 Has your organization or jurisdiction developed a hazard mitigation plan that addresses tsunamis?		
	N = 28	N = 69
Yes, have a completed hazard mitigation plan that addresses tsunamis	71.4% (20)	46.4% (32)
Have initiated planning, but plan is not yet complete	10.7% (3)	18.8% (13)
Have not begun to plan, but intend to do so	14.3% (4)	17.4% (12)
Have no hazard mitigation plan for tsunamis and do not plan to develop one	3.6% (1)	17.4% (12)
6.2 Does your organization or jurisdiction have critical facilities that are in the tsunami inundation zone?		
	N = 28	N = 70
Yes	92.9% (26)	52.9% (37)
No (<i>skip to 6.7</i>)	7.1% (2)	32.9% (23)
Don't know (<i>skip to 6.7</i>)	0.0% (0)	14.3% (10)
6.3 Please identify the type of critical facilities located in the tsunami inundation zone: (Please select all that apply)		
	N = 26	N = 36
Fire station(s)	65.4% (17)	66.7% (24)
Police station(s)	61.5% (16)	47.2% (17)
Hospital(s) or clinic(s)	23.1% (6)	16.7% (6)
School(s)	53.8% (14)	63.9% (23)

Survey Items and Response Choices	Recognized as "TsunamiReady"	Not Recognized as "TsunamiReady"
Emergency Operations Center(s)	26.9% (7)	13.9% (5)
Facility housing a lifeline or utility	57.7% (15)	61.1% (22)
Other	38.5% (10)	33.3% (12)
6.4 Do you have a response plan for critical facilities in the tsunami inundation zone?		
	N = 26	N = 37
Yes	57.7% (15)	51.4% (19)
No	42.3% (11)	48.6% (18)
6.5 Has your organization or jurisdiction abandoned, modified, or relocated an existing critical facility because it was in a tsunami hazard zone?		
	N = 26	N = 37
Yes	3.8% (1)	13.5% (5)
No (<i>skip to 6.7</i>)	84.6% (22)	75.7% (28)
Don't know (<i>skip to 6.7</i>)	11.5% (3)	10.8% (4)
6.6 Was this critical facility a: (Please select all that apply)		
	N = 1	N = 5
Fire station(s)	100.0% (1)	60.0% (3)
Police station(s)	0.0% (0)	20.0% (1)
Hospital(s) or clinic(s)	0.0% (0)	20.0% (1)
School(s)	0.0% (0)	40.0% (2)
Emergency Operations Center(s)	100.0% (1)	40.0% (2)
Facility housing a lifeline or utility	0.0% (0)	20.0% (1)
Other	0.0% (0)	40.0% (2)
6.7 Has your organization or jurisdiction considered the tsunami hazard or mapped inundation zones in other land-use planning decisions?		
	N = 28	N = 70
Yes	53.6% (15)	30.0% (21)
No (<i>skip to 6.9</i>)	25.0% (7)	24.3% (17)
Don't know (<i>skip to 6.9</i>)	21.4% (6)	45.7% (32)
6.9 Are there areas in which your organization has facilities or your jurisdiction has residents that cannot be rapidly evacuated in a tsunami event?		
	N = 28	N = 70
Yes	57.1% (16)	37.1% (26)
No (<i>skip to 7.1</i>)	35.7% (10)	44.3% (31)
Don't know (<i>skip to 7.1</i>)	7.1% (2)	18.6% (13)
6.10 Regarding these facilities operated by your organization or residents within your jurisdiction that cannot be evacuated in a timely manner, have you: (Please select all that apply)		
	N = 16	N = 25
Identified safe areas within the facility for them to remain in place during the tsunami (e.g., higher floors of a building)	50.0% (8)	48.0% (12)
Modified the facility to withstand tsunamis	0.0% (0)	0.0% (0)
Built special structures that serve as evacuation sites for those who can't reach higher ground	0.0% (0)	0.0% (0)
Have not done anything to address the issue of facilities that cannot be evacuated in a timely manner	50.0% (8)	60.0% (15)
PART 7. SIGNALING DEVICES ITEMS		
7.1 Does your organization or jurisdiction have tsunami signaling devices or sirens or used existing signaling devices for tsunami warnings?		
	N = 28	N = 70
Yes (<i>skip to 7.3</i>)	75.0% (21)	31.4% (22)
No	25.0% (7)	62.9% (44)
Don't know (<i>skip to 7.10</i>)	0.0% (0)	5.7% (4)

Survey Items and Response Choices	Recognized as "TsunamiReady"	Not Recognized as "TsunamiReady"
7.2 Why has your organization or jurisdiction not deployed tsunami signaling devices or sirens or used existing signaling devices for tsunami warnings? (Please select all that apply) (All responses skip to 7.10)	N = 7	N = 43
Have ordered signaling devices but have not yet deployed them	14.3% (1)	2.3% (1)
Signaling devices are too expensive	28.6% (2)	30.2% (13)
Signaling devices will not be purchased and deployed due to community opposition	28.6% (2)	4.7% (2)
Signaling devices are opposed by environmental or coastal conservancy groups	14.3% (1)	2.3% (1)
Other	57.1% (4)	72.1% (31)
7.3 How many signaling devices have been deployed within the boundaries of your organization or jurisdiction?	N = 21	N = 22
1-3	28.6% (6)	45.5% (10)
4-6	23.8% (5)	9.1% (2)
7-10	9.5% (2)	18.2% (4)
11-20	14.3% (3)	13.6% (3)
More than 20	23.8% (5)	13.6% (3)
7.4 Do your signaling devices have both voice and audible signal capabilities?	N = 21	N = 22
Yes	76.2% (16)	50.0% (11)
No	23.8% (5)	50.0% (11)
7.5 Are the tones used for tsunami warning different than tones used for other hazards?	N = 21	N = 22
Yes	47.6% (10)	63.6% (14)
No	52.4% (11)	36.4% (8)
7.6 How often are signaling devices tested by your organization or jurisdiction?	N = 21	N = 22
Weekly	23.8% (5)	27.3% (6)
Monthly	66.7% (14)	31.8% (7)
Bi-Monthly	0.0% (0)	0.0% (0)
Quarterly	9.5% (2)	9.1% (2)
Annually	0.0% (0)	13.6% (3)
Tested but not on a scheduled basis	0.0% (0)	13.6% (3)
Never tested	0.0% (0)	4.5% (1)
7.7 Is there a specific day of the week and time of day signaling devices are tested in your organization or jurisdiction?	N = 21	N = 22
Yes	85.7% (18)	59.1% (13)
No (skip to 7.8)	14.3% (3)	40.9% (9)
7.7a Day of testing:	N = 17	N = 11
Sunday	0.0% (0)	0.0% (0)
Monday	41.2% (7)	45.5% (5)
Tuesday	0.0% (0)	9.1% (1)
Wednesday	52.9% (9)	27.3% (3)
Thursday	0.0% (0)	0.0% (0)
Friday	5.9% (1)	0.0% (0)
Saturday	0.0% (0)	18.2% (2)
7.7b Time of testing:	N = 18	N = 10
Morning (9 AM-10:59 AM)	22.2% (4)	10.0% (1)
Midday (11 AM-12:59 PM)	50.0% (9)	60.0% (6)
Early Afternoon (1 PM-2:59 PM)	22.2% (4)	10.0% (1)

Survey Items and Response Choices	Recognized as "TsunamiReady"	Not Recognized as "TsunamiReady"
Late Afternoon (3 PM-5 PM)	5.6% (1)	20.0% (2)
7.8 Approximately what percentage of your tsunami vulnerable population is covered by signaling devices?		
	N = 21	N = 22
10% or less	4.8% (1)	13.6% (3)
11-20%	4.8% (1)	4.5% (1)
21-30%	9.5% (2)	0.0% (0)
31-40%	4.8% (1)	27.3% (6)
41-50%	9.5% (2)	4.5% (1)
51-60%	4.8% (1)	9.1% (2)
61-70%	0.0% (0)	4.5% (1)
71-80%	14.3% (3)	4.5% (1)
81-90%	19.0% (4)	4.5% (1)
91-99%	9.5% (2)	4.5% (1)
100% (skip to 7.10)	19.0% (4)	22.7% (5)
7.9 Since you have deployed signaling devices but the coverage is less than 100.0% of the vulnerable population, do you plan to deploy additional devices?		
	N = 17	N = 17
Yes (skip to 7.11)	52.9% (9)	58.8% (10)
No (skip to 7.12)	47.1% (8)	41.2% (7)
7.10 Do you plan to purchase or have already purchased signaling devices that have not yet been deployed?		
	N = 11	N = 53
Yes	18.2% (2)	11.3% (6)
No (skip to 7.12)	72.7% (8)	75.5% (40)
Don't know (skip to 7.12)	9.1% (1)	13.2% (7)
7.11 How long will it be before these signaling devices are deployed?		
	N = 11	N = 16
Within the next 6 months	18.2% (2)	0.0% (0)
6 months to one year	9.1% (1)	25.0% (4)
Over one year	18.2% (2)	18.8% (3)
Uncertain when they will be deployed	54.5% (6)	56.3% (9)
7.12 What other methods besides sirens are used or would be used to alert the public of a tsunami hazard? (Please select all that apply)		
	N = 28	N = 69
NOAA Weather Radios	89.3% (25)	66.7% (46)
Community subsidized NOAA Weather Radio purchase system	17.9% (5)	13.0% (9)
Television audio/video overrides	85.7% (24)	68.1% (47)
Automatic phone dial-down systems (e.g., Reverse 911)	64.3% (18)	72.5% (50)
Loudspeaker announcements on emergency vehicles (and aircraft, if applicable)	78.6% (22)	72.5% (50)
Community-wide phone tree	21.4% (6)	11.6% (8)
SMS Text Messaging	50.0% (14)	27.5% (19)
Emergency Management Radio	25.0% (7)	23.2% (16)
Marine Band Radio	35.7% (10)	24.6% (17)
No other methods are or would be used	0.0% (0)	1.4% (1)
Other	28.6% (8)	14.5% (10)
PART 8. TSUNAMI HAZARD AND EVACUATION SIGNAGE ITEMS		
8.1 Has your organization or jurisdiction deployed tsunami signs?		
	N = 28	N = 70
Yes	89.3% (25)	31.4% (22)
No (skip to 8.8)	10.7% (3)	68.6% (48)
8.2a Has your organization or jurisdiction deployed tsunami hazard zone signs?		
	N = 24	N = 22

Survey Items and Response Choices	Recognized as "TsunamiReady"	Not Recognized as "TsunamiReady"
Yes	79.2% (19)	81.8% (18)
No	20.8% (5)	18.2% (4)
8.2b Has your organization or jurisdiction deployed entering and leaving tsunami hazard zone signs?		
	N = 25	N = 22
Yes	44.0% (11)	50.0% (11)
No	56.0% (14)	50.0% (11)
8.2c Has your organization or jurisdiction deployed tsunami evacuation route signs?		
	N = 25	N = 22
Yes	84.0% (21)	72.7% (16)
No	16.0% (4)	27.3% (6)
8.2d Has your organization or jurisdiction deployed tsunami evacuation site signs?		
	N = 25	N = 22
Yes	56.0% (14)	45.5% (10)
No	44.0% (11)	54.5% (12)
8.2e Has your organization or jurisdiction deployed "In Case of Earthquake Go to High Ground or Inland" signs?		
	N = 25	N = 21
Yes	68.0% (17)	52.4% (11)
No	32.0% (8)	47.6% (10)
8.3 Has your jurisdiction covered all tsunami vulnerable areas with appropriate signage?		
	N = 25	N = 22
Yes (<i>skip to 8.5</i>)	84.0% (21)	45.5% (10)
No	16.0% (4)	54.5% (12)
8.4 Why has your jurisdiction not deployed signs to all vulnerable areas? (Please select all that apply)		
	N = 4	N = 12
Inadequate funding to complete deployment	75.0% (3)	58.3% (7)
Unsure how to order/procure these signs	0.0% (0)	8.3% (1)
Theft or vandalism	25.0% (1)	16.7% (2)
Federal, state, or local regulations	0.0% (0)	0.0% (0)
Opposition by individual residents	25.0% (1)	8.3% (1)
Opposition by organized entities (e.g., business or community group)	0.0% (0)	25.0% (3)
Opposition by state departments of transportation	0.0% (0)	0.0% (0)
Other	25.0% (1)	25.0% (3)
8.5 Would you say that theft or destruction of tsunami signs in your jurisdiction is a:		
	N = 25	N = 20
Not at all a problem	24.0% (6)	50.0% (10)
Minor problem	48.0% (12)	25.0% (5)
Moderate problem	24.0% (6)	10.0% (2)
Major problem	4.0% (1)	15.0% (3)
8.6 How does your organization or jurisdiction decide where to put up signs? (Please select all that apply)		
	N = 25	N = 22
Tsunami inundation maps	72.0% (18)	81.8% (18)
Tsunami evacuation maps	56.0% (14)	59.1% (13)
Public vs. private property	24.0% (6)	26.4% (8)
Environmental or aesthetic factors	8.0% (2)	13.6% (3)
Federal, state or local government regulation	40.0% (10)	27.3% (6)
Other	8.0% (2)	18.2% (4)
8.7 Does your organization or jurisdiction use any of the following methods to identify tsunami hazard routing? (Please select all that apply) (<i>All responses skip to</i>		
	N = 25	N = 22

Survey Items and Response Choices	Recognized as "TsunamiReady"	Not Recognized as "TsunamiReady"
9.1)		
Non-standard signage	12.0% (3)	4.5% (1)
Routing messages painted on roads	4.0% (1)	4.5% (1)
Routing information painted on sidewalks	0.0% (0)	0.0% (0)
No methods used to identify tsunami hazard routing	52.0% (13)	54.5% (12)
Other	16.0% (4)	22.7% (5)
8.8 Why has your organization or jurisdiction not deployed tsunami signs? (Please select all that apply)	N = 3	N = 47
Lack of funding for signage	33.3% (1)	25.5% (12)
Local opposition to sign deployment	33.3% (1)	4.3% (2)
Concerns about theft or vandalism	33.3% (1)	4.3% (2)
Do not consider them needed	33.3% (1)	29.8% (14)
Potential confusion with higher risk hazards (e.g., hurricanes)	33.3% (1)	12.8% (6)
Federal, state or local regulations	0.0% (0)	8.5% (4)
Other	33.3% (1)	40.4% (19)
PART 9. TSUNAMIREADY ITEMS		
9.2 When did you receive this designation?	N = 28	N = 0
Within the last 6 months (<i>skip to 9.4</i>)	7.1% (2)	
More than 6 months but less than one year (<i>skip to 9.4</i>)	3.6% (1)	
One year to three years (<i>skip to 9.4</i>)	32.1% (9)	
More than 3 years ago (<i>skip to 9.3</i>)	57.1% (16)	
9.3 How many times has your organization or jurisdiction renewed your TsunamiReady recognition?	N = 14	N = 0
Once	57.1% (8)	
Twice	28.6% (4)	
Three times	7.1% (1)	
More than three times	7.1% (1)	
9.4 In your efforts to become TsunamiReady, did you encounter any difficulties or challenges?	N = 28	N = 0
Yes	28.6% (8)	
No (<i>skip to 9.9</i>)	71.4% (20)	
9.5 What was the nature of these barriers? (Please select all that apply) (<i>All responses skip to 9.9</i>)	N = 8	N = 0
Convincing decision makers that there was a tsunami hazard that required planning	62.5% (5)	
Resource shortfalls that made planning difficult (e.g., personnel, funding, etc.)	87.5% (7)	
Meeting specific criteria required by NOAA for TsunamiReady status	25.0% (2)	
Other barriers	25.0% (2)	
9.6 Is your organization or jurisdiction currently working toward TsunamiReady status?	N = 0	N = 70
Yes (<i>skip to 9.7</i>)		41.4% (29)
No		58.6% (41)
9.7 When do you expect to complete all requirements and be recognized as TsunamiReady? (<i>All responses skip to 9.9</i>)	N = 0	N = 29
Within the next 6 months		34.5% (10)
More than 6 months but less than one year		27.6% (8)
One year to three years		10.3% (3)

Survey Items and Response Choices	Recognized as "TsunamiReady"	Not Recognized as "TsunamiReady"
More than 3 years		0.0% (0)
Not sure when we will be finished		27.6% (8)
9.8 What is the main reason your organization or jurisdiction is not working toward TsunamiReady status?		
	N = 0	N = 40
Unfamiliar with the TsunamiReady Program		25.0% (10)
Lack of resources for planning		12.5% (5)
Lack of support from decision makers to plan for tsunamis		0.0% (0)
Low probability that our organization/jurisdiction will be hit by a tsunami		45.0% (18)
Have a tsunami plan but not interested in TsunamiReady Program		2.5% (1)
Other		15.0% (6)

Appendix G. Survey Results by Region

The table below provides a comparison of the survey responses broken out by region (Table 2.3).

Survey Items and Response Choices	AK, HI, & Pacific Islands	West Coast (CA, OR, or WA)	Gulf Coast (TX to FL)	East Coast (GA to ME)	U.S. Caribbean Islands
PART 3. PUBLIC EDUCATION ITEMS					
3.1 Does your organization or jurisdiction provide tsunami information intended to raise tsunami awareness and promote preparedness?	N = 15	N = 72	N = 7	N = 11	N = 3
Yes	86.7% (13)	80.6% (58)	71.4% (5)	81.8% (9)	100.0% (3)
No (<i>skip to 4.1</i>)	13.3% (2)	19.4% (14)	28.6% (2)	18.2% (2)	0.0% (0)
3.2 What target audiences are included in your provision of tsunami education? (Please select all that apply)	N = 13	N = 58	N = 5	N = 9	N = 3
Residents of the community (in general)	100.0% (13)	91.4% (53)	80.0% (4)	77.8% (7)	100.0% (3)
Visitors to the community (e.g., beach visitors, tourists)	69.2% (9)	67.2% (39)	60.0% (3)	66.7% (6)	66.7% (2)
Members of your organization or agency	69.2% (9)	82.8% (48)	80.0% (4)	66.7% (6)	100.0% (3)
Schools (students, teachers, administrators)	69.2% (9)	63.8% (37)	40.0% (2)	55.6% (5)	100.0% (3)
Speakers of other languages	15.4% (2)	22.4% (13)	40.0% (2)	22.2% (2)	66.7% (2)
Seniors and/or persons with disabilities	53.8% (7)	51.7% (30)	20.0% (1)	44.4% (4)	100.0% (3)
Other	7.7% (1)	12.1% (7)	0.0% (0)	33.3% (3)	0.0% (0)
3.3 What methods of disseminating tsunami public information are employed by your organization or jurisdiction? (Please select all that apply)	N = 13	N = 57	N = 5	N = 9	N = 3
Mailings	23.1% (3)	29.8% (17)	20.0% (1)	22.2% (2)	0.0% (0)
Newspaper inserts	15.4% (2)	21.1% (12)	0.0% (0)	11.1% (1)	0.0% (0)
Public meetings, workshops, or seminars	69.2% (9)	70.2% (40)	80.0% (4)	88.9% (8)	100.0% (3)
Literature tables/displays in public buildings	69.2% (9)	82.5% (47)	60.0% (3)	66.7% (6)	100.0% (3)
Published in telephone books	38.5% (5)	1.8% (1)	0.0% (0)	11.1% (1)	0.0% (0)
Beach kiosks or in park visitor centers	7.7% (1)	26.3% (15)	0.0% (0)	11.1% (1)	33.3% (1)
Signs posted in tsunami hazard zones	69.2% (9)	63.2% (36)	0.0% (0)	33.3% (3)	100.0% (3)
Use of schools or school systems	46.2% (6)	29.8% (17)	0.0% (0)	22.2% (2)	100.0% (3)
Other	15.4% (2)	29.8% (17)	0.0% (0)	11.1% (1)	0.0% (0)
3.4 What are the sources of tsunami public education materials disseminated by your organization or jurisdiction? (Please select all that apply)	N = 13	N = 57	N = 5	N = 9	N = 3
State emergency management agency	84.6% (11)	75.4% (43)	40.0% (2)	66.7% (6)	100.0% (3)
Local emergency management agency	46.2% (6)	71.9% (41)	40.0% (2)	66.7% (6)	66.7% (2)
Federal Emergency Management Agency (FEMA)	53.8% (7)	49.1% (28)	60.0% (3)	66.7% (6)	100.0% (3)

Survey Items and Response Choices	AK, HI, & Pacific Islands	West Coast (CA, OR, or WA)	Gulf Coast (TX to FL)	East Coast (GA to ME)	U.S. Caribbean Islands
Red Cross or other non-governmental organizations active in disaster relief	38.5% (5)	24.6% (14)	20.0% (1)	22.2% (2)	33.3% (1)
National Weather Service or the National Oceanic and Atmospheric Administration (NOAA)	61.5% (8)	73.7% (42)	80.0% (4)	88.9% (8)	100.0% (3)
University or hazard education oriented center	30.8% (4)	17.5% (10)	20.0% (1)	0.0% (0)	0.0% (0)
Other	23.1% (3)	14.0% (8)	0.0% (0)	11.1% (1)	0.0% (0)
3.5 Has your organization or jurisdiction published and disseminated tsunami evacuation route maps that direct residents or visitors to tsunami safe areas?					
	N = 13	N = 57	N = 4	N = 9	N = 3
Yes	53.8% (7)	63.2% (36)	75.0% (3)	66.7% (6)	100.0% (3)
No	46.2% (6)	36.8% (21)	25.0% (1)	33.3% (3)	0.0% (0)
3.6 Do schools within your jurisdiction's tsunami inundation/hazard zones conduct tsunami evacuation drills?					
	N = 13	N = 57	N = 4	N = 9	N = 3
Yes	38.5% (5)	45.6% (26)	0.0% (0)	22.2% (2)	100.0% (3)
No	61.5% (8)	54.4% (31)	100.0% (4)	77.8% (7)	0.0% (0)
3.7 In your opinion, what is the one most significant barrier to achieving adequate tsunami awareness and preparedness in your organization or jurisdiction?					
	N = 12	N = 57	N = 4	N = 9	N = 3
Individual or community apathy	25.0% (3)	19.3% (11)	25.0% (1)	11.1% (1)	33.3% (1)
Insufficient resources	25.0% (3)	29.8% (17)	0.0% (0)	0.0% (0)	66.7% (2)
Infrequency of damaging tsunamis	33.3% (4)	17.5% (10)	50.0% (2)	33.3% (3)	0.0% (0)
Unavailability of high quality education materials	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Low visibility of the tsunami hazard	0.0% (0)	5.3% (3)	25.0% (1)	22.2% (2)	0.0% (0)
Have not encountered any significant barriers	16.7% (2)	8.8% (5)	0.0% (0)	22.2% (2)	0.0% (0)
Other	0.0% (0)	19.3% (11)	0.0% (0)	11.1% (1)	0.0% (0)
PART 4. RESPONSE PLAN ITEMS					
4.1 Has your organization developed an emergency response plan that addresses tsunamis?					
	N = 15	N = 70	N = 6	N = 11	N = 3
Yes, have a completed plan that is updated periodically	66.7% (10)	61.4% (43)	50.0% (3)	63.6% (7)	33.3% (1)
Yes, have a completed plan but it has not been updated	0.0% (0)	10.0% (7)	0.0% (0)	9.1% (1)	33.3% (1)
Have initiated planning, but plan is not yet complete (<i>skip to 4.3</i>)	13.3% (2)	17.1% (12)	16.7% (1)	9.1% (1)	33.3% (1)
Have not begun to plan but intend to do so (<i>skip to 4.3</i>)	20.0% (3)	7.1% (5)	33.3% (2)	9.1% (1)	0.0% (0)
Have no response plan for tsunamis and do not intend to develop one (<i>skip to 5.1</i>)	0.0% (0)	4.3% (3)	0.0% (0)	9.1% (1)	0.0% (0)
4.2 When was your plan finalized?					
	N = 10	N = 50	N = 3	N = 8	N = 2
Prior to 1991	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
1991 to 2000	30.0% (3)	6.0% (3)	0.0% (0)	0.0% (0)	50.0% (1)

Survey Items and Response Choices	AK, HI, & Pacific Islands	West Coast (CA, OR, or WA)	Gulf Coast (TX to FL)	East Coast (GA to ME)	U.S. Caribbean Islands
2001 to 2004	30.0% (3)	14.0% (7)	0.0% (0)	0.0% (0)	0.0% (0)
After 2004	40.0% (4)	80.0% (40)	100.0% (3)	100.0% (8)	50.0% (1)
4.3 When was your plan last updated? (All responses skip to 4.5)					
	N = 10	N = 50	N = 3	N = 8	N = 2
Prior to 1991	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
1991 to 2000	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
2001 to 2004	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
After 2004	100.0% (10)	86.0% (43)	100.0% (3)	87.5% (7)	50.0% (1)
Has not been updated	0.0% (0)	14.0% (7)	0.0% (0)	12.5% (1)	50.0% (1)
4.4 When do you anticipate completion and approval of the plan?					
	N = 5	N = 17	N = 3	N = 2	N = 1
Within the next 6 months	20.0% (1)	17.6% (3)	0.0% (0)	0.0% (0)	0.0% (0)
6 months to 1 year	40.0% (2)	17.6% (3)	0.0% (0)	50.0% (1)	100.0% (1)
More than a year	0.0% (0)	17.6% (3)	33.3% (1)	0.0% (0)	0.0% (0)
Uncertain when we will have a finalized and approved plan	40.0% (2)	47.1% (8)	66.7% (2)	50.0% (1)	0.0% (0)
4.5 The tsunami response plan was or will be developed by:					
	N = 15	N = 66	N = 6	N = 10	N = 3
Emergency planners within my organization	20.0% (3)	43.9% (29)	83.3% (5)	40.0% (4)	0.0% (0)
Private consultants outside my organization	0.0% (0)	3.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)
Some combination of internal and outside personnel	80.0% (12)	45.5% (30)	16.7% (1)	60.0% (6)	100.0% (3)
Other	0.0% (0)	7.6% (5)	0.0% (0)	0.0% (0)	0.0% (0)
4.6 Based upon what type of information from the Pacific Tsunami Warning Center or the West Coast and Alaska Tsunami Warning Center does or will your plan be activated? (Please select all that apply)					
	N = 14	N = 66	N = 5	N = 10	N = 3
Warning only	14.3% (2)	24.2% (16)	20.0% (1)	20.0% (2)	0.0% (0)
Advisory only	7.1% (1)	6.1% (4)	0.0% (0)	0.0% (0)	33.3% (1)
Watch only	21.4% (3)	7.6% (5)	0.0% (0)	10.0% (1)	33.3% (1)
Warning and Advisory	21.4% (3)	10.6% (7)	0.0% (0)	0.0% (0)	0.0% (0)
Warning and Watch	0.0% (0)	1.5% (1)	20.0% (1)	0.0% (0)	0.0% (0)
Advisory and Watch	0.0% (0)	1.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)
Warning, Advisory, and Watch	35.7% (5)	47.0% (31)	60.0% (3)	50.0% (5)	33.3% (1)
Other criteria	0.0% (0)	1.5% (1)	0.0% (0)	20.0% (2)	0.0% (0)
4.7 Has (or will) your organization use(d) tsunami inundation maps in your tsunami planning?					
	N = 15	N = 67	N = 6	N = 10	N = 3
Yes (skip to 4.9)	60.0% (9)	92.5% (62)	66.7% (4)	50.0% (5)	100.0% (3)

Survey Items and Response Choices	AK, HI, & Pacific Islands	West Coast (CA, OR, or WA)	Gulf Coast (TX to FL)	East Coast (GA to ME)	U.S. Caribbean Islands
No	20.0% (3)	3.0% (2)	0.0% (0)	30.0% (3)	0.0% (0)
Don't know (<i>skip to 4.10</i>)	20.0% (3)	4.5% (3)	33.3% (2)	20.0% (2)	0.0% (0)
4.8 Why is your organization not using tsunami inundation maps? (Please select all that apply) (All responses skip to 4.10)					
	N = 3	N = 2	N = 0	N = 3	N = 0
Not anticipating inundation in populated areas	0.0% (0)	50.0% (1)		33.3% (1)	
Maps not currently available for area in which my organization or jurisdiction is located	66.7% (2)	0.0% (0)		66.7% (2)	
Maps are not needed for planning purposes	0.0% (0)	50.0% (1)		0.0% (0)	
In the process of developing tsunami inundation maps	33.3% (1)	0.0% (0)		66.7% (2)	
Using evacuation maps developed without tsunami inundation maps	0.0% (0)	0.0% (0)		66.7% (2)	
4.9 What is, or will be, the source of those maps? (Please select all that apply)					
	N = 9	N = 61	N = 4	N = 5	N = 3
Pacific Marine Environmental Laboratory (PMEL-NOAA)	0.0% (0)	16.4% (10)	25.0% (1)	20.0% (1)	0.0% (0)
A state agency (e.g., state office of emergency management, state geological survey, etc.)	33.3% (3)	75.4% (46)	50.0% (2)	80.0% (4)	100.0% (3)
University-based research center or university faculty	55.6% (5)	37.7% (23)	25.0% (1)	20.0% (1)	66.7% (2)
Private consultant or non-university based research center	0.0% (0)	8.2% (5)	0.0% (0)	0.0% (0)	0.0% (0)
Other	22.2% (2)	18.0% (11)	0.0% (0)	0.0% (0)	0.0% (0)
Don't know	0.0% (0)	6.6% (4)	0.0% (0)	20.0% (1)	0.0% (0)
4.10 Please indicate if your plan addresses (or will address) the following elements: (Please select all that apply)					
	N = 14	N = 65	N = 6	N = 10	N = 3
A plan activation trigger (e.g., notification from the Pacific or West Coast and Alaska Tsunami Warning Center of a Warning, Advisory or Watch for your area)	100.0% (14)	87.7% (57)	66.7% (4)	80.0% (8)	100.0% (3)
24/7 warning point procedures to receive and disseminate tsunami alerts	57.1% (8)	78.5% (51)	83.3% (5)	80.0% (8)	100.0% (3)
Emergency Operation Center Activation (with staffing levels)	92.9% (13)	80.0% (52)	100.0% (6)	90.0% (9)	100.0% (3)
Roles and responsibilities for multiple organizational personnel	85.7% (12)	81.5% (53)	66.7% (4)	90.0% (9)	100.0% (3)
Roles and responsibilities for local volunteer organizations active in disasters	57.1% (8)	52.3% (34)	50.0% (3)	70.0% (7)	100.0% (3)
Provisions for coordination with other levels of government and private sector entities	64.3% (9)	72.3% (47)	50.0% (3)	90.0% (9)	100.0% (3)
Clearly identified evacuation routes and assembly areas for evacuees	92.9% (13)	76.9% (50)	66.7% (4)	70.0% (7)	100.0% (3)
Provisions for evacuation of special populations (e.g., persons with disabilities, non-English speaking persons, visitors, etc.)	42.9% (6)	44.6% (29)	83.3% (5)	80.0% (8)	100.0% (3)
Vertical evacuation procedures for communities with no high ground	28.6% (4)	18.5% (12)	16.7% (1)	60.0% (6)	66.7% (2)
Activation of sirens and/or signaling devices	92.9% (13)	52.3% (34)	16.7% (1)	70.0% (7)	66.7% (2)
Shelter and mass care for evacuees	71.4% (10)	52.3% (34)	50.0% (3)	70.0% (7)	100.0% (3)
Methods of providing emergency period instructions to residents and visitors	71.4% (10)	60.0% (39)	66.7% (4)	80.0% (8)	66.7% (2)

Survey Items and Response Choices	AK, HI, & Pacific Islands	West Coast (CA, OR, or WA)	Gulf Coast (TX to FL)	East Coast (GA to ME)	U.S. Caribbean Islands
Provisions for notification and emergency period instructions for commercial and recreational boating communities	42.9% (6)	24.6% (16)	50.0% (3)	60.0% (6)	33.3% (1)
Search and rescue and the timing of intervention	57.1% (8)	43.1% (28)	33.3% (2)	60.0% (6)	100.0% (3)
Provisions for damage assessment after the tsunami danger has passed	64.3% (9)	49.2% (32)	50.0% (3)	70.0% (7)	66.7% (2)
Criteria and procedures for issuing an "all clear" after a destructive tsunami	85.7% (12)	53.8% (35)	50.0% (3)	80.0% (8)	66.7% (2)
Procedures for "standing down" after initiating response for a non-destructive tsunami	92.9% (13)	53.8% (35)	66.7% (4)	80.0% (8)	100.0% (3)
Provisions for periodic drills and exercises	57.1% (8)	41.5% (27)	33.3% (2)	70.0% (7)	100.0% (3)
4.11 From what tsunami warning center does your organization or jurisdiction receive tsunami information?					
	N = 14	N = 62	N = 4	N = 9	N = 3
Pacific Tsunami Warning Center in Eva Beach, Hawaii	28.6% (4)	8.1% (5)	0.0% (0)	0.0% (0)	33.3% (1)
West Coast and Alaska Tsunami Warning Center, Palmer, Alaska	64.3% (9)	83.9% (52)	25.0% (1)	88.9% (8)	66.7% (2)
Other source	7.1% (1)	8.1% (5)	75.0% (3)	11.1% (1)	0.0% (0)
4.12 How does your organization or jurisdiction receive tsunami messages from the appropriate Tsunami Warning Center? (Please select all that apply)					
	N = 14	N = 64	N = 6	N = 9	N = 3
NOAA Weather Radio	50.0% (7)	71.9% (46)	83.3% (5)	66.7% (6)	100.0% (3)
Emergency Manager's Weather Information Network	14.3% (2)	29.7% (19)	0.0% (0)	22.2% (2)	100.0% (3)
State telecomm systems	28.6% (4)	56.3% (36)	33.3% (2)	66.7% (6)	100.0% (3)
Phone call down tree from another agency	50.0% (7)	42.2% (27)	33.3% (2)	33.3% (3)	66.7% (2)
National Warning System (NAWAS – national or state-side)	57.1% (8)	54.7% (35)	50.0% (3)	88.9% (8)	33.3% (1)
Direct link to Local Weather Forecast Office	28.6% (4)	26.6% (17)	50.0% (3)	77.8% (7)	66.7% (2)
NOAA Weather Wire	14.3% (2)	12.5% (8)	50.0% (3)	66.7% (6)	33.3% (1)
NOAA Port	14.3% (2)	4.7% (3)	16.7% (1)	0.0% (0)	0.0% (0)
Aeronautical Fixed Telecommunication Network (AFTN)	0.0% (0)	1.6% (1)	0.0% (0)	0.0% (0)	0.0% (0)
US Coast Guard Radio	28.6% (4)	9.4% (6)	0.0% (0)	0.0% (0)	0.0% (0)
Directly from Tsunami Warning Center (TWC) via monitored email, FAX, or text messaging	64.3% (9)	48.4% (31)	0.0% (0)	33.3% (3)	100.0% (3)
Other	7.1% (1)	10.9% (7)	0.0% (0)	0.0% (0)	66.7% (2)
PART 5. EXERCISES AND TRAINING ITEMS					
5.1 Does your organization or jurisdiction conduct exercises to test your tsunami plan?					
	N = 14	N = 67	N = 6	N = 10	N = 3
Yes	57.1% (8)	41.8% (28)	50.0% (3)	30.0% (3)	66.7% (2)
No (<i>skip to 5.7</i>)	42.9% (6)	58.2% (39)	50.0% (3)	70.0% (7)	33.3% (1)
5.2 Do these exercises test: (Please select all that apply)					
	N = 8	N = 28	N = 3	N = 3	N = 2
Response plan in general	62.5% (5)	89.3% (25)	100.0% (3)	66.7% (2)	100.0% (2)

Survey Items and Response Choices	AK, HI, & Pacific Islands	West Coast (CA, OR, or WA)	Gulf Coast (TX to FL)	East Coast (GA to ME)	U.S. Caribbean Islands
Ability to evacuate part or all of your organization or community in tsunami inundation zones	25.0% (2)	50.0% (14)	100.0% (3)	33.3% (1)	100.0% (2)
Siren function	75.0% (6)	60.7% (17)	0.0% (0)	33.3% (1)	50.0% (1)
Emergency Alert System ability to deliver a warning	87.5% (7)	57.1% (16)	100.0% (3)	33.3% (1)	100.0% (2)
Other	25.0% (2)	7.1% (2)	0.0% (0)	0.0% (0)	0.0% (0)
5.3 Have these response exercises mainly tested your ability to: (Please select all that apply)	N = 8	N = 28	N = 3	N = 3	N = 2
Respond to a warning issued by the Pacific or West Coast and Alaska Tsunami Warning Center	100.0% (8)	96.4% (27)	33.3% (1)	100.0% (3)	100.0% (2)
Respond to an actual tsunami impact	37.5% (3)	57.1% (16)	100.0% (3)	66.7% (2)	100.0% (2)
Recover from a damaging tsunami impact	12.5% (1)	17.9% (5)	66.7% (2)	33.3% (1)	0.0% (0)
Other	0.0% (0)	3.6% (1)	33.3% (1)	0.0% (0)	0.0% (0)
5.4 Have your response exercises been: (Please select all types of exercises done)	N = 8	N = 27	N = 3	N = 3	N = 2
Tabletop exercises (e.g., discussion exercises, low stress to clarify roles and responsibilities)	75.0% (6)	92.6% (25)	100.0% (3)	100.0% (3)	100.0% (2)
Functional exercises (e.g., performance exercises, sequence of messages, evaluate plans and Standard Operating Procedures (SOPs))	75.0% (6)	77.8% (21)	33.3% (1)	33.3% (1)	100.0% (2)
Full scale exercises (e.g., field event with Emergency Operations Center (EOC) activation, deployment, comprehensive)	50.0% (4)	44.4% (12)	33.3% (1)	0.0% (0)	50.0% (1)
5.5 Who has facilitated the exercises held? (Please select all that apply)	N = 8	N = 27	N = 3	N = 3	N = 2
Internal emergency management personnel	100.0% (8)	92.6% (25)	100.0% (3)	66.7% (2)	100.0% (2)
External emergency management personnel (e.g., state or federal partners)	50.0% (4)	63.0% (17)	33.3% (1)	0.0% (0)	100.0% (2)
Outside consultants	25.0% (2)	14.8% (4)	33.3% (1)	33.3% (1)	100.0% (2)
Other	0.0% (0)	11.1% (3)	0.0% (0)	0.0% (0)	0.0% (0)
5.6 As a result of conducting these exercises, have any of the following occurred? (Please select all that apply)	N = 8	N = 27	N = 3	N = 2	N = 2
Plans have been updated or modified	75.0% (6)	81.5% (22)	100.0% (3)	100.0% (2)	100.0% (2)
Staff has become more familiar with roles	100.0% (8)	96.3% (26)	66.7% (2)	100.0% (2)	100.0% (2)
Equipment has been tested	75.0% (6)	66.7% (18)	33.3% (1)	50.0% (1)	0.0% (0)
New procedures have been implemented	50.0% (4)	63.0% (17)	66.7% (2)	50.0% (1)	0.0% (0)
Other	0.0% (0)	3.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)
5.7 Has tsunami planning staff within your organization received training in tsunami planning or in issues related to tsunami?	N = 14	N = 66	N = 6	N = 10	N = 3

Survey Items and Response Choices	AK, HI, & Pacific Islands	West Coast (CA, OR, or WA)	Gulf Coast (TX to FL)	East Coast (GA to ME)	U.S. Caribbean Islands
Yes	64.3% (9)	69.7% (46)	66.7% (4)	30.0% (3)	100.0% (3)
No (<i>skip to 6.1</i>)	35.7% (5)	30.3% (20)	33.3% (2)	70.0% (7)	0.0% (0)
5.8 Has this training included: (Please select all that apply)	N = 9	N = 46	N = 4	N = 3	N = 3
Tsunami science (e.g., seminar on how tsunamis occur, regional hazards, history of tsunami events, etc.)	100.0% (9)	91.3% (42)	75.0% (3)	33.3% (1)	100.0% (3)
Social science contributions (e.g., information on how to make warnings more effective)	11.1% (1)	63.0% (29)	50.0% (2)	66.7% (2)	66.7% (2)
Tsunami modeling or mapping	77.8% (7)	78.3% (36)	25.0% (1)	66.7% (2)	100.0% (3)
Planning considerations specific to tsunamis	77.8% (7)	78.3% (36)	100.0% (4)	100.0% (3)	100.0% (3)
Tsunami warning protocol	88.9% (8)	82.6% (38)	50.0% (2)	33.3% (1)	100.0% (3)
Other	0.0% (0)	4.3% (2)	25.0% (1)	0.0% (0)	0.0% (0)
PART 6. TSUNAMI HAZARD MITIGATION ITEMS					
6.1 Has your organization or jurisdiction developed a hazard mitigation plan that addresses tsunamis?	N = 14	N = 66	N = 6	N = 9	N = 3
Yes, have a completed hazard mitigation plan that addresses tsunamis	57.1% (8)	57.6% (38)	33.3% (2)	55.6% (5)	0.0% (0)
Have initiated planning, but plan is not yet complete	14.3% (2)	16.7% (11)	16.7% (1)	11.11% (1)	33.3% (1)
Have not begun to plan, but intend to do so	21.4% (3)	12.1% (8)	33.3% (2)	22.2% (2)	33.3% (1)
Have no hazard mitigation plan for tsunamis and do not plan to develop one	7.1% (1)	13.6% (9)	16.7% (1)	11.1% (1)	33.3% (1)
6.2 Does your organization or jurisdiction have critical facilities that are in the tsunami inundation zone?	N = 14	N = 66	N = 6	N = 10	N = 3
Yes	85.7% (12)	65.2% (43)	33.3% (2)	30.0% (3)	100.0% (3)
No (<i>skip to 6.7</i>)	0.0% (0)	33.3% (22)	33.3% (2)	20.0% (2)	0.0% (0)
Don't know (<i>skip to 6.7</i>)	14.3% (2)	1.5% (1)	33.3% (2)	50.0% (5)	0.0% (0)
6.3 Please identify the type of critical facilities located in the tsunami inundation zone: (Please select all that apply)	N = 12	N = 42	N = 2	N = 3	N = 3
Fire station(s)	75.0% (9)	61.9% (26)	100.0% (2)	100.0% (3)	33.3% (1)
Police station(s)	58.3% (7)	47.6% (20)	100.0% (2)	66.7% (2)	66.7% (2)
Hospital(s) or clinic(s)	25.0% (3)	11.9% (5)	50.0% (1)	66.7% (2)	33.3% (1)
School(s)	66.7% (8)	52.4% (22)	100.0% (2)	66.7% (2)	100.0% (3)
Emergency Operations Center(s)	8.3% (1)	19.0% (8)	50.0% (1)	33.3% (1)	33.3% (1)
Facility housing a lifeline or utility	75.0% (9)	47.6% (20)	100.0% (2)	100.0% (3)	100.0% (3)
Other	41.7% (5)	35.7% (15)	100.0% (2)	0.0% (0)	0.0% (0)
6.4 Do you have a response plan for critical facilities in the tsunami inundation zone?	N = 12	N = 43	N = 2	N = 3	N = 3

Survey Items and Response Choices	AK, HI, & Pacific Islands	West Coast (CA, OR, or WA)	Gulf Coast (TX to FL)	East Coast (GA to ME)	U.S. Caribbean Islands
Yes	58.3% (7)	55.8% (24)	50.0% (1)	66.7% (2)	0.0% (0)
No	41.7% (5)	44.2% (19)	50.0% (1)	33.3% (1)	100.0% (3)
6.5 Has your organization or jurisdiction abandoned, modified, or relocated an existing critical facility because it was in a tsunami hazard zone?					
	N = 12	N = 43	N = 2	N = 3	N = 3
Yes	16.7% (2)	7.0% (3)	50.0% (1)	0.0% (0)	0.0% (0)
No (<i>skip to 6.7</i>)	83.3% (10)	81.4% (35)	50.0% (1)	100.0% (3)	33.3% (1)
Don't know (<i>skip to 6.7</i>)	0.0% (0)	11.6% (5)	0.0% (0)	0.0% (0)	66.7% (2)
6.6 Was this critical facility a: (Please select all that apply)					
	N = 2	N = 3	N = 1	N = 0	N = 0
Fire station(s)	0.0% (0)	100.0% (3)	100.0% (1)		
Police station(s)	0.0% (0)	0.0% (0)	100.0% (1)		
Hospital(s) or clinic(s)	50.0% (1)	0.0% (0)	0.0% (0)		
School(s)	50.0% (1)	33.3% (1)	0.0% (0)		
Emergency Operations Center(s)	50.0% (1)	33.3% (1)	100.0% (1)		
Facility housing a lifeline or utility	0.0% (0)	33.3% (1)	0.0% (0)		
Other	50.0% (1)	33.3% (1)	0.0% (0)		
6.7 Has your organization or jurisdiction considered the tsunami hazard or mapped inundation zones in other land-use planning decisions?					
	N = 14	N = 66	N = 6	N = 10	N = 3
Yes	50.0% (7)	37.9% (25)	33.3% (2)	20.0% (2)	33.3% (1)
No (<i>skip to 6.9</i>)	21.4% (3)	28.8% (19)	0.0% (0)	20.0% (2)	0.0% (0)
Don't know (<i>skip to 6.9</i>)	28.6% (4)	33.3% (22)	66.7% (4)	60.0% (6)	66.7% (2)
6.9 Are there areas in which your organization has facilities or your jurisdiction has residents that cannot be rapidly evacuated in a tsunami event?					
	N = 14	N = 66	N = 5	N = 10	N = 3
Yes	57.1% (8)	42.4% (28)	20.0% (1)	30.0% (3)	66.7% (2)
No (<i>skip to 7.1</i>)	35.7% (5)	47.0% (31)	20.0% (1)	30.0% (3)	33.3% (1)
Don't know (<i>skip to 7.1</i>)	7.1% (1)	10.6% (7)	60.0% (3)	40.0% (4)	0.0% (0)
6.10 Regarding these facilities operated by your organization or residents within your jurisdiction that cannot be evacuated in a timely manner, have you: (Please select all that apply)					
	N = 8	N = 27	N = 1	N = 3	N = 2
Identified safe areas within the facility for them to remain in place during the tsunami (e.g., higher floors of a building)	12.5% (1)	59.3% (16)	0.0% (0)	33.3% (1)	100.0% (2)
Modified the facility to withstand tsunamis	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Built special structures that serve as evacuation sites for those who can't reach higher ground	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)

Survey Items and Response Choices	AK, HI, & Pacific Islands	West Coast (CA, OR, or WA)	Gulf Coast (TX to FL)	East Coast (GA to ME)	U.S. Caribbean Islands
Have not done anything to address the issue of facilities that cannot be evacuated in a timely manner	87.5% (7)	40.7% (11)	100.0% (1)	100.0% (3)	50.0% (1)
PART 7. SIGNALING DEVICES ITEMS					
7.1 Does your organization or jurisdiction have tsunami signaling devices or sirens or used existing signaling devices for tsunami warnings?	N = 14	N = 66	N = 5	N = 10	N = 3
Yes (<i>skip to 7.3</i>)	78.6% (11)	37.9% (25)	40.0% (2)	30.0% (3)	66.7% (2)
No	21.4% (3)	60.6% (40)	60.0% (3)	40.0% (4)	33.3% (1)
Don't know (<i>skip to 7.10</i>)	0.0% (0)	1.5% (1)	0.0% (0)	30.0% (3)	0.0% (0)
7.2 Why has your organization or jurisdiction not deployed tsunami signaling devices or sirens or used existing signaling devices for tsunami warnings? (Please select all that apply) (<i>All responses skip to 7.10</i>)	N = 3	N = 39	N = 3	N = 4	N = 1
Have ordered signaling devices but have not yet deployed them	0.0% (0)	2.6% (1)	0.0% (0)	0.0% (0)	100.0% (1)
Signaling devices are too expensive	66.7% (2)	28.2% (11)	0.0% (0)	25.0% (1)	100.0% (1)
Signaling devices will not be purchased and deployed due to community opposition	0.0% (0)	5.1% (2)	0.0% (0)	50.0% (2)	0.0% (0)
Signaling devices are opposed by environmental or coastal conservancy groups	0.0% (0)	2.6% (1)	0.0% (0)	25.0% (1)	0.0% (0)
Other	33.3% (1)	76.9% (30)	66.7% (2)	50.0% (2)	0.0% (0)
7.3 How many signaling devices have been deployed within the boundaries of your organization or jurisdiction?	N = 11	N = 25	N = 2	N = 3	N = 2
1-3	27.3% (3)	48.0% (12)	0.0% (0)	0.0% (0)	50.0% (1)
4-6	27.3% (3)	16.0% (4)	0.0% (0)	0.0% (0)	0.0% (0)
7-10	9.1% (1)	16.0% (4)	0.0% (0)	33.3% (1)	0.0% (0)
11-20	9.1% (1)	12.0% (3)	50.0% (1)	0.0% (0)	50.0% (1)
More than 20	27.3% (3)	8.0% (2)	50.0% (1)	66.7% (2)	0.0% (0)
7.4 Do your signaling devices have both voice and audible signal capabilities?	N = 11	N = 25	N = 2	N = 3	N = 2
Yes	54.5% (6)	60.0% (15)	50.0% (1)	100.0% (3)	100.0% (2)
No	45.5% (5)	40.0% (10)	50.0% (1)	0.0% (0)	0.0% (0)
7.5 Are the tones used for tsunami warning different than tones used for other hazards?	N = 11	N = 25	N = 2	N = 3	N = 2
Yes	63.6% (7)	60.0% (15)	0.0% (0)	0.0% (0)	100.0% (2)
No	36.4% (4)	40.0% (10)	100.0% (2)	100.0% (3)	0.0% (0)
7.6 How often are signaling devices tested by your organization or jurisdiction?	N = 11	N = 25	N = 2	N = 3	N = 2
Weekly	45.5% (5)	16.0% (4)	0.0% (0)	66.7% (2)	0.0% (0)
Monthly	45.5% (5)	52.0% (13)	100.0% (2)	0.0% (0)	50.0% (1)

Survey Items and Response Choices	AK, HI, & Pacific Islands	West Coast (CA, OR, or WA)	Gulf Coast (TX to FL)	East Coast (GA to ME)	U.S. Caribbean Islands
Bi-Monthly	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Quarterly	0.0% (0)	16.0% (4)	0.0% (0)	0.0% (0)	0.0% (0)
Annually	0.0% (0)	8.0% (2)	0.0% (0)	33.3% (1)	0.0% (0)
Tested but not on a scheduled basis	9.1% (1)	4.0% (1)	0.0% (0)	0.0% (0)	50.0% (1)
Never tested	0.0% (0)	4.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)
7.7 Is there a specific day of the week and time of day signaling devices are tested in your organization or jurisdiction?					
	N = 11	N = 25	N = 2	N = 3	N = 2
Yes	81.8% (9)	72.0% (18)	100.0% (2)	33.3% (1)	50.0% (1)
No (<i>skip to 7.8</i>)	18.2% (2)	28.0% (7)	0.0% (0)	66.7% (2)	50.0% (1)
7.7a Day of testing:					
	N = 7	N = 17	N = 2	N = 1	N = 1
Sunday	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Monday	28.6% (2)	52.9% (9)	50.0% (1)	0.0% (0)	0.0% (0)
Tuesday	0.0% (0)	0.0% (0)	0.0% (0)	100.0% (1)	0.0% (0)
Wednesday	57.1% (4)	35.3% (6)	50.0% (1)	0.0% (0)	100.0% (1)
Thursday	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
Friday	0.0% (0)	5.9% (1)	0.0% (0)	0.0% (0)	0.0% (0)
Saturday	14.3% (1)	5.9% (1)	0.0% (0)	0.0% (0)	0.0% (0)
7.7b Time of testing:					
	N = 8	N = 17	N = 2	N = 0	N = 1
Morning (9 AM-10:59 AM)	0.0% (0)	17.6% (3)	50.0% (1)		100.0% (1)
Midday (11 AM-12:59 PM)	37.5% (3)	70.6% (12)	0.0% (0)		0.0% (0)
Early Afternoon (1 PM-2:59 PM)	50.0% (4)	5.9% (1)	0.0% (0)		0.0% (0)
Late Afternoon (3 PM-5 PM)	12.5% (1)	5.9% (1)	50.0% (1)		0.0% (0)
7.8 Approximately what percentage of your tsunami vulnerable population is covered by signaling devices?					
	N = 11	N = 25	N = 2	N = 3	N = 2
10% or less	0.0% (0)	8.0% (2)	50.0% (1)	0.0% (0)	50.0% (1)
11-20%	9.1% (1)	4.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)
21-30%	0.0% (0)	8.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)
31-40%	9.1% (1)	16.0% (4)	50.0% (1)	0.0% (0)	50.0% (1)
41-50%	9.1% (1)	8.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)
51-60%	0.0% (0)	12.0% (3)	0.0% (0)	0.0% (0)	0.0% (0)
61-70%	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)
71-80%	9.1% (1)	8.0% (2)	0.0% (0)	33.3% (1)	0.0% (0)
81-90%	9.1% (1)	16.0% (4)	0.0% (0)	0.0% (0)	0.0% (0)

Survey Items and Response Choices	AK, HI, & Pacific Islands	West Coast (CA, OR, or WA)	Gulf Coast (TX to FL)	East Coast (GA to ME)	U.S. Caribbean Islands
91-99%	18.2% (2)	0.0% (0)	0.0% (0)	33.3% (1)	0.0% (0)
100% (<i>skip to 7.10</i>)	27.3% (3)	20.0% (5)	0.0% (0)	33.3% (1)	0.0% (0)
7.9 Since you have deployed signaling devices but the coverage is less than 100.0% of the vulnerable population, do you plan to deploy additional devices?					
Yes (<i>skip to 7.11</i>)	N = 8	N = 20	N = 2	N = 2	N = 2
No (<i>skip to 7.12</i>)	62.5% (5)	55.0% (11)	50.0% (1)	0.0% (0)	100.0% (2)
	37.5% (3)	45.0% (9)	50.0% (1)	100.0% (2)	0.0% (0)
7.10 Do you plan to purchase or have already purchased signaling devices that have not yet been deployed?					
Yes	N = 6	N = 46	N = 3	N = 8	N = 1
No (<i>skip to 7.12</i>)	33.3% (2)	10.9% (5)	0.0% (0)	0.0% (0)	100.0% (1)
Don't know (<i>skip to 7.12</i>)	66.7% (4)	78.3% (36)	100.0% (3)	62.5% (5)	0.0% (0)
	0.0% (0)	10.9% (5)	0.0% (0)	37.5% (3)	0.0% (0)
7.11 How long will it be before these signaling devices are deployed?					
Within the next 6 months	N = 7	N = 16	N = 1	N = 0	N = 3
6 months to one year	0.0% (0)	12.5% (2)	0.0% (0)		0.0% (0)
Over one year	14.3% (1)	18.8% (3)	0.0% (0)		33.3% (1)
Uncertain when they will be deployed	28.6% (2)	12.5% (2)	0.0% (0)		33.3% (1)
	57.1% (4)	56.3% (9)	100.0% (1)		33.3% (1)
7.12 What other methods besides sirens are used or would be used to alert the public of a tsunami hazard? (Please select all that apply)					
NOAA Weather Radios	N = 14	N = 65	N = 5	N = 10	N = 3
Community subsidized NOAA Weather Radio purchase system	71.4% (10)	70.8% (46)	60.0% (3)	90.0% (9)	100.0% (3)
Television audio/video overrides	0.0% (0)	15.4% (10)	20.0% (1)	20.0% (2)	33.3% (1)
Automatic phone dial-down systems (e.g., Reverse 911)	71.4% (10)	72.3% (47)	80.0% (4)	90.0% (9)	33.3% (1)
Loudspeaker announcements on emergency vehicles (and aircraft, if applicable)	35.7% (5)	76.9% (50)	80.0% (4)	80.0% (8)	33.3% (1)
Community-wide phone tree	85.7% (12)	69.2% (45)	60.0% (3)	90.0% (9)	100.0% (3)
SMS Text Messaging	42.9% (6)	12.3% (8)	0.0% (0)	0.0% (0)	0.0% (0)
Emergency Management Radio	35.7% (5)	38.5% (25)	20.0% (1)	20.0% (2)	0.0% (0)
Marine Band Radio	7.1% (1)	24.6% (16)	20.0% (1)	20.0% (2)	100.0% (3)
No other methods are or would be used	57.1% (8)	23.1% (15)	20.0% (1)	20.0% (2)	33.3% (1)
Other	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)
	21.4% (3)	23.1% (15)	0.0% (0)	0.0% (0)	0.0% (0)
PART 8. TSUNAMI HAZARD AND EVACUATION SIGNAGE ITEMS					
8.1 Has your organization or jurisdiction deployed tsunami signs?					
Yes	N = 14	N = 66	N = 5	N = 10	N = 3
	57.1% (8)	51.5% (34)	0.0% (0)	20.0% (2)	100.0% (3)

Survey Items and Response Choices	AK, HI, & Pacific Islands	West Coast (CA, OR, or WA)	Gulf Coast (TX to FL)	East Coast (GA to ME)	U.S. Caribbean Islands
No (<i>skip to 8.8</i>)	42.9% (6)	48.5% (32)	100.0% (5)	80.0% (8)	0.0% (0)
8.2a Has your organization or jurisdiction deployed tsunami hazard zone signs?	N = 8	N = 33	N = 0	N = 2	N = 3
Yes	75.0% (6)	78.8% (26)		100.0% (2)	100.0% (3)
No	25.0% (2)	21.2% (7)		0.0% (0)	0.0% (0)
8.2b Has your organization or jurisdiction deployed entering and leaving tsunami hazard zone signs?	N = 8	N = 34	N = 0	N = 2	N = 3
Yes	50.0% (4)	47.1% (16)		0.0% (0)	66.7% (2)
No	50.0% (4)	52.9% (18)		100.0% (2)	33.3% (1)
8.2c Has your organization or jurisdiction deployed tsunami evacuation route signs?	N = 8	N = 34	N = 0	N = 2	N = 3
Yes	75.0% (6)	85.3% (29)		0.0% (0)	66.7% (2)
No	25.0% (2)	14.7% (5)		100.0% (2)	33.3% (1)
8.2d Has your organization or jurisdiction deployed tsunami evacuation site signs?	N = 8	N = 34	N = 0	N = 2	N = 3
Yes	50.0% (4)	52.9% (18)		0.0% (0)	66.7% (2)
No	50.0% (4)	47.1% (16)		100.0% (2)	33.3% (1)
8.2e Has your organization or jurisdiction deployed "In Case of Earthquake Go to High Ground or Inland" signs?	N = 8	N = 33	N = 0	N = 2	N = 3
Yes	37.5% (3)	69.7% (23)		0.0% (0)	66.7% (2)
No	62.5% (5)	30.3% (10)		100.0% (2)	33.3% (1)
8.3 Has your jurisdiction covered all tsunami vulnerable areas with appropriate signage?	N = 8	N = 34	N = 0	N = 2	N = 3
Yes (<i>skip to 8.5</i>)	75.0% (6)	67.6% (23)		100.0% (2)	0.0% (0)
No	25.0% (2)	32.4% (11)		0.0% (0)	100.0% (3)
8.4 Why has your jurisdiction not deployed signs to all vulnerable areas? (Please select all that apply)	N = 2	N = 11	N = 0	N = 0	N = 3
Inadequate funding to complete deployment	50.0% (1)	54.5% (6)			100.0% (3)
Unsure how to order/procure these signs	0.0% (0)	9.1% (1)			0.0% (0)
Theft or vandalism	0.0% (0)	18.2% (2)			33.3% (1)
Federal, state, or local regulations	0.0% (0)	0.0% (0)			0.0% (0)
Opposition by individual residents	50.0% (1)	0.0% (0)			33.3% (1)
Opposition by organized entities (e.g., business or community group)	0.0% (0)	18.2% (2)			33.3% (1)
Opposition by state departments of transportation	0.0% (0)	0.0% (0)			0.0% (0)

Survey Items and Response Choices	AK, HI, & Pacific Islands	West Coast (CA, OR, or WA)	Gulf Coast (TX to FL)	East Coast (GA to ME)	U.S. Caribbean Islands
Other	50.0% (1)	27.3% (3)			0.0% (0)
8.5 Would you say that theft or destruction of tsunami signs in your jurisdiction is a:	N = 8	N = 32	N = 0	N = 2	N = 3
Not at all a problem	50.0% (4)	37.5% (12)		0.0% (0)	0.0% (0)
Minor problem	50.0% (4)	34.4% (11)		100.0% (2)	0.0% (0)
Moderate problem	0.0% (0)	21.9% (7)		0.0% (0)	33.3% (1)
Major problem	0.0% (0)	6.3% (2)		0.0% (0)	66.7% (2)
8.6 How does your organization or jurisdiction decide where to put up signs? (Please select all that apply)	N = 8	N = 34	N = 0	N = 2	N = 3
Tsunami inundation maps	62.5% (5)	76.5% (26)		100.0% (2)	100.0% (3)
Tsunami evacuation maps	75.0% (6)	52.9% (18)		0.0% (0)	100.0% (3)
Public vs. private property	25.0% (2)	32.4% (11)		0.0% (0)	33.3% (1)
Environmental or aesthetic factors	12.5% (1)	11.8% (4)		0.0% (0)	0.0% (0)
Federal, state or local government regulation	62.5% (5)	32.4% (11)		0.0% (0)	0.0% (0)
Other	12.5% (1)	14.7% (5)		0.0% (0)	0.0% (0)
8.7 Does your organization or jurisdiction use any of the following methods to identify tsunami hazard routing? (Please select all that apply) <i>(All responses skip to 9.1)</i>	N = 8	N = 34	N = 0	N = 2	N = 3
Non-standard signage	0.0% (0)	5.9% (2)		0.0% (0)	66.7% (2)
Routing messages painted on roads	0.0% (0)	5.9% (2)		0.0% (0)	0.0% (0)
Routing information painted on sidewalks	0.0% (0)	0.0% (0)		0.0% (0)	0.0% (0)
No methods used to identify tsunami hazard routing	37.5% (3)	55.9% (19)		100.0% (2)	33.3% (1)
Other	37.5% (3)	17.6% (6)		0.0% (0)	0.0% (0)
8.8 Why has your organization or jurisdiction not deployed tsunami signs? (Please select all that apply)	N = 6	N = 31	N = 5	N = 8	N = 0
Lack of funding for signage	83.3% (5)	9.7% (3)	0.0% (0)	62.5% (5)	
Local opposition to sign deployment	16.7% (1)	6.5% (2)	0.0% (0)	0.0% (0)	
Concerns about theft or vandalism	16.7% (1)	6.5% (2)	0.0% (0)	0.0% (0)	
Do not consider them needed	0.0% (0)	38.7% (12)	40.0% (2)	12.5% (1)	
Potential confusion with higher risk hazards (e.g., hurricanes)	0.0% (0)	3.2% (1)	40.0% (2)	50.0% (4)	
Federal, state or local regulations	0.0% (0)	9.7% (3)	0.0% (0)	12.5% (1)	
Other	16.7% (1)	51.6% (16)	20.0% (1)	25.0% (2)	
PART 9. TSUNAMIREADY ITEMS					
9.1 Is your organization or jurisdiction recognized by NOAA's National Weather Service	N = 14	N = 66	N = 5	N = 10	N = 3

Survey Items and Response Choices	AK, HI, & Pacific Islands	West Coast (CA, OR, or WA)	Gulf Coast (TX to FL)	East Coast (GA to ME)	U.S. Caribbean Islands
as "TsunamiReady"?					
Yes	57.1% (8)	24.2% (16)	0.0% (0)	30.0% (3)	33.3% (1)
No (<i>skip to 9.6</i>)	42.9% (6)	75.8% (50)	100.0% (5)	70.0% (7)	66.7% (2)
9.2 When did you receive this designation?	N = 8	N = 16	N = 0	N = 3	N = 1
Within the last 6 months (<i>skip to 9.4</i>)	0.0% (0)	12.5% (2)		0.0% (0)	0.0% (0)
More than 6 months but less than one year (<i>skip to 9.4</i>)	0.0% (0)	6.3% (1)		0.0% (0)	0.0% (0)
One year to three years (<i>skip to 9.4</i>)	25.0% (2)	43.8% (7)		0.0% (0)	0.0% (0)
More than 3 years ago (<i>skip to 9.3</i>)	75.0% (6)	37.5% (6)		100.0% (3)	100.0% (1)
9.3 How many times has your organization or jurisdiction renewed your TsunamiReady recognition?	N = 6	N = 4	N = 0	N = 3	N = 1
Once	66.7% (4)	50.0% (2)		33.3% (1)	100.0% (1)
Twice	0.0% (0)	50.0% (2)		66.7% (2)	0.0% (0)
Three times	16.7% (1)	0.0% (0)		0.0% (0)	0.0% (0)
More than three times	16.7% (1)	0.0% (0)		0.0% (0)	0.0% (0)
9.4 In your efforts to become TsunamiReady, did you encounter any difficulties or challenges?	N = 8	N = 16	N = 0	N = 3	N = 1
Yes	12.5% (1)	31.3% (5)		66.7% (2)	0.0% (0)
No (<i>skip to 9.9</i>)	87.5% (7)	68.8% (11)		33.3% (1)	100.0% (1)
9.5 What was the nature of these barriers? (Please select all that apply) (<i>All responses skip to 9.9</i>)	N = 1	N = 5	N = 0	N = 2	N = 0
Convincing decision makers that there was a tsunami hazard that required planning	100.0% (1)	40.0% (2)		100.0% (2)	
Resource shortfalls that made planning difficult (e.g., personnel, funding, etc.)	100.0% (1)	80.0% (4)		100.0% (2)	
Meeting specific criteria required by NOAA for TsunamiReady status	0.0% (0)	40.0% (2)		0.0% (0)	
Other barriers	100.0% (1)	20.0% (1)		0.0% (0)	
9.6 Is your organization or jurisdiction currently working toward TsunamiReady status?	N = 6	N = 50	N = 5	N = 7	N = 2
Yes (<i>skip to 9.7</i>)	83.3% (5)	40.0% (20)	0.0% (0)	28.6% (2)	100.0% (2)
No	16.7% (1)	60.0% (30)	100.0% (5)	71.4% (5)	0.0% (0)
9.7 When do you expect to complete all requirements and be recognized as TsunamiReady? (<i>All responses skip to 9.9</i>)	N = 5	N = 20	N = 0	N = 2	N = 2
Within the next 6 months	40.0% (2)	40.0% (8)		0.0% (0)	0.0% (0)
More than 6 months but less than one year	0.0% (0)	25.0% (5)		50.0% (1)	100.0% (2)

Survey Items and Response Choices	AK, HI, & Pacific Islands	West Coast (CA, OR, or WA)	Gulf Coast (TX to FL)	East Coast (GA to ME)	U.S. Caribbean Islands
One year to three years	0.0% (0)	15.0% (3)		0.0% (0)	0.0% (0)
More than 3 years	0.0% (0)	0.0% (0)		0.0% (0)	0.0% (0)
Not sure when we will be finished	60.0% (3)	20.0% (4)		50.0% (1)	0.0% (0)
9.8 What is the main reason your organization or jurisdiction is not working toward TsunamiReady status?					
	N = 1	N = 29	N = 5	N = 5	N = 0
Unfamiliar with the TsunamiReady Program	100.0% (1)	24.1% (7)	20.0% (1)	20.0% (1)	
Lack of resources for planning	0.0% (0)	17.2% (5)	0.0% (0)	0.0% (0)	
Lack of support from decision makers to plan for tsunamis	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	
Low probability that our organization/jurisdiction will be hit by a tsunami	0.0% (0)	37.9% (11)	60.0% (3)	80.0% (4)	
Have a tsunami plan but not interested in TsunamiReady Program	0.0% (0)	3.4% (1)	0.0% (0)	0.0% (0)	
Other	0.0% (0)	17.2% (5)	20.0% (1)	0.0% (0)	

Appendix H. Write-in Responses

A number of the survey questions offered an “Other” choice along with a text box where respondents could elaborate on their response. Additionally, there were two open-ended survey questions: first, a question in the “Tsunami Hazard Mitigation” section which asked, “What land-use decision(s) was/were based on the tsunami hazard or mapped inundation zones?” (Note: this question was asked only of respondents who answered “yes” to the previous question, “Has your organization or jurisdiction considered the tsunami hazard or mapped inundation zones in other land-use planning decisions?”) Second, the final survey question was open-ended, and it asked, “Do you have any additional comments on tsunami planning?”

This appendix includes all of the write-in responses that were provided by respondents. Responses are sorted alphabetically. Numbers preceding the survey items map to the tables in the body of the report. For readability, some responses have been corrected for spelling errors, but otherwise the responses are unaltered. A small number of responses were provided in Spanish; the English translations are provided after each response in parentheses. In a few instances, the same response was given by multiple respondents; these instances are noted by “n” after the response.

Section 2. Organizational Demographics Items

2.2 Primary Reason Organization Does Not Plan For Tsunami Hazards

- Handled by Fire Department employee
- Just found out the we are at risk
- No past history
- Tribal Reservation is in mountains
- unknown
- While the odds are quite low for a tsunami event, our EOP is written based on an "All Hazards" approach.

2.4 Please select the box below that most closely describes your organization:

Special District, please specify:

- Fire District (n = 2)
- Pebble Beach Community Services District
- Port District
- State created transportation agency
- Through an Interlocal Agreement with Clark County and the seven cities within the County, as well as participating fire districts, the majority of CRESA's services, including 9-1-1 Dispatch Operations, Administrative Services, Emergency Management and Technical Services, are governed by an Administrative Board comprised of nine board members serving indefinite terms.

State Agency, please specify:

- agencia estatal para manejo de emergencia (Puerto Rico State Emergency Management Agency (PR SEMA))
- Dept. of Law and Public Safety
- DSHS
- Emergency Management (n = 2)
- Gobierno de Puerto Rico (Government of Puerto Rico)
- MEMA

- PREMA
- Public School District
- Resources Agency: Department of Parks and Recreation (CA State Parks)
- SC Emergency Management Division
- State Emergency Management Agency

Federal Agency, please specify:

- Department of Defense

Other, please specify:

- City
- JPA supporting 32 School Districts
- multiple-jurisdictional agency representing both unincorporated county areas and incorporated municipalities
- School District (n = 2)
- Tribal Consortium

2.7 Position or Job Title of Organizational Representative Primarily Responsible for Tsunami Planning

- Area de Preparacion (Area of expertise?²)
- Chief Harbor Patrol Officer
- Chief of Police
- Director of Emergency Management
- Director of Operations
- Emergency Management
- Emergency Management Director
- Emergency Management Planner, Natural Hazards Section
- Emergency Planner
- Emergency Preparedness & Management Coordinator
- eop committee
- Fire Chief
- Fire Marshal/Disaster Preparedness Officer
- Fire/EMS Director who performs Emergency Mgt duties
- Harbor Patrol Officer
- Natural Hazards Planner (n = 2)
- Operations Chief
- Police Captain
- Police Sergeant-Emergency Services Manager
- Program Manager
- Program Manager - Response
- Risk Manager
- Sr. Admin Analyst
- Transit Director
- VPSO Loges

2.8 Position Type for Person Responsible for Tsunami Planning

- Elected Official (Mayor)

² This response does not reflect the question asked.

- Full-time unclassified employee
- Part-time Volunteer
- Volunteer
- When Available

Section 3. Public Education Items

3.2 Target Audiences Included in Provision of Tsunami Education

- anything that moves
- business and media
- Civic & Government Groups
- Incorp. cities along the coast
- Locality Emergency Managers
- Needing special care or help in our community.
- Outreach events
- Parents
- pet owners, livestock
- police/fire personnel
- Volunteer and Professional Responders

3.3 Methods of Disseminating Tsunami Public Information Employed by Organization

- all-hazards EOP
- Board Proclamations
- Brochures
- C.E.R.T. Training Classes
- CERT trainings, exercises
- Computer Notification
- currently posting signs
- e-mail, website
- email
- hotel/motel in room publications
- Included in our Hazard Identification and Vulnerability Assessment
- Internet Postings/Text Msg/etc.
- marques
- Pamphlets on our Tsunami Dangers and routes for escape.
- Public Service Announcements (radio, e-mail lists, newspaper)
- Reverse 911
- state web site
- Team Tsunami are our trained volunteers that go out to public meetings, schools, social services groups, etc.; articles published in local newspapers; website postings; local radio programs
- Video/brochure on website
- Youth education programs (Junior Lifeguards and Junior Rangers)

3.4 Sources of Tsunami Public Education Materials

- Area specific information
- Combination FEMA/NOAA
- custom made brochures

- DOGAMI (n = 2)
- Inundation Mapping from University of Alaska Fairbanks
- International sources
- local LEPC
- readysandiego.org - video
- Redwood Tsunami Work Group
- State Dept of Geology
- weekly public broadcast info

3.7 Most Significant Barrier to Achieving Adequate Tsunami Awareness and Preparedness

- A combination of apathy (or a fatalistic attitude), insufficient resources, and infrequency of events
- bad evacuation route maps
- Belief it will happen
- Lack of definitive hazard/vulnerability analysis
- lack of functional training
- Lack of good modeling and inundation maps for jurisdiction
- Lack of support from schools and local newspapers to publish our information
- Seattle is a unique situation tsunamis are very rare, but if one occurred it would originate locally with no time for evacuation except vertical.
- staff time - one person program
- The county has just released a plan last week. We will adapt recommendations and implement. Resources from local governments have been slow to develop.
- There are multiple higher frequency, higher impact hazards
- Time

Section 4. Response Plan Items

4.4 Tsunami Plan Was or Will Be Developed By

- County consortium
- County Emergency Personnel
- Emergency Coordinator
- local and county partners
- Local Gov.

4.5 Information Basis for Plan Being Activated

- Activated by the likelihood of an event by the on-call emergency coordinator and 1st responders
- All levels are addressed in the plan, although they might not be public concern action items
- Any combination of above
- case dependent
- Earthquake lasting more than 30 seconds with heavy shaking
- if impacting state or contiguous states
- Information Bulletin if associated with another substantial hazard
- Inland waters: quake activated
- Local seismic event
- n/a
- National Weather Center Advisories and Periodic Conference Calls

- put on alert by County OES
- Warning - school sites Advisory - field trips
- Whatever the plan recommends

4.8 What is/will be Source of Maps

- County GIS
- County GIS Dept.
- County of Marin GIS
- damage assessment & our GIS
- DOGAMI
- FEMA
- Ideally WA DNR, but not due for several years at best
- local
- Local development
- Local knowledge used from past incidents to help predict run up in further enhancing the maps from the State
- Our County GIS/Map specialist
- Plans based solely on ground height
- Regional Agency (ABAG)

4.10 From What Tsunami Warning Center Organization Receives Tsunami Information

- Both of the above (n = 2)
- Gulf Coast
- Monterey County OES
- n/a
- National Weather Center and State Operations Center and State Department of Public Safety Disaster District Office
- NOAA Eureka, CA
- NWS CORPUS CHRISTI, X
- red sismica de puerto rico (Puerto Rico Seismic Network)
- State OES
- US Coast Guard

4.11 Method Organization Receives Tsunami Messages from Tsunami Warning Center

- CALWAS
- CASWC
- CLETS
- County Sheriff OES
- Local OES
- NWS WFO
- OC OA
- Operational Area (Marin) OES
- Red Sismica de Puerto Rico (n = 2)
- State electronic warning system for email/text message

Section 5. Exercises and Training Items

5.2 What Do Exercises Test

- Assembly sites; recovery
- Deploying roadblocks
- Public Notification System "Blackboard Connect CTY"
- Regular table top exercise with emergency officials

5.3 What Abilities Do Response Exercises Test

- Ability to Safely Evacuate and Repatriate General Population and Special Needs Populations
- public notification and information dissemination

5.5 Who Facilitated Exercises

- FEMA
- Humbolt State University
- Outside consultants have been used in coordination with regional and local staff

5.6 What Outcomes Occurred Due to Exercises

- currently updating and reviewing modification of plan

5.8 Type of Training Included

- Access to experts
- Effective Public Education techniques
- Use of Hurrevac and SLOSH Models Specific Training

Part 6. Tsunami Hazard Mitigation Items

6.3 Types of Critical Facilities in Inundation Zone

- Adult Care Facilities
- airport
- all buildings and homes
- Depending on the size of the event we have several facilities and the harbor in the inundation zones.
- Ferry infrastructure
- fuel storage
- Fuel tank farm, Port and harbor
- Government facilities
- Harbor Patrol Headquarters & Numerous Government Vessels
- Harbors
- high occupancy facilities
- Lifeguard Headquarters
- Major Petro-Chemical Operations
- power generation, waste water, harbors, fuel storage
- Prison, Coast Guard Base
- Sewer treatment plant
- The Lodge at Pebble Beach, a world renowned resort with over 161 rooms. Should it suffer significant damage, there would be a snowballing affect to local jobs and revenue for Pebble Beach
- The majority of our city is within a Surge (Tsunami) Impact Zone

- The majority of the reservation is located in the inundation zone this includes, housing, store, council operations, resort, fish plant, etc...
- US Coast Guard Station
- USCG installation; Elwha Dams (river)
- wastewater treatment facility

6.6 Abandoned/Modified/Relocated Facility Type

- High Occupancy Facilities
- Powerhouse

Land-use decision(s) That Was/Were Based on the Tsunami Hazard or Mapped Inundation Zones (Open-ended question)

- 100 feet back from high tide point
- Building distance from beach and removal of sand from beach.
- Coastal area within 5 miles from the beach.
- Coastal Zone Management by law building permits, development ETC...
- Currently a business park and training center for learning disabled people planned within an inundation zone is being considered for approval. Project will include significant tsunami mitigation measures.
- Currently working on expanding Tribal boundaries, repaving roads, relocation of school, housing, general council operations,
- Discussion on changes to new construction in inundation zones
- Don't Know
- evaluacion de reubicacion de estructuras (evaluation of relocation of structures)
- Federally funded projects are not permitted in area, large occupancy buildings are not permitted. New critical infrastructure are not allowed in the inundation zone.
- Flood hazard and critical areas regulations. Building code mitigation measures
- Growth Management Plans considered the tsunami hazard, but I cannot say exactly which land-use decisions may have been based on the hazard.
- Hurricane Planning - SLOSH models were used to determine how far back homes should be built from beach
- Hurricane Storm Surge
- In the 1960's commercial and residential areas were relocated.
- Land use committee was formed to facilitate community meetings that will determine at least a 10 year plan that will include building on higher ground
- Limit residential use.
- Location selection for Corp yards and stations for fire, police and EMS.
- Minimal habitable building elevation.
- New hospital location and future use of lands abandoned by the 1964 Earthquake and tsunami event.
- none
- Planning and Zoning requires developers to provide information on land use permits including flood zones and inundation zones.
- public access and use restrictions and transportation routes restricted
- Redevelopment of a waterfront area in downtown Bellingham, WA. Tsunami hazard was considered, but mitigations were presented to lesson hazard.

- Standard planning efforts related to mapping and planning.
- The City's General Plan Safety Element discusses the tsunami threat and planning considerations. Our City Hall is being built in an area that is not in the tsunami inundation zone.
- Tsunami inundation zones are a factor in the siting of critical facilities.
- Where we could not build motel

Section 7. Signaling Devices Items

7.2 Why Has Organization Not Deployed Tsunami Signaling Devices or Used Existing Signaling Devices for Tsunami Warnings

- a combination of the above
- Do not believe they would be effective based on the type of tsunami threat we face (near shore)
- Don't know (n = 2)
- Don't need (n = 2)
- I am assuming this is just talking about sirens and that will not happen here. We do have emergency notification systems for our citizen's and a LRAD along with PA systems
- Lack of leadership
- Locally generated tsunami would follow huge quake. The quake is the warning.
- May not apply to Lake Washington
- No apparent need
- No direction by OES
- No Tsunami Planning
- Not a priority, as Tsunamis are not a big enough hazard for the inland Puget Sound to warrant this cost.
- Not in our jurisdiction, the county has these devices
- Not vulnerable to distant source tsunamis. Quakes are our warning.
- Our city is Hurricane Surge Prone, not Tsunami specific prone. We have adequate warning time for effective evacuation of citizenry for Hurricane Surge.
- questionable effectiveness
- SD County owns no coastal land; we coordinate with coastal cities,
- Siren system project currently under litigation. 15 sirens in custody, pending installation.
- sirens are not supported by the Coos County Board of Commissioners
- The Tsunami threat to our coast line is not very big based on tsunami inundation maps.
- This is incumbent on local and county jurisdictions.
- Too far inland
- Transit agency, not responsible; cities and county responsibilities
- Tsunami warning (AHAB) is coordinated by the state.
- unknown
- Using other means i.e. phone, media, NAWAS, and multiple ring down type programs to provide hazard communication
- Very small inundation area
- We are in the process of obtaining Tsunami Warning Sirens with the assistance of a Cal EMA Grant and NOAA Weather Service
- We are working on a project to install Loudspeaker Arrays into the Port
- We believe we are covered by R911, media, and other methods to disseminate the information in a timely manner
- we have an alert/ notification phone system, but no sirens

- we will rely on the city and county to make relative decisions

7.12 Other Methods Used/Would be Used to Alert Public of Tsunami Hazard

- 211
- AM/FM Radio
- Amateur Radio Nets and message centers
- an earthquake
- assistance from OC OA
- Blackboard Connect CTY Public Notification System
- door to door notification / by law enforcement (n = 2)
- email
- Emergency Alert Broadcast Signal (n = 4)
- Local emergency dispatch frequencies, which are monitored by many residents via scanner
- Long Range Acoustical Device
- Mass notification system, text/email
- My State
- Nixle.com...similar to sms text for email systems (n = 2)
- No idea, would come from County OES, cities
- RPIN
- Via Disaster Response Teams CERT

Section 8. Tsunami Hazard and Evaluation Signage Items

8.4 Why Jurisdiction Has Not Deployed Signs to All Vulnerable Areas

- change in inundation area mapping
- In progress
- In the process of getting more signs
- new maps were done by the state of CA which changed our originally Inundation Zone. We are updating the plan, which will include signage.

8.6 Basis for Decision to as to Where to Place Signs

- Advice from CGS
- All conditions are considered
- High use areas.
- Most like to have the signs very visible and numerous in our community.
- unknown
- We have a tsunami working group that does field assessments. I said yes to all the signs because we have proposed locations but they have not yet been put up.

8.7 Other Methods to Identify Tsunami Hazard Routing

- approved tsunami signage
- County GIS Website
- Just evacuation route signage
- Just signage
- Kiosk for visitors along with pamphlets distributed by RV parks.
- standard routing signage

- The routes are already dictated because of the routes in and out of the Port. It's very simple. Plus, high ground is right next to the Port.

8.8 Why Organization Has Not Deployed Tsunami Signs

- Currently in the process.
- currently planning community meetings to explain use of signs
- don't know
- have not installed yet
- Lack of resources for ongoing upkeep
- No Planning
- No plans currently addressing any signage
- Not aware of study on tsunami impact to indicate where signs should be placed.
- Not VCTC authority
- Not w/in our jurisdiction
- Only deployed Lahar signs
- SD County owns no coastal land.
- Sign deployment planned within 6 months
- Waiting for delivery of signs
- waiting to be installed in very near future
- We have the signs and are deploying them shortly
- We received a grant to purchase the signs, but have not put them up based on the latest tsunami inundation maps that don't show a major tsunami threat.
- We want to have better data to substantiate the need.
- we will defer to city and county governments
- Will deploy in the next few months through Ventura County Office Of Emergency Services

Section 9. TsunamiReady Status

9.5 Nature of Barriers Encountered

Meeting specific criteria required by NOAA for TsunamiReady status, please specify:

- Certain signage requirements
- Tribal Nation vs County criteria

Other barriers, please specify:

- signage for routes, standard
- Tribal Nation self Governance

9.8 Main Reason Organization is Not Working Toward TsunamiReady Status

- Difficult to implement without accurate inundation maps
- no jurisdiction
- SD County owns no coastal land.
- The County has 120 miles of Pacific Ocean coastline. We do not have the resources to implement a comprehensive program for such a large area. However, there are individual communities within the Tsunami Hazard Zone which are Tsunami Ready.
- thought TsunamiReady Program was for communities not schools
- We are prepared and "ready" for Hurricane Surge specific Evacuation procedures

Do you have any additional comments on tsunami planning? (Open-ended question)

- Currently, the only guidance for coastal communities in Oregon are the newly established OARs on the siren signal and the guidance provided by NWS/NOAA. Due to the lack of solid statewide guidance or OARs on how local governments handle this information, some communities will advise their citizens to evacuate, and a neighboring community will not. This disparity in information and response is quickly picked up and reported by the media causing even more confusion to citizens. Lack of a coordinated, statewide approach may very well cost lives when an event does occur. I believe there is a significant disconnect of coordination of standardized testing, and messaging between the western states (CA, OR and WA). Oregon has standardized their warning signal but this has not been done between states.
- Having a draft emergency response plan in MicroSoft Word (or similar) format for agencies/corporations/others to use as a template would make it much easier to develop tsunami specific plans. Otherwise, planners often repurpose plans from other natural disasters that may or may not be similar in nature to tsunamis.
- I completed the survey based on our city's Advanced Preparedness Level regarding Hurricane Evacuations, and the possibility of a Tidal Surge due to a land-falling hurricane striking our city. Therefore, many of my answers to questions in the survey were comparing the "Tidal Surge" to a "Tsunami".
- I do not like, nor do the residents of Pacific County support, the title "TsunamiReady". It is truly an oxymoron as no community can be really ready for tsunami. The recognition is appreciated, worthy and noted, however the name of the program should be changed.
- I have first hand experience with the February 2010 Tsunami Surge. I participated in the pre-event solicitation of information, activated CERT Teams, defined community communications methods, responded to the surges, and learned many valuable lessons in our post event debriefing. I put together a Power Point of the surge, and would be happy to further elaborate on some of the lessons learned. One of the lessons learned that still needs to be taught to the public is for small vessels not to leave harbor, but for their owners to head to higher ground. In the event of a significant Tsunami there will be a vulnerable population of boaters with no harbor to return to, and no resources available to assist them. The vessels will be in varying levels of seaworthiness, and supplies may or may not be adequate to survive unassisted for several days. Feel free to contact me if you have any questions: John Higgins 805-947-7903
- I noticed that after the last Chilean Tsunami that hit the Port of LA, that the only thing that ever was issued was an Advisory.....before that I always was under the impression that advisory was minimum risk. I would like to see that any level of rise or receding of the ocean become a Warning. A Warning level, really gets the attention much better than an advisory. We were very fortunate that the Captain of the Port, shut down the Port during the last Chilean Tsunami.
- In our area it is not if the tsunami will occur it is when it will occur. Plan for it and train your personnel so they are ready. Exercise and plan for the worse.
- Keeping signage standardized throughout the US and other countries. Not being able to speak the language you still can "self evacuate" when needed. A big help on the local responders.
- Ketchikan is in a relatively Low Risk area for tsunami...other than a landslide generated tsunami. We are working on it and it's been discussed. We just have other preparedness issues that get higher priority.
- Many of the comments are not appropriate for the Transportation only agency. No land use authority, no law enforcement/fire authority or responsibility. We work closely with the Ventura County Office of Emergency Services, which has prepared a Tsunami plan - we are working to refine operational elements for the transit systems.
- No / None at this time (n = 5)

- Our coastal areas are rural and isolated. As such, there is not local radio stations that reach this are, some have not Internet access. Our outreach efforts depend on our volunteer presenters with our minimal staffing situation. There are also power supply issues that impact our ability to employ sirens in coastal areas.
- Programa Tsunami Ready debe contar con mas Recurso Humano, para que pueda ser mas agresivo en las comunidades. (TsunamiReady program needs more human resources to be more aggressive with (to impact more) communities.)
- San Diego County does not own any coastal land. Our role is one of coordination with our 10 coastal cities as well as Alert & Warning. We have a Tsunami Action Plan that outlines roles of the cities and the county and we have a Tsunami Concept of Operations document as well as our Operational Area Emergency Plan. We would like to see the "Tsunamis: Know What to Do!" video included on the FEMA website. The video is located at:
<http://www.sdcounty.ca.gov/oes/ready/kids/>
- Se debe coordinar mas adiestramientos para certificar jurisdicciones tsunamiready. establecer un programa intensivo de ejercicios para crear conciencia en la poblacion. (More drills and exercises are needed to certificate (?) jurisdictions as tsunamiready. Improve awareness via a comprehensive drill program.)
- Seattle is unlike typical coastal communities that can be impacted by tsunami generated thousands of miles away. Puget Sound acts as a baffle for open ocean tsunami. An earthquake in Puget Sound could generate a tsunami. This would be a very rare event. A locally generated tsunami would strike on the heels of the most powerful earthquake ever experienced in this area. Arrival times would be about 2-4 minutes. In effect, the earthquake would be the tsunami warning. Because of these difficulties, we take tsunamis into account in our plans, but we don't do many of the standard public warning things like signage and sirens.
- Some of the questions could not be addressed accurately due to the organizational structure at the State level.
- Survey leaves no space for intermediate or variable answers - this leaves the survey reader with an impression of either contradictory or misleading information,
- The biggest hindrance to Tsunami Planning and working towards "Tsunami Ready" status is a lack of personnel time. Currently there is one person assigned to all Emergency Management Planning Activities.
- The city currently has no plan in effect at this time. We are currently going to training on tsunami planning and awareness.
- The Washington State EMD has the best Department for tsunami planning
- There seems to be some confusion on warnings, watches, and advisories issued by the two warning centers for our area. All the notifications issued should follow those issued for weather seeing most people can related to them.
- Tribal communities are among most vulnerable communities. Efforts need to be sustained to make those communities prepared for such an event.
- Tsunami planning is difficult to do without knowing your risk. The inundation maps are needed to help communities/states to plan effectively for tsunami.
- Tsunami signs have been ordered. TsunamiReady should be done in/within 6 months.
- We are a state agency and are approaching this from the state level down but cannot dictate to local municipalities that would be the main focus of a tsunami hit. We are encouraging our counties to encourage the local municipalities to develop plans but that has not been initiated yet.
- We are having a regional tsunami preparedness conference in our city on Nov, 2-4, 2010.

- We are in the process of updating our Emergency plan, and currently have two VPSO's trained to coordinate and develop the overall plan, being this early in the development it could take up to two years to have the final plan in place.
- We are StormReady and almost completed with TsunamiReady status. We work with all other local jurisdictions in our operational area who have a tsunami exposure to make our planning and response efforts consistent.
- We have a Tsunami Working Group that is currently updating our Tsunami Evacuation Plan which will include a section on local source tsunamis. We have recently been recognized as StormReady and are working towards TsunamiReady status. We have the proposed sign locations complete, but need to go through one final workshop and then receive the signs from the state before placement.
- We have just recently started looking at tsunami preparedness. Tsunamis are addressed in our Disaster response plan, but our community is located on an island in the inside passage and we do not have much support with the feeling that it is low likelihood. I would like to move towards a Tsunami Ready community.
- We need assistance with funding for emergency response and preparedness for supplies, staff, etc... Also, the current evacuation route map is NOT accurate