

TsunamiReady

March 9, 2001

The Preparedness Challenge

Tsunami hazard planning along the U.S. West Coast and Alaska is widely neglected due to the comparative rarity of tsunamis. Because of that rarity, individuals and communities are not as “tsunami-aware” as they should be. Furthermore, the level of tsunami preparedness varies significantly from community to community. Avoidable casualties and property damage eventually will be significant unless communities at risk are prepared for tsunamis. Preparedness involves two key components: *awareness* and *mitigation*. *Awareness* involves educating key decision makers, emergency managers, and the public about the nature (physical processes) and threat (frequency of occurrence, impact) of a hazard. *Mitigation* involves taking steps before a hazardous event occurs to lessen the impact (loss of life and property) of that event when it does occur. As with earthquakes, there is no question tsunamis will occur. It’s just a matter of when, and how bad it will be.

- The key to increased awareness of the hazard is education
- The key to effective mitigation is pre-event planning

The National Weather Service (NWS) TsunamiReady program meets both elements of a useful preparedness effort: it is designed to educate local emergency management officials and their public, and to promote a well-designed tsunami emergency response plan for each community.

Program Objectives

TsunamiReady promotes tsunami hazard preparedness as an active collaboration among Federal, state and local emergency management agencies, the public, and the NWS tsunami warning system. This collaboration supports better and more consistent tsunami awareness and mitigation efforts among communities at risk. The main goal is improvement of public safety during tsunami emergencies. To meet this goal, the following objectives need to be met:

- Create a minimum standard criteria for a community to follow for adequate tsunami preparedness
- Encourage consistency in educational materials and response among communities and states
- Recognize communities that have adopted TsunamiReady criteria
- Increase public awareness and understanding of the tsunami hazard
- Improve community pre-planning for tsunami disasters

Methodology

Processes and criteria used in TsunamiReady generally resemble those of the NWS StormReady program. TsunamiReady establishes minimum criteria for a community to be awarded the TsunamiReady recognition. Communities that accept the challenge to become tsunami ready and meet requirements set by the NWS TsunamiReady program are designated as TsunamiReady communities.

Criteria to achieve TsunamiReady recognition are given in the following table. Each criterion is

fully discussed on the next page. Four community categories (based upon population) are used to measure tsunami readiness:

Criteria	Population			
	<2500	2500-14,999	15,000-40,000	>40,000
<u>Criterion 1: Communications and Coordination Center</u>				
24 hr Warning Point (WP)	X	X	X	X
Emergency Operations Center.		X	X	X
<u>Criterion 2: Tsunami Warning Reception</u>				
Number of ways EOC/WP can receive NWS tsunami messages. (NWR receiver with tone alert. NWR-SAME is preferred. Required for recognition only if within range of transmitter). See Criterion 2, page 4.	3	4	4	4
<u>Criterion 3: Warning Dissemination</u>				
Number of ways EOC/WP can disseminate warnings to public	1	2	3	4
NWR-SAME receivers in public facilities. See Criterion 3.2, page 5.	X	X	X	X
For county/borough warning points, county/borough communication network that insures information flow among communities	X	X	X	X
<u>Criterion 4: Awareness</u>				
Number of annual tsunami awareness programs	1	2	3	4
Designate/establish tsunami shelter in safe zone	X	X	X	X
Designate tsunami evacuation areas and evacuation routes, and install evacuation route signs	X	X	X	X
Provide written, locality specific, tsunami hazard response material to public	X	X	X	X
Schools: establish tsunami hazard curriculum, practice evacuations, and train staff	X	X	X	X
<u>Criterion 5: Administrative</u>				
Develop formal tsunami hazard operations plan	X	X	X	X
Annual meeting/discussion between local emergency manager & NWS	X	X	X	X
Visits by NWS official to community at least every other year	X	X	X	X

Criterion 1: Communications and Coordination Center

A key to effective hazards management is effective communication. This is especially true in tsunami emergencies, since wave arrival times may be measured in just minutes. Such a “short

fused” event requires an immediate but careful, systematic and appropriate response. To ensure such a proper response, communities must have established the following:

1. 24-Hour Warning Point. To receive recognition under the TsunamiReady program, an agency needs to have a 24-hour warning point (WP) able to receive NWS tsunami information and provide local reports and advice. Typically, this might be a law enforcement or fire department dispatching point. For cities or towns without a local dispatching point, a county/borough agency could act for them in that capacity. The warning point needs to have:

- 24 hour operations
- Warning reception capability
- Warning communication/dissemination capability
- Ability and authority to activate local warning system(s)

2. Emergency Operations Center. Agencies serving jurisdictions of more than 2,500 people will need an emergency operations center (EOC). It must be staffed during tsunami events to execute the warning point's tsunami warning functions. Summarized below are tsunami-related roles of an EOC:

- Activate based on predetermined guidelines related to NWS tsunami information and/or tsunami events
- Staffed by emergency management director or designee
- Possess warning reception/dissemination capabilities equal to or better than the warning point
- Ability to communicate with adjacent EOCs/Warning Points
- Ability to communicate with local NWS office

Criterion 2: Tsunami Warning Reception

Warning points and EOCs each need multiple ways to receive NWS tsunami warnings.

TsunamiReady criteria to receive NWS warnings in an EOC/WP require a combination of the following, based on population:

- NOAA Weather Radio receiver with tone alert. Specific Area Message Encoding is preferred. Required for recognition only if within range of transmitter
- NOAA Weather Wire drop: Satellite downlink from NWS.
- Emergency Management Weather Information Network (EMWIN) receiver: Satellite feed and/or VHF radio transmission of NWS products
- Statewide Telecommunications System: Automatic relay of NWS products on statewide emergency management or law enforcement system
- Statewide Warning Fan-out System: State authorized system of passing message throughout warning area
- NOAA Weather Wire via Internet NOAAPort Lite: Provides alarmed warning messages through a dedicated Internet connection
- Direct link to NWS office: For example, amateur or VHF radio

- E-mail from Tsunami Warning Center: Direct e-mail from WC/ATWC to emergency manager
- Pager message from Tsunami Warning Center: Page issued from WC/ATWC directly to EOC/WP
- Radio/TV via Emergency Alert System: Local radio/TV or cable TV
- US Coast Guard broadcasts: WP/EOC monitoring of USCG marine channels
- National Warning System (NAWAS) drop: FEMA-controlled civil defense hot-line

Criterion 3: Warning Dissemination

1. Upon receipt of NWS tsunami warnings or other reliable information suggesting a tsunami is imminent, local emergency officials should communicate the threat with as much of the population as possible. Receiving TsunamiReady recognition requires having one or more of the following means of ensuring timely warning dissemination to citizens (based on population):

- A community program subsidizing the purchase of NWR. (NWR receiver with tone alert. SAME is preferred. Required for recognition only if within range of transmitter).
- Outdoor warning sirens
- Television audio/video overrides
- Phone messaging (dial-down) systems
- Other locally-controlled methods, e.g., local broadcast system or emergency vehicle sirens

2. At least one NWR with tone alert receiver must be located in each critical public access government-owned building, and must include 24 hour warning point, Emergency Operations Center, School Superintendent office or equivalent. Critical public access buildings should be defined by each community's tsunami warning plan. Recommended locations include: all schools, public libraries, hospitals, fairgrounds, parks and recreational areas, public utilities, sports arenas, Dept's of Transportation, and designated shelter areas. (SAME is preferred. Required for recognition only if within range of transmitter).

3. Counties/Boroughs Only: a county/borough-wide communications network ensuring the flow of information among all cities and towns within its borders. This would include provision of a warning point for the smaller towns, and fanning out of the message as required by state policy.

Criterion 4: Awareness

Public education is vital in preparing citizens to respond properly to tsunami threats. An educated public is more likely to take steps to receive tsunami warnings, recognize potentially threatening tsunami events, and respond appropriately to those events. Communities seeking recognition in the TsunamiReady program must:

1. Conduct or sponsor tsunami awareness programs in schools, hospitals, fairs, workshops, and community meetings (number of presentations per year is based on population).
2. Define tsunami evacuation areas and evacuation routes, and install evacuation route

- signs,
3. Designate a tsunami shelter outside the hazard area.
 4. Provide written tsunami hazard information to the populace, including:
 - Hazard zone maps
 - Evacuation routes
 - Basic tsunami information
 - Local tsunami warning plan summary

These instructions can be distributed through mailings, i.e, utility bills, within phone books, and posted at common meeting points such as libraries and public buildings throughout the community.
 5. Local schools must meet the following criteria:
 - Encourage the inclusion of tsunami information in primary and secondary school curriculums. NWS will help identify curriculum support material.
 - Provide an opportunity biennially for a tsunami awareness presentation.
 - Schools within the defined hazard zone must have tsunami evacuation drills at least biennially.
 - Written safety material should be provided to all staff and students.
 - Procedures for calling an “all-clear” when the tsunami hazard is over.
 - Have an earthquake plan.

Criterion 5: Administrative

No program can be successful without formal planning and a pro-active administration. To be recognized in the TsunamiReady Program:

1. A tsunami warning plan must be in place and approved by the local governing body. This plan must address the following:
 - Warning point procedures
 - EOC activation criteria and procedures
 - Warning point and EOC personnel specification
 - Hazard zone map with evacuation routes
 - Procedures for canceling an emergency for those less-than-destructive tsunamis
 - Criteria and procedures for activation of sirens, cable television override, and/or local systems activation in accordance with state Emergency Alert System (EAS) plans, and warning fan-out procedures, if necessary
 - Annual exercises
2. Yearly visit/discussion with local NWS Forecast Office Warning Coordination Meteorologist or West Coast/Alaska Tsunami Warning Center personnel. This can be a visit to the NWS office, phone discussion, or e-mail contacts.
3. NWS officials will commit to visit accredited communities, at least every other year, to tour EOCs/Warning points and meet with key officials.

TsunamiReady Advisory Board

Oversight of the TsunamiReady program is accomplished within the NWS by the National StormReady Board (the Board). The Board is responsible for changes in community recognition criteria. Proposed criteria changes shall be directed to the Board for action. The Board consists of the NWS Regional Warning Coordination Meteorologist (WCM) Program Leaders and the National WCM Program Manager.

(See StormReady <http://www.noaa.gov/om/stormready/hqplan.pdf>). Organization and Operations Manual for further information on the National StormReady Board and program.

A Regional TsunamiReady Advisory Board (RTAB) will be created to develop and administer the TsunamiReady program within its Area of Responsibility (AOR). The AOR's are those of the Tsunami Warning Centers:

- West Coast/Alaska Tsunami Warning Center's AOR is Alaska, Washington, Oregon, California, and British Columbia
- Pacific Tsunami Warning Center's AOR is Hawaii and other U.S. possessions in the Pacific Ocean.

The RTAB will consist of:

- State Division of Emergency Services (DES) director or designee for each state in the AOR
- NWS Tsunami Warning Center Geophysicist in Charge or designee
- Tsunami Hazard Program Mitigation representative
- TsunamiReady community representatives, selected on an annual basis
(As more communities become TsunamiReady, each state should have a focal TsunamiReady community representative)

NWS Warning Coordination Meteorologists shall participate as a non-voting consultant in RTAB proceedings during a TsunamiReady application review of candidate communities within their area of responsibility. Local emergency managers for candidate communities also may participate as non-voting consultants. Maximum use of email is encouraged.

The RTAB is responsible for proposing, approving, and changing recognition criteria; establishing procedures for site verification visits; instituting a procedure for TsunamiReady application review and action; and developing by-laws for RTAB activities. The RTAB will elect a Chairperson who serves a three-year term. The RTAB will meet yearly and will follow the same voting rules as given for the StormReady Local Organization in the StormReady Organization and Operations Manual. These meetings can be done by teleconferencing, and if possible, by email.

Benefits

Benefits of becoming a TsunamiReady Community include:

- Community is more prepared
- Regularly scheduled education forums
- Increase contacts with experts (emergency managers, researchers, NWS personnel)
- Identify community preparedness resource needs
- Improve positioning to receive State and Federal funds
- Enhances core infrastructure to support other community concerns
- Permits public to see how their tax money is being spent in hazard programs

ENDORSEMENTS

Director, State Emergency Services or Representative Date

TsunamiReady Community Representative Date

NWS Regional Director Date

Warning Coordination Meteorologist (AOR) Date

Geophysicist-in-Charge, Tsunami Warning Center Date

Community Information	
City/County/Town	Population
Primary Point of Contact	Secondary Point of Contact
Name Karin Frinell-Hanrahan	Name Rich McEachin
Title Deputy Director, Dept. Emergency Mgmt	Title Chief of Police, City of Ocean Shores
Phone 360.249.3911	Phone 360.289.3331
Email Kfh@co.grays-harbor.wa.us	Email

Communications	
Location of 24 Hour Warning Point	Location of Emergency Operations Center
Grays Harbor Central Communications P O Box 1845 Aberdeen, WA 98520 ~ GH Community Hospital	Department of Emergency Management 310 W Spruce Street POB 630 Montesano, WA 98563

NWS Information Reception
Warning Reception Capabilities and Location
NAWAS - Central Communications
Emergency Operation Centers State Communication System (State Side of NAWAS-CEMNET)
Internet - City Officials, Sheriff's Office and Emergency Operations Center. WEB Page established to provide information for public and others. www.co.grays-harbor.wa.us (County's Official Page) http://users.techline.com/ghdem/ (Emergency Management's Web Page)
EMWIN Intranet - Emergency Operations Center
NOAA Weather Radio - Astoria (162.400MHz), Olympia(162.475MHz), Mt. Octopus (162.425MHz), and at various locations throughout the County.
Local Alert Broadcast System - (StormWeb)
Cable TV
Telephone, Pagers, e-mail, radio frequencies
<i>List any additional capabilities on a separate sheet if necessary</i>

Local Warning Dissemination		
Dissemination Means		
Communications Center Radio Broadcast (Microwave and Radio Frequencies)		
Fax Dissemination (Police, Fire, Public Works, Cities, Tribes, Utilities, Red Cross)		
E-mail Dissemination (Police, Fire, Public Works, Cities, Tribes, Utilities, Red Cross)		
County Owned Telephonic Warning System		
Ocean Shores Police (OS) Patrol Vehicles with Loud Speakers Local Radio System (KAYO 1320 AM; KSWW 102.1 FM) Local Cable System (Coast Cable Systems ~ Ocean Shores)		
<i>List any additional capabilities on a separate sheet if necessary</i>		
Local Government Owned Buildings with Public Access		
Building	Location	Tone Alert NOAA Weather Radio
OS City Hall	765 Point Brown Ave.	X Yes <input type="checkbox"/> No
OS Library	537 Point Brown Ave.	X Yes <input type="checkbox"/> No
OS Police Department	577 Point Brown Ave.	X Yes <input type="checkbox"/> No
OS Fire Department	676 Point Brown Ave.	X Yes <input type="checkbox"/> No
OS Convention Center	120 Chance A La Mere	X Yes <input type="checkbox"/> No
OS Elementary School	300 Mt Olympus	X Yes <input type="checkbox"/> No
North Beach Jr/Sr High School	336 SR 115	X Yes <input type="checkbox"/> No
<i>List any additional capabilities on a separate sheet if necessary</i>		

Community Preparedness
Number of Awareness Presentations <i>(Indicate Topic, Location, and Presenter)</i>
All Hazards, warning and preparedness, Lions Club - Karin Frinell-Hanrahan
All Hazards, warning and preparedness, Evergreen Counseling Service - Karin-Hanrahan
Premier of Tsunami Inundation Maps and Evacuation routes, Ocean Shores Convention Center - State and Local warning Group.

<i>List any additional capabilities on a separate sheet if necessary</i>
--

Other Community Preparedness Activities <i>(Indicate Activity, Location, and Organizer)</i>
Tsunami Information Display at Ocean Shore Interpretive Center (Grays Harbor Emergency Management)
Development and distribution of brochures for Hotels and business regard tsunami and how to prepare in Grays Harbor. (Grays Harbor Emergency Management, Washington State Emergency Management)
Development and distribution of Tsunami brochures for Grays Harbor and Pacific Counties (Grays Harbor DEM and State and Local Tsunami Working Group)
Distribution of preparedness information materials to local residents and tourists. (City of Ocean Shores and Grays Harbor Emergency Management)
Police Department written procedures for evacuations
Tsunami Interpretive signs at the Convention Center and Beach Approaches. (Grays Harbor DEM and State and Local Tsunami Working Group)
<i>List any additional capabilities on a separate sheet if necessary</i>

Other Community Preparedness Activities	
Are tsunami evacuation areas & evacuation routes posted?	X Yes <input type="checkbox"/> No
Has a tsunami shelter/area been designated outside the hazard zone?	X Yes <input type="checkbox"/> No
Has a written tsunami information been provided to the public, including:	X Yes <input type="checkbox"/> No
▶ Hazard zone maps	X Yes <input type="checkbox"/> No
▶ Basic tsunami information	X Yes <input type="checkbox"/> No
▶ Evacuation Routes	X Yes <input type="checkbox"/> No
Do Schools have:	
▶ Biennial tsunami awareness presentations?	X Yes <input type="checkbox"/> No
▶ Earthquake plan?	X Yes <input type="checkbox"/> No
▶ Written safety material for students and staff?	X Yes <input type="checkbox"/> No
▶ Evacuation drills if located in a hazard area? NA	X <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>

TsunamiReady

<i>List any additional safety talks on a separate sheet if necessary</i>

TsunamiReady : Site Visit & Review Appendix B

Applicant: City of Ocean Shores, Grays Harbor, Washington
Contact: Karin Frinell-Hanrahan Phone: 360.249.3911
Population: 3,836
NOAA Weather Radio Coverage: Yes - Mt. Octopus, Olympia, Astoria

Date(s) of Visit via Teleconferencing: June 2001

Site Visit Team: Karin Frinell-Hanrahan, Deputy Director EOC; Ted Buehner, Warning Coordination Meteorologist; T.J. Sokolowski, GIC, WC/ATWC

24 Hour Warning Point

24 Hour Warning Point Location:
 Grays Harbor Central Communications, PO Box 1845, Aberdeen, WA 98520 - GH Community Hospital

NWS Information Reception

Local Warning Dissemination

Number Required: ----4----
 Total: ----8----

Number Required: ----2----
 Total: ----7----

NOAA Wx Radio ----x----
 NOAA Wx Wire -----
 EMWIN ----x----
 State-wide dissemination ----x----
 Pagers -----
 Television ----x----
 Radio ----x----
 NAWAS ----x----

Outdoor Warning Sirens -----
 Cable TV Override ----x----
 Plan for sirens on emergency vehicles ----x----
 Local Alert Broadcast System ----x----
 Local Pager System -----
 Telephone Tree to Critical Facilities ----x----
 Coordinate Area-Wide Radio Network ----x----

Other: Internet _____ Other: Fax & Email
Telephone, Pagers, radios, e-mail _____

Written plan gives authority to Warning Point Personnel to activate warning system: Yes No

Additional Notes:

TsunamiReady : Site Visit & Review Appendix B

Community NWR-SAME Program

TsunamiReady recognition requires that Tone Alert capable NOAA Weather Radio Receivers be placed in local government owned buildings that have public access, if NOAA Weather Radio coverage is adequate.

Local Government Owned Buildings with Public Access		
Building	Location	Tone Alert NOAA Weather Radio
OS City Hall	765 Point Brown Ave.	X Yes <input type="checkbox"/> No
OS Library	537 Point Brown Ave.	X Yes <input type="checkbox"/> No
OS Police Department	577 Point Brown Ave.	X Yes <input type="checkbox"/> No
OS Fire Department	676 Point Brown Ave.	X Yes <input type="checkbox"/> No
OS Convention Center	120 Chance A La Mere	X Yes <input type="checkbox"/> No
OS Elementary School	300 Mt Olympus	X Yes <input type="checkbox"/> No

North Beach Jr/Sr High School	336 SR 115	X Yes <input type="checkbox"/> No
Emergency Operational Center (EMWIN-Internet access)	310 W Spruce Street POB 630 Montesano, WA 98563	X Yes <input type="checkbox"/> No
<i>List any additional capabilities on a separate sheet if necessary</i>		

Has the community developed a program to subsidize the purchase of Specific Area Message Capable NOAA Weather Radios for its citizens? Yes No
If yes, provide details:

TsunamiReady : Site Visit & Review Appendix B

Preparedness

Public education is vital in preparing citizens to respond properly. TsunamiReady recognition requires a population-based number of community safety talks during a year.

Preparedness Talks	Number Required <u> 2 </u>	Total <u> 3 </u>
Date(s)	Location	Topics Covered
Winter 2000 - 20001	Lions Club, Aberdeen and Hoquiam (various locations for this organization)	All hazards
Winter 2000 - 2001	Evergreen Counseling Service Go about every other month to discuss emergency management planning.	All hazards
October 1999	Ocean shores convention Cntr	Tsunami inundation maps and evacuation routes
Attach Separate Sheet for Additional Space		

Evacuation areas and routes posted ?	X Yes <input type="checkbox"/> No
Tsunami shelter/area outside of the hazard zone?	X Yes <input type="checkbox"/> No
Public Information available? Does it include: All Hazards information including earthquake and tsunami	X Yes <input type="checkbox"/> No
Hazard zone map?	X Yes <input type="checkbox"/> No
Basic Tsunami information?	X Yes <input type="checkbox"/> No
Evacuation zone routes?	X Yes <input type="checkbox"/> No
<u>Do schools have:</u> Tsunami awareness presentations? Written safety material provided to students and staff? Earthquake plan?	fl Yes <input type="checkbox"/> No fl Yes <input type="checkbox"/> No fl Yes <input type="checkbox"/> No
Is school within defined hazard zone? If, yes - Drills?	fl Yes <input type="checkbox"/> No <input type="checkbox"/> NA

TsunamiReady : Site Visit & Review Appendix B

Administration

Formal planning and administration is a part of the TsunamiReady Recognition.

Written Hazardous Tsunami Plan in place?	X Yes <input type="checkbox"/> No
If yes, does it cover the following:	
Warning Point Procedures?	X Yes <input type="checkbox"/> No
EOC Activation?	X Yes <input type="checkbox"/> No
Criteria for local warning system activation/cancellation?	X Yes <input type="checkbox"/> No
Hazard zone map with evacuation routes to a safe area?	X Yes <input type="checkbox"/> No

Annual tsunami warning exercise/drill- date: Nisqually quake - Feb 28, 2001

Annual visit by emergency manager to National Weather Service Office:

February 2001 to National Weather Service Seattle Office

Visit by National Weather Service Official to community at least every other year:

December 2000, Cosmopolis, training and liaison meeting.

Comments: WC/ATWC and NWS WCM have an excellent working relationship with the Grays Harbor County Emergency Services. The Deputy Director EOC is active concerning all hazards affecting her area of responsibility as indicated by this review. This review will be conducted again in two years from the date of signing.

Site Verification Team Member

Date

